

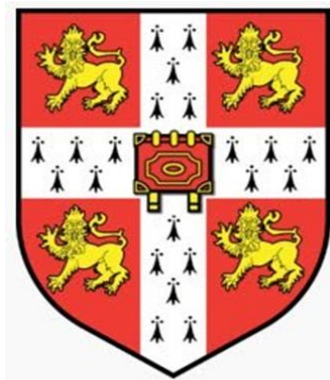
**A matter of costs and benefits?**

**The role of morality, legitimacy and self-control as moderators of the link between rationality and youth delinquency in Uruguay**

**Nicolás Trajtenberg**

**Sidney Sussex College**

**Dissertation submitted to the University of Cambridge in candidacy for the  
Degree of Doctor of Philosophy**



**Institute of Criminology, University of Cambridge**

**Supervised by Professor Manuel Eisner**

**October 2016**

# Declaration

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except where specifically indicated in the text.

This dissertation, including footnotes, does not exceed the permitted length.

It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text

Signed..... Date.....

## Acknowledgements

In a distant land many years ago, there lived a black sheep. It was executed by firing squad. A century later, the grieving flock erected an equestrian statue in honour of the slain sheep that looked very nice in the park. In the years that followed, every time a black sheep appeared, it was executed so that ordinary sheep could practise sculpture

**Augusto Monterroso**

In many ways I felt out of place at the University of Cambridge. From the beginning I felt like an insignificant and ignorant intruder not good enough to be in such a prestigious academic institution full of well-known professors and talented students from all around the world. I was also completely lost in an impenetrable Kafkaian world full of rules and paperwork. After only one week in Cambridge I realised that had no chance of surviving both the academic and formal challenges. Four years later, I still do not understand how University of Cambridge's filter failed and let me in. Maybe the best complement to this University is that it is such a successful educative machine that even the ugliest duckling can be transformed into a swan. However, despite this well-oiled machine, without the support of some people this completing PhD would not have been possible.

First, I am grateful to my supervisor, Professor Manuel Eisner. Working with Manuel has been a wonderful (and also painful) theoretical and methodological challenging experience. He was a particularly unusual supervisor. His joy, enthusiasm, and true love for knowledge were highly motivational. His interdisciplinary approach was inspiring and helped me to escape beyond the boundaries of criminology. I specially valued his lack of British politeness in the sense that he was always willing to annihilate work that did not conform with his high standards of theoretical and methodological rigour. He was a rock throughout all these years providing me with insightful and detailed comments of my work. His help in obtaining funding was crucial to my stay in Cambridge and the completion of this PhD. Finally, Manuel showed extraordinary patience and

saved my neck several times whenever I failed to fulfil the countless rules and bye laws set out by the University.

For financial support I am also indebted to the National Agency of Research and Innovation, the Social Science Research Council, Sidney Sussex College, the Optimus Foundation, and the Institute of Criminology at the University of Cambridge.

The completion of this PhD required the administration of a large survey in Montevideo, Uruguay and without the help of several individuals this would not have been possible. Andres Peri from the National Administration of Public Education (ANEP) with his enthusiasm and tenacity was decisive in helping to overcome several obstacles. Santiago Cardozo, also from ANEP, helped with the design of the survey sample. I am particularly thankful to Denis Ribeaud from Swiss Federal Institute of Technology (ETH). He played a key role in helping me with the methodological strategy and the design of the questionnaire promptly answering all of my countless bothersome emails. Veronica Sardon did a great work translating the questionnaire. Conducting the survey would have been impossible without Pablo Menese. He was a terrific fieldwork manager and also did an amazing job cleaning the data set. I am also very thankful to all the data collectors and typewriters who worked in the m-proso survey. Their dedication and professionalism were exemplary. I would also like to thank all the students, directors and teachers of the schools in Montevideo for receiving the m-proso team with good will and enthusiasm.

I want to thank Dr. Elena Vigorito, Dr. Alex Sutherland and Dr. Jan Zirk-Sadowski for their help and suggestions regarding quantitative methodology, statistics and psychometric issues. Elena also was a great friend who received me in her house in Sawston when I had nowhere to go and put up with my annoying presence for almost a year. I am grateful to my reviewers of the first year review for their helpful comments, Prof. Lawrence Sherman and Prof. P.O.

Wikstrom. I am also grateful to the examiners, Prof. Paolo Campana and Prof. Kofi Boakye. The discussion and their comments in the VIVA were very useful to improve the final version of the dissertation.

I would also like to thank my friends from the critical criminology crew in the Netherlands and in the UK: Damian Zaitch, Roger Matthews and Phil Carney. Despite detesting my positivistic guts, we had several useful theoretical and methodological discussions.

I also want to thank those PhD students who although are posh kids from privileged families in Latin America and are studying in one of the most exclusive universities in the planet, talked like they were factory workers about to do the Marxist revolution. To all those facebook Che Guevaras, thanks for showing me so clearly where the wrong way is.

I am very thankful to my family and all my friends. My parents Raul and Isabela are not here anymore but they played a crucial role in my life. They always encouraged me to pursue my dreams no matter how crazy or out of reality they looked like. My two brothers (Guille and Felipe) and my friends supported all the way even though do not even understand what I do, and even worse, when most of them think that the best solution to the youth crime problem is to throw napalm bombs in slums and shantytowns. In Uruguay, Fede, Gaboto, Pato, Nico, Nati, Ceci, Maju, Fabri, Anibal, Pablo, Emiliano, Clara and Ana. In Spain, Campi, Silvi, Majo, Polaco, Pablo, Diego. In England Angela, Malte, Tiago, Thomas, Cata, Javi and Sami. They all helped me to take my mind off research and enjoy life. Last but not least, thanks to Cambridge I met Olga, one of the most moral, courageous and witty human beings in the universe. Without her love, support and sense of humour I would have killed everybody in Cambridge.

## Summary

The question about the rationality of crime and violence is not only a controversial issue but also has strong policy implications. Despite the large number of rationality studies in criminology, there is little empirical evidence on how rationality can be moderated by non-rational mechanisms. Additionally, many studies examining the influence of rational choice on crime suffer from several methodological problems associated with small and biased samples, limitations of the dependent variable, varying operationalizations of rationality, and scarce inclusion of validated non-rational causal mechanisms. Finally, there is a lack of cross-cultural validity of rational and non-rational predictors of crime since most studies have been conducted in high-income societies. Little research has examined how well these explanations can fit the socio-economic, cultural and institutional characteristics of the Latin-American context.

The goal of this study was to examine a rational choice model of crime and its interactions with three well known non-rational causal mechanisms in criminology: morality, legitimacy and self-control. The study involved the application of a survey on 2,204 9<sup>th</sup> grade youths from a representative sample of high schools in a middle income society in Latin America: Montevideo, Uruguay. The questionnaire was an adaptation of the Zurich Project on the Social Development of Children Study. The analysis was conducted using count regression models including principal and interaction effects based on a hierarchical or blockwise entry method.

Results indicated that rationality plays a robust but modest explanatory role even after including socio-demographic variables and the three non-rational predictors. Rational choice theory was supported as a general theory that accounts not only for general crime but also for property and violent crimes. Additionally, rationality had stronger effects than two of the other three non-rational mechanisms: legitimacy and morality. Different dimensions of rationality

were examined. Analyses showed that inner costs and peer reactions have significant associations with all types of youth crime, whereas formidability, parents' reactions and police reactions did not. Finally, the analysis of interactions suggested that the link between rationality and youth crime is mostly unaffected by self-control as a moderator, and moderately conditioned by legitimacy and morality, particularly the latter. Findings, although provisional in Latin-American context, may provide new insights for future research in rational and non-rational mechanisms of youth crime. Research and policy implications of these findings are discussed.

## Glossary of abbreviations

ANEP	Administración Nacional de Educación Pública (National Administration of Public Education)
CETP	Escuelas Técnicas del Consejo de Educación Técnico Profesional (Technological Schools)
ECH	Encuesta Continua de Hogares (Continuous Household Survey)
FUNDAPRO	Fundación Propuestas del Partido Colorado (Foundation Proposals)
KFN	<i>Kriminologisches Forschungsinstitut Niedersachsen</i>
m-proso	<i>Zurich Project on the Social Development of Children Study – Uruguay chapter: Montevideo Survey</i>
INE	Instituto Nacional de Estadística (National Institute of Statistics)
IRR	Incidence Risk Ratio
ISRD	International Self-Report Delinquency Study
MIDES	Ministerio de Desarrollo Social (Ministry of Social Development)
OLS	Ordinary Least Squares
OPP	Oficina de Planeamiento y Presupuesto (Office of Planning and Budget)
PISA	Program for International Student Assessment
RED	Response Evaluation and Decision Model
RGC	Research-generated-consequences hypothetical scenarios
SAT	Situational Action Theory
SGC	Subject-generated-consequences hypothetical scenarios
SIP	Social Information Theory
UNODC	United Nations Office on Drugs and Crime
VPC	Variance Partitioning Coefficient
WEIRD	Western, educated, industrialised, rich, and democratic
WHO	World Health Organization
z-proso	<i>Zurich Project on the Social Development of Children Study</i>



## Table of Contents

Acknowledgements .....	ii
Summary .....	v
Glossary of abbreviations .....	vii
List of Tables.....	xii
List of Figures .....	xv
Introduction.....	1
<b>Chapter I. Rationale of this study .....</b>	<b>11</b>
I.a. Relationships between rationality, morality, legitimacy and self-control .....	12
I.b. Research in Latin America .....	19
Rationality studies in Latin America.....	20
Studies on morality, legitimacy and self-control in Latin America.....	26
Criminological causal mechanisms and cultural variability.....	29
I.c. The need for research to inform policy-making in developing societies.....	31
Summary.....	34
<b>Chapter II. Theoretical framework .....</b>	<b>37</b>
II.a. Rational mechanisms .....	39
<i>II.a.i. The strict neoclassical model of rationality.....</i>	<i>39</i>
<i>II.a.ii. Problems around the strict rationality model.....</i>	<i>46</i>
<i>II.a.iii. Criminological models of rationality based on micro-individual data and perceptual measures.....</i>	<i>51</i>
<i>II.a.iii. Rational evaluation of costs from a psychological perspective: the social information processing model.....</i>	<i>60</i>
<i>II.a.iv. Formidability: perception of fighting abilities and aggression.....</i>	<i>62</i>
II.b. Non-rational mechanisms.....	64
<i>II.b.i. Morality.....</i>	<i>64</i>
<i>II.b.ii. Legitimacy.....</i>	<i>75</i>
<i>II.b.iii. Self-control.....</i>	<i>82</i>
II.c. Research questions and hypothesis .....	90
Summary.....	94

<b>Chapter III. Youth crime in Uruguay: sources of data, studies and policies</b>	<b>100</b>
.....	
III.a. The social situation of adolescents .....	101
III.b. Data sources and characterisation of violence and youth crime .....	102
III.c. Recent studies on juvenile crime and violence in Uruguay .....	114
III.d. Recent studies on school violence in Uruguay .....	117
III.e. Justice system and recent policy regarding youth violence and crime .....	119
III.f. Summary.....	128
<b>Chapter IV. Methodology.....</b>	<b>130</b>
IV.a. Target population, sampling and sample size .....	130
IV.b. Ethics.....	134
IV.c. Data collection, participation rates.....	135
IV.d. Representativeness of the sample .....	138
IV.e. Data management and coding .....	139
IV.f. Questionnaire translation and adaptation.....	140
IV.g. Methodological designs used to measure rationality in criminology studies.....	144
IV.h. Measurement of variables .....	150
<i>IV.h.i. Control variables .....</i>	<i>150</i>
<i>IV.h.ii. Independent variables I: rationality .....</i>	<i>152</i>
<i>IV.h.iii. Independent variables II: Morality .....</i>	<i>167</i>
<i>IV.h.iii. Independent variables IV: legitimacy.....</i>	<i>169</i>
<i>IV.h.iv. Independent variables IV: self-control.....</i>	<i>171</i>
<i>IV.d.iii. Dependent variables.....</i>	<i>175</i>
IV.e. Analytical strategy.....	179
IV.f. Clustered data .....	180
IV.g. Missing values .....	181
IV.h. Skewed nature of the dependent variable: use of count models.....	183
IV.i. Summary.....	189
<b>Chapter V. Empirical results .....</b>	<b>194</b>
V.a. Preliminary analysis of multicollinearity .....	195
V.b. Main effects of rationality, morality, legitimacy and self-control .....	196
V.c. The importance of matching scenarios with dependent variables .....	200
V.d. Relative explanatory role of sub-dimensions of rationality .....	202

V.e. Interactions between formal costs associated with the police and informal costs/benefits associated with parents and peers.....	206
V.f. Interactions between criminal peers and informal costs and benefits .....	208
V.g. Opportunities for crime.....	209
V.h. Benefits, costs and opportunity costs .....	212
V.i. Interactions between rationality and morality.....	215
V.j. Interactions between rationality and legitimacy .....	219
V.k. Interactions between rationality and self-control.....	223
V.l. summary .....	225
<b>VI. Discussion .....</b>	<b>228</b>
Introduction: summing up .....	228
1. Is rationality relevant? .....	231
2. How relevant is rationality?.....	233
3. Breaking down rationality (I): what sub-dimensions are more relevant? .....	237
<i>Informal and formal reactions</i> .....	237
<i>Family and peer reactions</i> .....	239
<i>Inner costs</i> .....	241
<i>Formidability</i> .....	243
4. Breaking down rationality (II): rewards, losses, opportunity costs, and opportunities.....	244
<i>Rewards and costs</i> .....	245
<i>Opportunity costs</i> .....	246
<i>Criminal opportunities</i> .....	246
5. What about the explanatory effect of non-rational mechanisms?.....	248
6. Interactions between rational and non-rational mechanisms .....	251
7. Measuring non-rational motivations in criminology: the case of morality.....	255
8. Rationality in criminology: two challenges .....	260
<i>Construct validity</i> .....	261
<i>Internal validity</i> .....	264
Summary.....	266
<b>VII. Overview, limitations and implications .....</b>	<b>271</b>
1. Overview .....	271
2. Strengths and Limitations.....	273
3. Research implications for Latin America.....	277

4. Policy implications for Latin America .....	280
<b>References .....</b>	<b>282</b>
<b>IX. Appendixes .....</b>	<b>334</b>

## List of Tables

<i>Table 1. Sampling frame and scenarios for the definition of the sample size ...</i>	132
<i>Table 2. Definition of sample of groups in private high schools .....</i>	133
<i>Table 3. Definition of sample of groups in public high schools.....</i>	133
<i>Table 4. Definition of sample of groups in CETP centres.....</i>	134
<i>Table 5. Distribution across school types in target population and sample.....</i>	139
<i>Table 6. Main thematic domains covered by the m-proso questionnaire .....</i>	142
<i>Table 7. Distribution of control variables .....</i>	151
<i>Table 8. Distribution of scenario items: feelings about committing a crime.....</i>	155
<i>Table 9. Distribution of scenario items: feelings about the wrongfulness of crime .....</i>	155
<i>Table 10. Distribution of scenario Items: certainty of sanctions .....</i>	156
<i>Table 11. Distribution of scenario items: severity of sanctions I.....</i>	156
<i>Table 12. Distribution of scenario items: severity of sanctions II.....</i>	157
<i>Table 13. Distribution of items of perception of stature, strength and capacity to fight.....</i>	157
<i>Table 14. Distribution of perception of self-costs scales .....</i>	159
<i>Table 15. Distribution of perception of formidability scales .....</i>	160
<i>Table 16. Distribution of perception of peer costs and benefits scales .....</i>	160
<i>Table 17. Distribution of perception of parents costs and benefits scales.....</i>	161
<i>Table 18. Distribution of perception of police costs scales.....</i>	161
<i>Table 19: Distribution of perception of rationality global index scales.....</i>	162
<i>Table 20. Distribution of perception of crime benefit scales.....</i>	162
<i>Table 21. Distribution of perception of perception of crime costs scales.....</i>	163
<i>Table 22. Distribution of perception of crime informal costs and benefits scales .....</i>	164
<i>Table 23. Distribution of unsupervised activities items.....</i>	164
<i>Table 24. Distribution of unsupervised activities scale.....</i>	165
<i>Table 25. Distribution of parent monitoring items.....</i>	166

<i>Table 26. Distribution of parent monitoring scale</i> .....	166
<i>Table 27. Distribution of opportunity costs items</i> .....	167
<i>Table 28. Distribution of opportunity costs scale</i> .....	167
<i>Table 29. Distribution of morality items</i> .....	168
<i>Table 30. Distribution of morality scale</i> .....	169
<i>Table 31. Distribution of legitimacy items</i> .....	170
<i>Table 32. Distribution of legitimacy scale</i> .....	171
<i>Table 33. Distribution of self-control items</i> .....	173
<i>Table 34. Distribution of self-control scale</i> .....	174
<i>Table 35. Distribution of crime and deviance items</i> .....	175
<i>Table 36: Distribution of crime and deviance scale</i> .....	176
<i>Table 37: Distribution of property offending scale</i> .....	177
<i>Table 38: Distribution of violent offending scale</i> .....	178
<i>Table 39: Effects of rationality, morality, legitimacy and self-control</i> .....	186
<i>Table 40: Interaction effects of morality over rationality</i> .....	187
<i>Table 41: Simulation of scenarios</i> .....	187
<i>Table 42: First and third quartiles of medians of rationality and morality</i> .....	188
<i>Table 43: Effects of rationality, moral beliefs, legitimacy and self-control on crime,</i> .....	199
<i>Table 44: Effects of rationality, morality, legitimacy and self-control on crime,</i> <i>property crime and violent crime (without control variables)</i> .....	200
<i>Table 45: Effects of rationality, morality, legitimacy and self-control on crime,</i> <i>property crime and violent crime (without control variables) using the not</i> <i>suited scenarios</i> .....	202
<i>Table 46: Effects of the sub-dimensions of rationality on crime, property crime</i> <i>and violent crime</i> .....	205
<i>Table 47: Interaction effects of informal costs and benefits</i> .....	207
<i>Table 48: Interaction effects of criminal peers on relationship between informal</i> <i>costs and crime</i> .....	207
<i>Table 49: Effects of parental monitoring and unsupervised activities on crime,</i> <i>property crime and violent crime</i> .....	211

<i>Table 50: Regression coefficients representing the effects of benefits, costs,..</i>	214
<i>Table 51: Interaction effects of morality on the association between rationality and crime</i> .....	218
<i>Table 52: Interaction effects of legitimacy on the association between rationality and crime</i> .....	222
<i>Table 53: Interaction effects of self-control on the association between rationality and crime</i> .....	224
<i>Table 54: Correlations among variables</i> .....	334
<i>Table 55: Variance inflation and tolerance</i> .....	335

## List of Figures

<i>Figure 1: Direct effect of rationality and non-rational causal mechanisms</i> .....	13
<i>Figure 2: Interaction effects of non-rational causal mechanisms</i> .....	13
<i>Figure 3: Proportional distribution of homicide rates in 2012</i> .....	32
<i>Figure 4: Rationality</i> .....	43
<i>Figure 5: Macro-micro connections</i> .....	49
<i>Figure 6: Non-rational morality vs. rational morality</i> .....	73
<i>Figure 7: Tyler and colleagues' legitimacy model</i> .....	80
<i>Figure 8: Tankebe's legitimacy model</i> .....	81
<i>Figure 9: Outline of juvenile criminal proceedings</i> .....	105
<i>Figure 10: Children and adolescents aged 11-17 detained by police</i> ,.....	106
<i>Figure 11: Evolution of cases of adolescents in conflict with criminal law in Uruguay, 2008-2012</i> .....	107
<i>Figure 12: Rate of cases opened that involved adolescents per 1,000 residents aged 13-17 in Uruguay, 2008-2012</i> .....	107
<i>Figure 13: Criminal cases opened against adults and adolescents (left axis) and percentage of adolescent criminal cases (right axis) in Uruguay, 2009-2012</i> .....	108
<i>Figure 14: Structure of crimes in cases involving adolescents</i> .....	109
<i>Figure 15: Adolescents detained in SIRPA-INAU homes in Uruguay, 2009-2014</i> .....	110
<i>Figure 16: Distribution of crime and deviance scale</i> .....	177
<i>Figure 17: Distribution of property offending scale</i> .....	178
<i>Figure 18: Distribution of violent offending scale</i> .....	178
<i>Figure 19: Interaction effects of morality over rationality (expected utility)</i> .....	188
<i>Figure 20: Interaction effects of criminal peers over informal costs and benefits</i> .....	209
<i>Figure 21: Interaction effects of morality over rationality (expected utility) for general crime and deviance</i> .....	216



*Figure 22: Interaction effects of morality over self-costs (expected utility) for  
general crime and deviance.....* 217

*Figure 23: Interaction effects of legitimacy over rationality (expected utility) ....* 220

*Figure 24: Interaction effects of legitimacy over parent cost/benefits (expected  
utility) .....* 221

## Introduction

*I would like to think that I am a nice person, but I don't know man...If murder was legal, I might have killed a few people...We really need the law against murder. For one simple reason. The law against murder is the number one thing preventing murder. We would like to think it is because of 'Oh, I would never do that'. No, it is because it really sucks getting caught murdering...If murder were legal there would be so much murder. Regular people would murder. Murderers would murder even more. And then really nice sweet people would murder a few people. But 'nobody' would murder no people. You wouldn't trust somebody who didn't murder if murder was legal. You wouldn't like them'*

*Louis C.K., American comedian*

Why we do not commit homicides, and, more generally, crimes and antisocial behaviours? Is it just because we do not want suffer the costs, as Louis C.K. claims, or is there something else going on? Is the explanation of why we would commit a crime just a matter of calculating if benefits outweigh costs? Or do we need to explore more deeply into complex and non-rational human motivations?

Rational explanation of human behaviour is a controversial issue. Whereas some economists have defended the idea of *economic imperialism*, that is, the superiority of rational decision making and the economic paradigm to explain human behaviour (Becker, 1993; Levitt & Dubner, 2005; Stigler, 1984), many social scientists have strongly opposed this economic paradigm (Bourdieu, 2005; Giddens, 1984; Swedberg, 1990). Even some economists have qualified the strict rationality model of man as close to a 'social moron' (Sen, 1977). More

recently, psychologists and neuroscientists have strongly challenged the idea that man can be rational. Multiple experiments conducted by psychologists have shown how individuals decide and behave unaware of being affected by multiple irrational forces such as emotions, cognitive biases, personality traits, social pressure, etc. (Ariely, 2010). Some argue that if reasons play any role in human behaviour is not as an *ex ante* guide to make better decisions but as *ex post* justifications and rationalisations of our acts (Haidt, 2012). Recent developments in neuroscience have also reinforced this idea of man as eminently irrational arguing that free will is just an illusion and men are merely, to use Harris (2012) words, 'biochemical puppets'. An example usually mentioned that illustrates our lack of decision is a new version of the *Phineas Gage case*: Michael, a middle-aged, married, normal American citizen with no previous arrests started out of nowhere to consume child pornography, and molest his young stepdaughter. Doctors decided to scan his brain and found he had a tumour on the base of the orbital frontal cortex. After a successful operation, this individual returned to normal life with his wife and stepdaughter. After some months, the tumour went back and Michael started having interest in child pornography again (Raine, 2013).<sup>1</sup> However, this image of men as fundamentally irrational has also been challenged. According to Paul Bloom, a well-known psychologist from Yale, there is a tendency in social psychology to overestimate the relevance of some small but interesting and statistically significant effects found in artificial settings (i.e. lab experiments). The fact that we were able to observe that in some specific domains there is a small proportion of variance explained by irrational effects<sup>2</sup> cannot lead us to undermine the idea of rationality in every dimension of human life. Additionally, irrational and counter-intuitive aspects of human thinking and acting are much more exciting and interesting for the public, the media, and

---

<sup>1</sup> Evolutionary anthropologist Joseph Henrich, famous for conducting cross-cultural economic experiments around the world, acknowledged that after several years of research he finally found a group that resembles the *homo economicus*. Who is this group that 'do not reject in the Ultimatum Game, do not punish in the Third Party Punishment Game', and do not show altruism or preoccupation for equity?: Chimpanzees! (Henrich, 2012).

<sup>2</sup> Bloom mentions an extreme example: the idea that parole decisions can be less likely if judges have not had been affected by the fact they had not had a lunch break (see Danziger, Levav, & Avnaim-Pesso, 2011).

academic journals. Therefore, it is a mistake to assume that what media and academic journals report is a representative sample of human behaviour (Bloom, 2014a, 2014b).<sup>3</sup>

Criminology is not an exception in the social sciences and the question about the rationality of crime or criminals is also contentious and has strong policy implications both for deontological and consequential reasons. On the one hand, according to the *Just Deserts* theory (Von Hirsch, 1998), rationality is a necessary precondition to hold the offender as fully responsible and guilty for their behaviour, and punish them to the full extent of law. On the other hand, the effectiveness of crime-prevention policies in the consequentialist - deterrence theory (Kennedy, 2010; Nagin, 2013b) is strongly dependent on individuals being capable of rationally evaluating the costs and benefits of breaking the law.

According to Matsueda, at present rational choice perspective is a minority position in criminology, a discipline historically ruled by sociologists and psychologists. The economic theory and research has not been fully integrated, and therefore, crime, violence and offenders tend to be described and explained as irrational, pathological and impulsive (Matsueda, 2013a). Although originally the rational choice model of crime was developed more than 250 years ago by Jeremy Bentham and Cesare Beccaria (Eide, 2000) it was formalised and developed by Gary Becker at the end of the 1960s. Since then the rational choice approach has been extensively applied but also questioned for being an abstraction that little resembles real criminal behaviour. However, the debate around the suitability of using rational models to explain crime involves two

---

<sup>3</sup> Or maybe the problem lies with an overly empiricist approach that applies automatically statistical explanations. Some criminologists might conclude that rationality has no effect on crime just because their tests show that rationality predictors proved to be statistically non-significant. However, maybe there is a small group of undetected *homo economicus* outliers hidden in our samples. This is not a remote possibility, especially considering that criminological studies tend to use small samples and usually lack *ex ante* power analysis tests. Therefore, we should not lose hope that maybe one day this small group of perfectly rational creatures will be found in...Tokyo? For example, Yamagishi and colleagues used a sample of 446 wealthy residents of a suburb of Tokyo and found that 7% of them showed results consistent with the behavioural definition of *homo economicus* (Yamagishi, Li, Takagishi, Matsumoto, & Kiyonari, 2014).

different types of disagreements: i) on conceptual or substantive issues, and ii) on methodological ones.

First, on substantive issues, despite the apparent simplicity of the rational choice model, there is no agreement on what exactly *rationality* means and therefore, in what ways crime can be produced by rational causal mechanisms or subverted by non-rational ones. Hechter & Kanazawa (1997) distinguish between *thin models* that are 'substantively empty' or 'unconcerned with particular values or goals' and 'based on a small number of strong assumptions'; and *thick models* that are 'substantively richer' and seek to 'specify individual values and beliefs' (1997:195, see also Little, 1991; Lawson, 2008; Kincaid, 1996). In criminology 'the word rational has multiple meanings' (Ward, Stafford, & Gray, 2006:571) and rational choice supporters defend diverse versions with different assumptions about human behaviour. Some distinguish between old and new rational choice theory (Akers, 1990; Felson, 2003) others speak of hard, medium and soft models (Tittle, Antonaccio, Botchkovar, & Kranidioti, 2010). More specifically, while some '*thin*' rational models of crime involve the isolated offender with optimal cognitive capacity to take self-interested decisions and maximise utility under perfect information and parametric scenarios (e.g. Becker, 1968; Ehrlich, 1975; Levitt, 1996; Mocan & Gittings, 2006), many variants of less strict or '*thick*' versions of rationality have been developed in recent decades through relaxing different assumptions of the model. Modified assumptions include: the presence and influence of other actors such as peers, family, and teachers (e.g. Clarke & Cornish, 1986; Paternoster, 1989b) goals which are no longer exclusively economically oriented and involve intangible benefits such as status among peer group, sexual gratification, excitement/fun) (e.g. Bachman, Paternoster, & Ward, 1992; Bouffard, 2007); informal sanctions, social disapproval, and emotional states (e.g. Grasmick & Bursik, 1990); perceptual defects, imperfect processing of information, myopia, hyperbolic preferences, etc. (e.g. Clarke & Felson, 2004; Pogarsky & Piquero, 2003; Loughran, Paternoster, & Weiss, 2012); or personality traits (e.g. Nagin & Paternoster, 1993; Tittle & Botchkovar, 2005b). Even

opponents of rational choice models not only are imprecise in relation to what rationality is and what its limits are (Farrell, 2010), but as well they implicitly include causal mechanisms that resemble those assumed in rational choice models. For example, although cultural criminology (e.g. Ferrell, Hayward, & Young, 2015; Young, 2007) questions the rational choice model's incapacity to deal with the 'irrational dimension' of deviance, one of its main explanatory mechanisms involves individuals instrumentally choosing crime as a means to express emotions and identity, and to feel excitement.

Strict rationality models have been criticised due to their unrealistic assumptions about the nature of human criminal behaviour (Akers & Sellers, 2012; Gottfredson & Hirschi, 1990; Young, 2004). However, more realistic models are not without problems. First, soft versions of rational choice models might be indiscernible from non-rational choice criminological theories, making it difficult to empirically determine if data supports the former or the latter (Akers, 1990; Gibbons, 1994). For example, according to Akers (1990) concepts such as 'affective ties' or 'informal sanctions' overlap with social control and social learning theories. However, other authors such as Paternoster & Simpson, (1996) or Williams & Hawkins (1986) disagree and find it unnecessarily restrictive for deterrence theory to limit empirical tests for fear of legal sanctions. Additionally, 'catch all' models of rationality that involve an ample diversity of elements tend to lose analytical precision, and therefore are hard to falsify empirically, and might even become a tautological exercise. No matter what individuals do or how they do it, it is always possible to find a way to interpret actions as rational (Akerlof, 1990; Goldthorpe, 1998; Hirschman, 1990; Rosenberg, 2008). Finally, there is concern in relation to the suitability of integrating concepts from different theoretical frameworks with contradictory assumptions (Hirschi, 1979; Thornberry, 1989). For example, how adequate is it to allow heterogeneity and causal relevance of motivational states under a rational choice framework, and particularly, is it possible to combine rationality with non – rational components such as values, morality, or even emotions?

Second, as regards methodological issues, another matter of controversy consists of how we demonstrate empirically the presence of rationality as an explanatory property of crime. Studies that defend strict versions of the rationality of crime use ecological or macro-level studies and identify connections between the evolution of aggregated crime rates and sanctions across time and societies (e.g. Becker, 1968; Ehrlich, 1977; Katz, Levitt, & Shustorovich, 2003; Hjalmarsson, 2009). However, the use of objective measures, the disregard for testing the micro-foundations, and the radical instrumentalism focused on prediction, raised serious doubts about its validity as an explanation of crime, and as an adequate empirical test of rationality. Partially as a response, a large number of individual-level or micro-level studies<sup>4</sup> based on perceptual measures were conducted to test rationality assumptions in recent decades (Piliavin, Gartner, Thornton, & Matsueda, 1986; Paternoster, 1989b; Grasmick, Tittle, Bursik, & Arneklev, 1993; Kleck, Sever, Li, & Gertz, 2005; Matsueda, Kreager, & Huizinga, 2006). However, even among this type of studies there are still disagreements towards the conceptualisation and measurement of rationality. Not only there are large differences in the type of dimensions included in the construct of rationality. But also, there is great variance in the type of methodological design used: cross-sectional, longitudinal, hypothetical scenarios and experiments.

Therefore, arguing about the relevance of rationality to explain crime requires tackling both challenges. On the one hand, the *conceptualising* of rationality needs to avoid either strict rationality definitions based on extreme assumptions about human beings that do not exist; or ambiguous and catch-all definitions that try to integrate non-rational causal mechanisms and fail to discriminate adequately rationality from irrationality. On the other hand, methodologically, rationality statements should be empirically evaluated at the

---

<sup>4</sup> I will consider interchangeable these two terms: micro-level and individual-level. They both refer to those studies that use models that are specified at the micro level and therefore seek to connect individual experiences with individual outcomes (Coleman, 1990; Matsueda, 2013).

right level of analysis, that is the micro level, rather than being indirectly inferred from associations between aggregated level data.

In this dissertation I will seek to use an individual level data set from Uruguay, Latin America to test a rational choice model of crime and its interactions with three non-rational causal mechanisms that have received much theoretical and empirical attention in recent years in criminology: morality, legitimacy and self-control. What is and what is not rational is a matter of controversy.<sup>5</sup> In its most simple form, rationality involves a teleological or consequentialist motivation: means finding the most efficient way to achieve actors' goals. More specifically, It usually also involves choosing that course of action that maximizes actors' utility. Thus, non-rational motivations have a non – utilitarian nature. Following Nagin and Paternoster's classification between 'population heterogeneity' and 'state dependences' approaches (Nagin & Paternoster, 2000; see also Eisner & Malti, 2015), in this PhD dissertation I will include two types of non-rational causal mechanisms. On the one hand, I include two state dependence or more contingent causal mechanisms such as morality and legitimacy. In both cases, actors' motivation to comply with law is not to maximise utility, but rather it is because they wish to be a good person and find crime as intrinsically wrongful (morality); or it is because they believe in the authority and rule of law (legitimacy). On the other hand, I include one population heterogeneity or more stable causal mechanism: a personality trait called self-control. Actors deviation is non rational and is associated to a visceral incapacity to self-restrain themselves.

This dissertation is organised in seven parts. In the first chapter I will argue why this study is relevant. One main reason is that research that simultaneously includes the four theoretical mechanisms and its interactions is limited and it suffers methodological limitations. Particularly, there is little empirical evidence in criminology on how rationality can be moderated and intervened by non-rational

---

<sup>5</sup> In the second chapter I will discuss this issue in depth.



mechanisms. Additionally, one of the most notorious aspects of criminological theory is the lack of cross-cultural validity. Most empirical testing has been done in high and middle-income societies, such as the US and Europe. Furthermore, the high concentration of crime and violence in low-income societies, particularly in Latin America, together with the lack of research, constitutes another reason for developing studies in these settings that can inform how to transport and adapt policies in order to obtain success in a different and much more complex scenario.

The second chapter will describe the theoretical framework. First I will describe the neoclassical model of rationality, its central assumptions, and some reasons why despite their lack of realism they are so extensively used. Nevertheless, I will counter argument these reasons showing several relevant unsolved problems of this type of models. Then I will describe the less strict models of rationality based on individual level data and perceptual measures and discuss the empirical evidence about its main dimensions. Next, I will review some recent developments in behavioural psychology and their inclusion of cost/benefit evaluation of antisocial and aggressive behaviours. I will focus on three non-rational causal mechanisms, namely morality, legitimacy and self-control. I will discuss their conceptualization, operationalization, and argue about what is their non-rational component, challenging alternative views that argue that they are also rational causal mechanisms. I will go on showing the empirical evidence regarding how these three irrational mechanisms explains crime both through direct and interaction effects (with rationality). I will end this section describing what are the key research questions and hypothesis.

The third chapter will provide a thorough analysis of the youth crime situation in Uruguay.<sup>6</sup> I will first characterise the type of data sources existent in Uruguay and its problems, and describe recent trends in youth crime and

---

<sup>6</sup> Throughout the PhD dissertation I will use interchangeably the terms 'youths', 'adolescents' and 'teenagers' to refer to those persons that have already abandoned childhood but are adults yet (between 12 and 18 years old).

violence. I will also review the academic literature and the empirical research on youth antisocial behaviour, violence and crime. Finally, I will describe the youth criminal justice system, crime prevention programmes, and the current debate about adolescents' rationality and the increase of penal sanctions, to provide a broader context for the analysis that is carried out in this study.

The fourth chapter is about the methodology of the dissertation. I will first describe the target population and sampling strategy. Then I will discuss ethical issues, how access to schools was negotiated and youths, and the details about how the survey was administrated. Here I will also describe the representativeness of the sample and the process of data cleaning and data entry. Then I will describe how the questionnaire was developed and adapted to Uruguay. I will also include a special section regarding main ways of measuring rationality in criminological research. Afterwards, I will describe the key independent and dependent variables used in this study and the reliability and empirical distribution of key scales. The final sections of this methodological chapter will describe the analytical strategy used, and how I dealt with three key issues: missing values; the clustered nature of data; and the skewed distribution of the dependent variable, and particularly the relevance of using count models.

The fifth chapter will display the results. I will first describe the main or direct effects of rationality and then compare it with the direct effects of the non-rational mechanisms: morality, legitimacy and self-control. I will also discuss the limits of using hypothetical scenarios when they are not adapted to the type of crime included in the dependent variables. I will then analyse the effects of different sub-dimensions of rationality, as well as doing a more specific analysis of the role of benefits, costs, opportunity costs and illicit opportunities. Finally, I will describe the interaction effects of the three non-rational predictors on the relationship between rationality and youth crime.

The sixth chapter will focus on the discussion of results and its implications.

Finally, the PhD dissertation will end by providing a brief overlook of results, describing its main strengths and limitations, and commenting some potential research and policy implications for Latin America.

## Chapter I. Rationale of this study

In the introduction I stated that this dissertation was important for three main reasons. In this chapter those reasons are developed. First, despite the great number of rationality studies, research on rationality's interaction effects on crime and violence are limited, and suffer from methodological problems, namely: small and biased samples; the heterogeneous and limited nature of the dependent variable; and the heterogeneous conceptualisation and operationalisation of the rationality construct. A second reason is the lack of generalisability of research testing criminological theory, particularly rational and non-rational components of crime. Since most of the research has been conducted in the US and Europe, we know very little about how well our best explanations of crime can travel and how well they can fit in low- and middle-income societies. Specifically, there is little evidence regarding rationality, morality, legitimacy and self-control theories and there are reasons to believe that the socio-economic, cultural and institutional singularities of the Latin-American context might affect both their relationship with crime and the interactions among them. I then review the research in Latin America regarding rationality, self-control and morality, as well as their main limitations. Finally, the concentration of crime and violence in low-income regions, particularly Latin America, together with the lack of research and adequate data sets, is an additional reason to call for developing more studies that are theoretically informed and methodologically sound. This is the only way to inform the design and implement cost-effective policies adequately adapted to the social, economic, cultural and institutional singularities of Latin America.

### I.a. Relationships between rationality, morality, legitimacy and self-control

Although the main rational choice predictions have been empirically and meta-analytically tested (Nagin, 2013b; Pratt, Cullen, Blevins, Daigle, & Madensen, 2006; Rupp, 2008), more research is needed to understand rationality's importance regarding two aspects: first, in terms of direct effects on crime, we need to evaluate accurately the relative explanatory relevance or effect size of rationality with respect to non-rational causal mechanisms (Figure 1).<sup>7</sup> Second, in term of interaction effects, we also need to explore more thoroughly how non-rational causal mechanisms moderate the relationship between rationality and crime (Figure 2). It is important to describe how moderation analysis will be done since there is confusion in the literature between moderation and mediation (Baron & Kenney, 1986). The notion of moderation is key for the analysis of potential causal relationships since hardly ever 'a treatment would produce the same impact for every individual in every possible circumstance' (Hong, 2015:5). Thus, moderation analysis allows capturing this heterogeneous nature of treatment. According to Baron and Kenney, a variable is considered a moderator when it modifies the direction and/or the strength of the association between the independent and dependent variable. In other words, it provides information about the conditions under which the independent variable influences the dependent variable. Instead, mediation analysis is relevant for the identification of the intermediate processes that explains how and why independent variables causally associate with dependent variables (Baron & Kenny, 1986; Hong, 2015).

---

<sup>7</sup> According to psychologist Fontaine, unlike what happens in adult models of deviance, *instrumental processes and motivations* have not been adequately integrated in empirical inquiry of models of child and adolescent deviance, particularly violent behavior (Fontaine, 2007). Reasons for this little empirical attention is the assumption 'that decision-making processes are primitive in young children, difficult to reliably measure, and not strongly correlated with aggressive behavior' (Fontaine, Yang, Dodge, Pettit, & Bates, 2009:447).

Figure 1: Direct effect of rationality and non-rational causal mechanisms

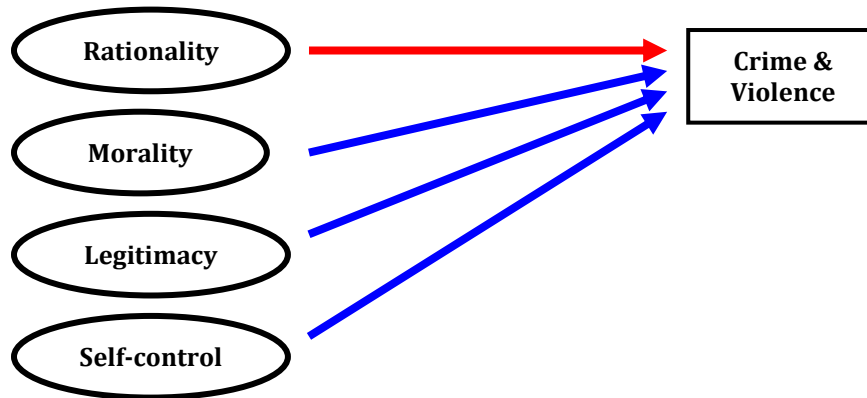
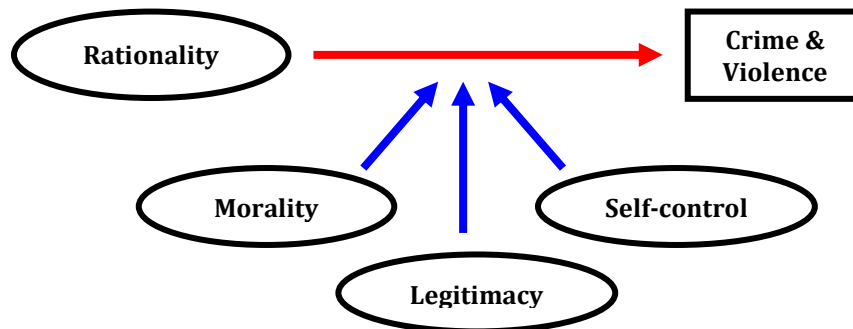


Figure 2: Interaction effects of non-rational causal mechanisms



Most micro-level criminological research on rationality and non-rational causal mechanisms in the last three decades has been affected by three main methodological problems.<sup>8</sup> First, research is mainly conducted on small, convenience and biased samples. Studies focused on rationality turn out to be a 'science of sophomores' that lack external validity since they are based on university samples (Bouffard, Bry, Smith, & Bry, 2008).<sup>9</sup> These samples have a

<sup>8</sup> However, there is also macro-level research in criminology on rationality both in US and Europe (e.g. Johnson & Raphael, 2012; Aizer & Doyle, 2013; see section II.a.) and in the developing world, particularly in Latin America (e.g. Cerqueira, 2014; Cerro & Rodriguez, 2014) which does not suffer from these three main problems that will be discussed in this section: i) small, convenience and biased samples; ii) limited nature of the dependent variable; iii) heterogeneous conceptualisation and operationalisation of the rationality construct. However, this type of research has additional serious problems, which I will characterise in this chapter (see section I.b.) and in the next one (section II.a.i.).

<sup>9</sup> There are some exceptions in criminological literature on rationality. For example, some studies have used general population samples in Greece and Russia (e.g. Tittle, Botchkovar, &

truncated variance both in the causal properties of crime (e.g. aversion to risk, impulsivity, temper, moral values, criminal peers, etc.),<sup>10</sup> and in criminal involvement: respondents of these studies are '*marginal offenders*' who get involved mostly in trivial and status offences (e.g. drink-driving, petty theft, drug use) underestimating more serious offences (Wright, Caspi, Moffitt, & Paternoster, 2004; Pryor, Dalenberg, McCorkle, Reardon, & Wicks, 2008).<sup>11</sup> Additionally, research based on small and underpowered samples has a higher risk of missing 'real' small effects (Type II error) (Ellis, 2010) of rational and non-rational predictors. Moreover, the well-known problem of publication bias that favours statistically significant results also increases the chances of detecting significant effects that may not be real (false positives, or Type I error) (Hubbard & Armstrong, 1992; in criminology see McCord, 2003). Furthermore, the lack of a '*culture of replication of studies*' both by researchers who do not share their data, and journal editors who reject replication articles makes matters even worse for these small unstable effect size estimations which could turn out to be simple random sampling variation (King, 2003; Freese, 2007; Ellis, 2010; in criminology see McNeely & Warner, 2015). According to McNeely and Warner (2015) replication of studies in criminology is extremely rare. Only 2.3% of articles published in five top journals between 2006 and 2010 were replications. This small percentage included direct replications but also empirical generalisations (i.e. articles that replicated methods but focused on different target populations).

---

Antonaccio, 2011), in New Zealand (Wright et al., 2004), in United Kingdom (e.g. Wikström, Tseloni, & Karlis, 2011), in USA (Matsueda et al., 2006), in Germany (e.g. Kroneberg et al., 2010; Mehlkop & Graeff, 2010), and in Sweden (Svensson, 2015). There has also been some research that has used bigger school student samples, for example in Netherlands (Pauwels, Weerman, Bruinsma, & Bernasco, 2011). Finally, there is also some research using high risk populations such as street youth population in Canada (Gallupe & Baron, 2010), or even offender populations in USA (e.g., Piquero et al., 2016; Thomas, Loughran, & Piquero, 2013).

<sup>10</sup> In experimental economics, some research conducted in the last decade has shown that the importance of morality, social preferences, and pro-social behavior might have been overestimated by laboratory experiments with biased samples (composed exclusively of university students) (Benz & Meier, 2008; Cappelen, Nygaard, Sorensen, & Tungodden, 2015; Levitt & List, 2007; List, 2009). However, there are also some studies that show that this is not a major issue and there are not significant differences between lab samples and general population studies (see for example, Falk, Meier, & Zehnder, 2013).

<sup>11</sup> An exception is sexual assault, which is a serious crime and has been included in many of these 'sophomore studies'. See Bouffard & Bouffard (2011) for an example of a rational choice explanation of sexual coercive behaviors using these types of samples.

Additionally, some of these articles were published in a similar period of time of the original studies. Replication was slightly larger in social sciences journals (2.8%), but smaller in natural sciences journals (1.42%) (2015:9).

A second problem, associated with the aforementioned issue of samples, is the limited nature of the dependent variable of many rationality studies. In the last twenty years there has been a substantial progress in the research of rational choice models testing a diverse set of crimes and deviant behaviours: drink-driving (e.g. Loughran et al., 2012); drug use (e.g. Gallupe & Baron, 2010); illegal acquisition of music (e.g. Pryor et al., 2008); tax fraud (e.g. Mehlkop & Graeff, 2010); plagiarism (e.g. Ogilvie & Stewart, 2010); academic dishonesty (e.g. Cochran, Aleksa, & Sanders, 2008); or scales that combine soft crimes such as drink-driving, embezzlement, and concealing the reception of a false amount of change (e.g. Seipel & Eifler, 2010); or buying illegal drugs, shoplifting a small item, and forging a signature (e.g. Dhimi & Mandel, 2012).<sup>12</sup> Some studies have tested rationality to explain deviance at the workplace with behaviours such as taking a long break without approval (Grasmick & Kobayashi, 2002), or to explain corporate crime with behaviours such as bribery or price-fixing (Paternoster & Simpson, 1996; Smith, Simpson, & Huang, 2007). In fact, there are good reasons for testing rational choice models using specific deviant behaviours given the very specific nature of the underlying decision making processes (Clarke & Cornish, 1986). However, this focus on specific deviant behaviours has its downside. Although some research includes measures of general crime, property crime or violent crime (e.g. Anwar & Loughran, 2011; Maimon, Antonaccio, & French, 2012; Pauwels, Weerman, Bruinsma, & Bernasco, 2011), most of the studies have tested rational choice assumptions with a limited set of trivial and less serious crimes. Thus more research is needed to validate rationality assumptions

---

<sup>12</sup> With regard to self-control theory, some authors have gone so far to as to use public flatulence as an outcome to test individuals' low self-control (Reisig & Pratt, 2013).



with serious crimes and with global indexes of crime that includes a wider and more heterogeneous set of criminal behaviours.<sup>13</sup>

A third methodological problem is the heterogeneous conceptualisation and operationalisation of the rationality construct. There has been a considerable progress in the measurement of costs and benefits of criminal behaviour over the past three decades in micro-level studies.<sup>14</sup> While rationality studies in the 1980s focused on measuring formal costs associated with criminal justice, subsequent research has included measures such as informal costs, emotional costs, and even material and psychic rewards. However, the definition and measurement of rationality is a matter of controversy among researchers in social science and particularly in criminology. Even if we focus only on micro-level research, studies still show great variability in rationality constructs. This heterogeneity and particularly the use of less comprehensive measures of rationality, affect an adequate evaluation of rationality's effect in relation to non-rational mechanisms. It is true that some studies include global measures of rationality capturing both formal and informal costs and benefits (see for example, Tittle et al., 2010). However this is more an exception than the rule: Although some studies include all or most of these rationality dimensions, they do so as a separate set of predictors (see for example, Bouffard et al., 2008; Maxson, Matsuda, & Hennigan, 2011; Paternoster & Simpson, 1996; Tittle, Botchkovar, & Antonaccio, 2011; Nagin & Paternoster, 1993); others include a very complete set of predictors that cover for certainty and severity of formal sanctions, opportunity costs, returns from crime, but exclude extra legal costs (e.g. Matsueda et al., 2006); some integrate a comprehensive operationalisation of legal costs such as severity, celerity, certainty, and even measures of extra legal costs, but lack measures of inner costs (i.e., shame and embarrassment), let alone rewards of

---

<sup>13</sup> Another limitation is the heterogeneity of the methodological designs used to measure rationality. Should we use traditional self-reporting of respondents' past criminal involvement in cross-sectional studies or should we use self-reports of future intentions of committing crimes in hypothetical scenarios instead? Are longitudinal designs a better option? What about experimental designs? This issue will be discussed in depth in section in Chapter IV.

<sup>14</sup> The limitations of macro-level studies regarding the measurement of rationality will be discussed in section I.b. in this chapter, and in section IV.g, in Chapter IV.

crime (e.g. Nagin & Pogarsky, 2001); some include measurement of formal costs and informal costs, but exclude the rewards of crime (e.g. Wright et al., 2004); other include measures of both formal and informal costs, but focused only on certainty of experiencing them (e.g. Bachman et al., 1992); some contain measures of perception of certainty and severity of formal sanctions (e.g. Pogarsky, 2007; Pauwels, Weerman, Bruinsma, & Bernasco, 2011; Wikstrom et al., 2011) other include just certainty of formal sanctions measures, i.e., being caught and arrested by the police (e.g. Thomas, Loughran, & Piquero, 2013; Loughran, Pogarsky, Piquero, & Paternoster, 2012); finally, other studies go even further and report an even more limited measure of certainty, that is, the risk of being caught by police (e.g. Pogarsky & Piquero, 2003).

This great variance of measures compromises the comparison between rational and non-rational causal mechanisms of crime. Arguably the refutation of a theory requires that is fully operationalised and measured with high reliability and validity. Constructs that are poorly measured and are less comprehensive (i.e., excluding relevant dimensions) not only have less construct validity but also have worse predictive power (Sao Pedro, Baker, & Gobert, 2012). Take for example two main defenders of a non-rational perspective in criminology: Wikström and Tyler. Both argue that non-rational dimensions (morality and legitimacy respectively) are key features in the explanation of crime, and thus, that crime's rationality has been largely overestimated. However, arguably in either case (at least in some studies), rationality is represented by few specific items that only capture a small part of the argument for rationality: certainty of getting caught on the one hand (e.g. Wikström, Tseloni, & Karlis, 2011) and the risk of being caught and punished on the other (e.g. Tyler & Fagan, 2008). In such cases it is not clear whether rational choice theory was rejected or its effect size was adequately estimated given it was insufficiently operationalised.

To sum up, despite the development in the measurement of costs and benefits in individual studies in the last decades, these three problems make

difficult the task of assessing rationality's actual explanatory relevance (effect size) and interaction effects in models that include other non-rational constructs.

Beside measurement issues, another concern is that there is still little research in criminology focused on testing interactions between rationality and non-rational causal mechanisms (Svensson, 2015; Tittle et al., 2010), particularly morality, legitimacy and self-control. Criminological research has mainly explored the interaction between rationality and self-control (e.g., Block & Gerety, 1995; Bouffard, 2007; Cochran, Aleksa, & Sanders, 2008; Nagin & Paternoster, 1993; Nagin & Paternoster, 1994; Nagin & Pogarsky, 2001; Nagin & Pogarsky, 2003; Piquero & Tibbetts, 1996; Piquero & Pogarsky, 2002; Pogarsky, 2007; Pogarsky & Piquero, 2004; Tittle & Botchkovar, 2005a; Wright, Caspi, Moffitt, & Paternoster, 2004), and between rationality and morality (e.g., (Bachman et al., 1992; Paternoster & Simpson, 1996; Piquero et al., 2016; Svensson, 2015; Wenzel, 2004b). Few researchers have evaluated the relation between morality, legitimacy and deterrence (Jackson et al., 2012)<sup>15</sup>, and between morality, self-control and deterrence (e.g. Gallupe & Baron, 2010; Tittle et al., 2010; Pauwels, Weerman, Bruinsma, & Bernasco, 2011; Wikström, Tseloni, & Karlis, 2011).<sup>16 17</sup>

<sup>18</sup> As far as I know, no research has yet included simultaneously a relatively comprehensive measure of rationality items in interaction with these three causal mechanisms, and therefore, its potential interrelationships and their relative strength have not yet been thoroughly explored and might have been overestimated in past studies.

---

<sup>15</sup> However, Jackson et al. (2012) does not include adequate measures of the different dimensions of rationality and uses just a five-item scale that captures certainty of apprehension.

<sup>16</sup> I will describe and discuss in detail the findings of these studies in Chapter II (sections II.c.i – II.c.iii).

<sup>17</sup> Tittle et al. (2010) mentions other studies that have taken into account simultaneously rationality, self-control and morality (e.g. Nagin & Paternoster, 1993; 1994; Piquero & Tibbetts, 1996). However, these studies do not include a measure of moral beliefs, but rather a measure of self-imposed costs, which, as I will argue in Chapter IV, are not an adequate measure of morality.

<sup>18</sup> There are studies that have tested interactions between some of these causal mechanisms but without including rationality, namely: between morality and self-control (Antonaccio & Tittle, 2008; Longshore, Chang, & Messina, 2005; Schoepfer & Piquero, 2006); and between legitimacy and self-control (Reisig et al., 2011).

## **I.b. Research in Latin America**

As argued in the introduction there is a strong debate in social sciences (and in criminology) whether humans are rational or not. However, most social and behavioural scientists that make claims about human nature and its rationality or irrationality use limited samples usually drawn from Western, educated, industrialised, rich, and democratic (as an acronym, WEIRD) societies (Henrich, Heine, & Norenzayan, 2010). In fact, the review conducted by Henrich and colleagues on topics such as visual perception, fairness, cooperation, moral reasoning, reasoning styles, self-concepts and related motivations shows not only that the assumption that there is little human variance does not hold, but that subjects from WEIRD samples are particularly unusual and the least representative samples to generalise about humanity (Henrich, 2013; Henrich et al., 2010).

Criminology is no exception in the social sciences. Most of the empirical research of criminological theories and causal mechanisms (and particularly of rationality, self-control, morality and legitimacy) has been conducted in the US and Europe. Thus, there is little evidence of their empirical validity in other socio-political contexts, notably in low- and middle-income societies. It is a discipline 'culture bound and culture blind' since criminological theories and concepts have been mostly developed in US and Western European societies (Karstedt, 2001:295; see also Willis, Evans, & LaGrange, 1999). Although in recent decades there is an increasing number of cross-cultural studies, there is still little research that directly tests general criminological theories. Even a few years ago a leading criminologist summarised the situation as follows: 'there has been very little criminological research of any kind in Latin America and essentially zero research testing explanatory theories' (Akers, 2010:11). The situation may have changed over more recently but there are certainly still important deficits. Cross-cultural research enables to assess empirically if specific explanations and predictors of crime developed in the US and Europe are relevant in other

societies from low- and middle-income regions with different social structures, institutions, and cultural values (Hwang & Akers, 2003; Stamatel, 2009). Moreover, this type of research allows evaluating the limitations, variation and moderation of universal or culturally limited causal mechanisms and theoretical models involved in the production of crime and violence (Akers, 2010; Eisner & Malti, 2015; Karstedt, 2001).

### *Rationality studies in Latin America*

Most of the *rational choice* research based on individual data or perceptual measures has been done in the US aside from a few studies conducted in Greece, Russia and the Ukraine by Tittle and colleagues (e.g. Tittle & Botchkovar, 2005a; Tittle et al., 2010; Tittle, Botchkovar & Antonaccio, 2011) and in New Zealand (e.g. Wright et al., 2004). In Latin America, there is no *rational choice* research of this kind.

Over the last two decades there has been a great increase of economic studies of crime in Latin America but mostly based on macro-level or ecological studies. These macro-level economic studies use data with some level of geographic aggregation (municipalities, cities, states, countries, etc.) associating crime with diverse types of socio-economic, demographic and criminal justice policy variables. There are two main types of studies. A first group of comparative studies including several countries from Latin America (e.g. Camara & Salama, 2004; Pablo Fajnzylber, Lederman, & Loayza, 1998; Gaviria & Pagés, 2002; Londoño & Guerrero, 1998; Rivera, 2016; Soares & Naritomi, 2010). A second group of national case studies including Argentina (e.g. Spinelli, Macías, & Darraidou, 2008; Cerro & Rodriguez, 2014a), Brazil (e.g. Cerqueira & Lobão, 2004; de Mello & Schneider, 2010; Cerqueira, 2014), Chile (e.g. de la Fuente et al., 2011; Zuniga-Jara, Ruiz-Campo & Soria-Barreto, 2014), Colombia (Sandoval, 2014; Cabrera, 2015), Mexico (e.g. Ramirez, 2014; Tellez & Medellin, 2014), Uruguay (e.g. Aboal, Lorenzo, & Perera, 2007; Borraz & Gonzalez, 2010;

Munyo, 2015) Peru (e.g. Obando & Ruiz, 2007), and Venezuela (e.g. Armas & Blasa, 2009). Economic macro-level studies of crime have provided interesting evidence regarding the rationality of crime mainly showing that deterrence variables such as number of police officers, number of judges, number of private security officers, conviction rates, incarceration rates, and investment in public security, are significantly associated with crime rates. However, they suffer from three main problems.

The first issue is the problematic empirical evaluation of rationality assumptions. The economic model of crime is based on methodological individualism assumptions and yet all the empirical evidence provided by these types of studies is grounded on aggregated level variables. Thus, although powerful econometric models show a significant association between key independent variables such as rates of arrests/convictions or police levels and crime rates, they never provide empirical evidence of the rationality micro-level mechanisms that connect these macro-level variables. For example, the association between the increase in the number of policemen and the decrease of crime rates is evidence of rationality, as long as we show the actual causal mechanism operating: that individuals perceive this increase of policemen, they evaluate that it increases the chances of being detected and arrested, and then decide to behave accordingly. Thus, these studies do not so much test rationality, but rather infer it from these correlations.<sup>19</sup> In many cases, this weak or incomplete empirical test is even more problematic since it does not allow the clear disentanglement of whether the operating causal mechanism at the micro-level is rational or not. In many economic studies, conviction or imprisonment rates were found to be significantly associated with crime rates (e.g. Cerqueira, 2014; Cerro & Rodriguez, 2014b; Soares & Naritomi, 2010) but it was not clear if the predominant underlying causal mechanism is rational (deterrence) or one that does not necessarily imply a rational offender (incapacitation).

---

<sup>19</sup> I will discuss in detail this argument in sections II.a.i in Chapter II.

A second issue is that these economic studies lack an adequate comparison or competition of rational and non-rational predictors in the explanation of crime, mostly because they are grounded on official statistics. These studies are limited in two senses. First, a problem of underestimation of the effect of rationality: it is very difficult to include and evaluate different explanatory components of rationality besides some limited proxies of severity and certainty of penal costs (deterrent effect) and some measures that directly or indirectly capture legitimate opportunities or incomes (socio-economic effect). There are few if any measures of illegitimate returns and criminal opportunities. At best, some economic studies include variables such as urbanisation rate or population density, assuming that urban cities facilitate interaction with other criminals, transmission of criminal skills, more circulation of attractive criminal targets, and more anonymity which decreases chances of detection and penalisation (see for example Borraz & Gonzalez, 2010; Santos, 2009). Additionally, there are no measures of certainty and severity of informal costs associated with peers, parents, neighbours or teachers, let alone any measure of emotional costs associated to the self or to significant others. Therefore, the picture of rationality that can be captured using exclusively these types of data sets and variables is limited. A second problem is that these studies run the risk of overestimating the effect of rationality due to the scarce inclusion of non-rational predictors. Proxies of non-rational components such as moral values, legitimacy of institutions, or personality traits, which have proven to have a strong impact on crime and deviance (see Chapter II), are never included in these economic models of crime.<sup>20</sup>

To be fair, many of these economic studies acknowledge there is a problem of measurement error and omitted variables that are correlated with the independent and dependent variables generating biased estimates. Some

---

<sup>20</sup> Even some of the aforementioned variables that are included explicitly as indicators of empirical evidence of changes in economic incentives associated with rational choice theory might in fact be indicators of non-rational causal mechanisms. For example, the urbanisation rate might be an indicator of processes associated with anomie or social disorganisation causal mechanisms.

studies tackle these two problems estimating fixed-effect models (e.g. Armas & Blasa, 2009; Perlbach, Gonzalez, Calderon, & Rios Rolla, 2007) which focus on variation within subjects over time, that is, subjects serve as their own controls. However, these models assume time-invariant effects, that is, that the effect of these omitted variables on the subject is constant over time. If the effect is not constant over time or if the omitted variable is thought to interact with other predictors in the model, the model will generate biased estimates unless we include explicit measures of the omitted variable (Allison, 2005). It is at best a strong hypothesis to argue in Latin America for the long-term stability of both the measurement error associated with the underreporting rate (Santos & Kassouf, 2008) and the effect of non-rational predictors such as moral values or perception of legitimacy.<sup>21</sup> Other models use instrumental variable approaches (e.g. Chambouleyron & Willington, 1998; Fajnzylber et al., 1998; Cerro & Meloni, 2000) which basically aims at identifying the causal effect of X on Y by using the relationship between X and another variable Z, the instrumental variable. This approach needs to identify good instrumental variables, that are plausibly exogenous, and also that have a strong effect on the dependent variable but through the independent variable of interest. Two additional relevant assumptions are that: the relationship between the instrumental variable and the independent variable is not cofounded by other variables; the instrumental variable should not influence the dependent variable directly or indirectly through other variables (Bushway & Apel, 2010). Additionally, these types of models are least useful and lead to more biased results when there are many confounders and/or where there are strong confounding effects (Martens, Pestman, de Boer, Belitser, & Klungel, 2006). Again I believe it is too strong an assumption to make that there are little confounding effects, particularly when most non-rational components are not included. Additionally, the key aspect of instrumental approaches is to find good proxies of the hidden selection processes. However, if the selection process is associated with complex and non-rational mechanisms it is more difficult to

---

<sup>21</sup> Maybe it is more reasonable to assume stability of omitted non-rational predictors such as personality traits (i.e., self-control).



obtain adequate and relevant instrumental variables that can account for the selection process from a limited set of variables usually found in official statistics data sets.<sup>22</sup>

A third issue regards several methodological problems suffered by macro-level rational choice studies associated with the type of crime data used. There is a problem of measurement error and underestimation of crime which is due to: the type of crime and victims' differential willingness to report to authorities; how criminal justice and health agencies work and their institutional reporting practices; and the multiple heterogeneity of these practices between agencies (police, penitentiary institutions, criminal courts, ministry of health), within them over time, and across different municipalities, regions and even countries (Goudriaan, Lynch, & Nieuwbeerta, 2004; Maguire, 2008; Levitt, 1998; Thornberry & Krohn, 2000; Young, 2004). This problem is more serious in Latin America given the limitations, lack of resources, poor management of information, weak transparency, and lack of legitimacy of criminal justice institutions, which affects how data is collected, and registered, and victims' willingness to report given inefficiency and risk re-victimisation (Corbacho, Philipp, & Ruiz-Vega, 2014; Dammert, Salazar, Montt, & Gonzalez, 2010; Guerrero, Gutiérrez, Fandiño-Losada, & Cardona, 2012).

---

<sup>22</sup> Interestingly, although a non-rational component like morality is hardly ever included and operationalised, in Latin-American economic studies it is sometimes used in the interpretation of results. For example, Oliveira (2005) and Aboal et al. (2007) argue that too extreme inequality leads to crime not only because there is a greater chance of obtaining more attractive rewards but also because it leads to frustration, anger and decreases individual's morality threshold or moral cost of doing crimes (see also Fajnzylber, Lederman, & Loayza, 2002). Gaviria (2000) also explains the increase of violence in Colombia arguing as one of the main reasons the intense interaction between youths, adult offenders and organised criminal networks which results in an erosion of conventional morality which involves perceiving violence as a legitimate mean to solve conflicts and obtaining resources (see also Camara & Salama, 2004). These examples show that some economic models acknowledge the relevance of non-rational components of crime although they are hardly ever explicitly measured and actually tested. Some Latin American economists of crime have admitted 'the need of understanding how individuals build [moral] judgment. On this point, economists have a lot to learn from other sciences such as sociology, anthropology and mainly psychology' (Oliveira, 2005: 4).

Many of the reviewed economic studies used intentional homicides as the dependent variable since it is one of the most available and effectively recorded crimes (Malby, 2010) and therefore can minimise many of the aforementioned biases. However, homicide data from criminal records also suffers from serious problems, particularly in Latin America. A recent study on the quality of homicide data in Latin America conducted by Ribeiro, Borges and Cano (2015) indicated some of these problems. First, homicide data based on criminal records depends on the legal framework, which can exclude some lethal violence events (e.g. non-intentional homicides, homicides committed by police officers, femicide). In a scenario of weak standardisation criteria and heterogeneous definitions, the police agency decides how to categorise homicides, and therefore comparisons between countries, regions or even neighbourhoods are problematic. Second, there are different counting rules for the aggregation of homicides. While some information systems are based on criminal records, in other cases the number of victims is also taken into account in order to avoid problems of underestimation (i.e. homicides with multiple victims). Third, many criminal justice agencies lack the resources to have an adequate management of criminal records. In many cases events of serious injuries, which are not initially coded as homicides and ended up with deaths, are not updated by the system leading to a problem of under estimation. Finally, the problem of underreporting is less serious in homicides but is still present, mostly when the corpse disappears. This problem is particularly relevant in contexts characterised by high levels of violence, pervasive organised crime networks, and corrupt and delegitimised institutions. These asymmetric levels of homicide underreport compromise comparison at international and subnational level in Latin America (Ribeiro, Borges, & Cano, 2015; see also Cano, 2000; Santos & Kassouf, 2008; Fajnzylber & Araujo Jr., 2001).

One way of avoiding some of these problems is to combine criminal justice and public health sources (Malby, 2010). However, while comparative studies, and some national studies from Brazil (e.g. Cerqueira, 2014; Santos, 2009;

Mendonça, 2002) include health statistics, most of the economic research on crime in Latin America is based on law enforcement data.<sup>23</sup> Still, as Ribeiro and colleagues warn, health sources should also be taken with caution for several reasons. First, the problematic exclusion of lethal violence events still takes place in health statistics (e.g. civilians' deaths in confrontations with the police). Second, there are also problems of incomplete coverage and absence of reporting to authorities, particularly in countries with a poor health network of hospitals with incomplete territorial coverage. Finally, there are also problems of codification where the cause of the death is not known due to bad definition or lack of specification. Again, this problem is particularly acute in countries or regions where violence is epidemic and health services are overwhelmed and unable in many cases to produce quality information about the causes of deaths. (Ribeiro et al., 2015, see also Borges et al., 2012).

### *Studies on morality, legitimacy and self-control in Latin America*

To my knowledge the only published studies outside the US and Europe that incorporate *morality* as a key causal explanatory mechanism of crime are Tittle, Antonaccio, Botchkovar, & Kranidioti (2010), and Tittle, Botchkovar, & Antonaccio (2011). When it comes to individual-level studies of *legitimacy* evidence comes also almost exclusively from the US and the UK (Dirikx, Gelders, & den Bulck, 2013; Eisner & Nivette, 2013; Jackson et al., 2012) aside from studies done in Ghana (e.g. Tankebe, 2009a, 2009b) and in Australia (e.g. Murphy, Tyler, & Curtis, 2009; Murphy & Cherney, 2012). Thus, there is scarce criminological research in Latin America that includes tests with validated measures of morality and legitimacy. One exception is a recent study conducted in Uruguay that shows that Wikström's measure of morality and Tyler's measure of legitimacy are significantly associated with youth violent behaviour (Trajtenberg & Eisner, 2014). However, this study focused only on violent

---

<sup>23</sup> This is a particular point of concern since 'the differences between health and police statistics are especially marked in developing countries' (Malby, 2010:8).

behaviours and no multivariate statistical analysis was conducted. Two caveats are needed. First, I am aware that an application of Wikström's Situational Action Theory has been conducted in Colombia (Serrano, 2010) but no final results are yet available. Second, the third wave of the International Self-Report Delinquency Study (ISRD-3, 2012 - 2014) which includes some countries of Latin America has added new items referring to Wikström's Situational Action Theory and Tyler's Procedural Justice theory. However, to my knowledge there is yet no published journal papers or books reporting results referring to these constructs.<sup>24</sup>

Empirical research on self-control outside the US and Europe is less limited, in part thanks to the 'International Self-Report Study of Delinquency'. In the last fifteen years a number of studies have been conducted in low- and middle-income countries providing empirical evidence for the link between Gottfredson & Hirschi's (1990) self-control and crime in some countries in Asia such as Turkey (Ozbay & Köksoy, 2009), Russia (Tittle & Botchkovar, 2005a, 2005b), China (Cheung & Cheung, 2008; Cheung & Cheung, 2010; Lu, Yu, Ren, & Marshall, 2012; Wang, Qiao, Hong, & Zhang, 2002), Japan (Vazsonyi, Wittekind, Belliston, & Loh, 2004), and Korea (Hwang & Akers, 2003; Yun & Walsh, 2011). An additional comparative study that included samples from Japan, the Netherlands, Switzerland, Hungary, and the US also found that self-control was a significant predictor of deviant behaviours across countries (Vazsonyi & Belliston, 2007).<sup>25</sup>

In Latin America a number of studies have tested Gottfredson and Hirschi's theory. Two studies from Venezuela (e.g. Rodríguez, 2010; 2011; Morrillo, Birkbeck, & Crespo, 2011)<sup>26</sup> and one study from Uruguay (e.g. Trajtenberg & Eisner, 2014) found empirical evidence that self-control was

---

<sup>24</sup> See the ISRD-3 publications homepage <http://www.northeastern.edu/isrd/general-isrd-3-publications>.

<sup>25</sup> I do not include Wright et al., (2004) study conducted in New Zealand since they do not use Gottfredson & Hirschi's (1990) conceptualisation of self-control.

<sup>26</sup> The original scale developed by Grasmick et al., (1993) included 24 items. The study conducted by Morrillo and colleagues (2011) used a reduced scale composed of 12 items.

associated with violent behaviour. However, two studies failed to find a significant effect of self-control on deviance. In one case, self-control was not associated with delinquent involvement in a sample of youth offenders in detention in Uruguay (e.g. Chouhy, Cullen, & Unnever, 2014); in another case self-control's sub-dimensions were not significantly associated with the use of illegal drugs among a sample of university students from Bolivia and USA (e.g. Menese, 2009; Menese & Akers, 2011). Additionally there are two comparative studies that use the second wave of the International Self-Report Delinquency Study (ISRD – 2) that includes 31 countries from Europe, North America and Latin America<sup>27</sup> and provided cross-cultural evidence that self-control was a significant predictor of juvenile crime (e.g. Marshall & Enzmann, 2012; Steketee, Junger, & Junger-Tas, 2013).<sup>28</sup>

All in all, there is very little research using validated tests of these three non-rational causal mechanisms. Most of the few existent studies focus on self-control and almost no research on morality and legitimacy can be found in Latin America. Last, but not least, estimates of these non-rational predictors might be biased since these few available studies do not include any measurement of rationality. Thus, it seems relevant to evaluate empirically the explanatory relevance of rational and non-rational causal mechanisms in the Latin American context.<sup>29</sup>

---

<sup>27</sup> The four countries from Latin America included in ISRD – 2 are Aruba, Dutch Antilles, Surinam, and Venezuela. The rest of the countries of the sample are Armenia, Austria, Belgium, Bosnia, Canada, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Italy, Ireland, Lithuania, the Netherlands, N. Ireland, Norway, Poland, Russia, Scotland, Slovenia, Spain, Sweden, Switzerland, and the US.

<sup>28</sup> There are two additional papers of the ISRD that use Gottfredson & Hirschi's (1990) self-control theory and include Latin America but they do not focus on explaining youth crime and delinquency: Botchkovar, Marshall, Rocque, & Posick (2015) and Podaná & Buriánek (2013).

<sup>29</sup> This study will focus exclusively on testing validated measures of these mechanisms in a Latin American city: Montevideo. Future research doing cross-cultural comparison between Montevideo and Zurich is suggested in the final chapter of this PhD dissertation.

### *Criminological causal mechanisms and cultural variability*

With regard to the generalisability of criminological theories, one of the main issues is how they deal with cultural variability. In other words, are they 'culture-bound theories' and their causal mechanisms and predictors are only relevant for high-income western societies or is it safe to generalise them to the rest of the planet? (Hwang & Akers, 2003:39). According to Karstedt, criminological theories differ in how they tackle this issue: while some are i) structured to be 'universal and culture free', ii) others admit 'high cultural variability of the variables in the model', and some go further and iii) 'explicitly incorporate cultural and value patterns into the causal mechanism' (2001:292).

Only one of the four theoretical frameworks (self-control) used in this PhD belongs to category (i). This theory explicitly states a universal trait that transcends cultures, aka, a 'culture free' theory of crime. Although cultural variability is acknowledged, it is claimed that only affects availability of illicit opportunities but not the nature of self-control (Gottfredson & Hirschi, 1990: 175). The other three theoretical frameworks (rationality, morality and legitimacy) belong to category (ii). The idea of rationality and free will central to many criminological theories from the US and Western Europe might be **moderated** or even turn out to be insignificant by cultural differences in regions where for example religion and fatalistic predetermination prevail (Willis et al., 1999). In fact, cross-cultural research has shown that in complex societies where markets are highly developed, individuals are less guided by rational maximisation of gains and strongly bound by moral norms of fairness; and in turn, in less developed societies individuals resemble much more to the '*homoeconomicus*' (Henrich, 2013; Henrich et al., 2007). Additionally, the perception of sanctions and costs, and its connection with crime involvement might vary considerably in Latin American societies characterised by high levels of delinquency and violence, impoverishment, inequality and social exclusion, lack of legal opportunities (low quality of education, exclusion from the labour market),

abundant supply of illegal opportunities, deteriorated prisons, and principally the weak, uncertain, and ineffective criminal justice institutions (Berkman, 2007; Briceno-Leon & Zubillaga, 2002; Di Tella & Schargrotsky, 2010; Imbusch, Misse, & Carrión, 2011). Young people in Latin American countries are particularly vulnerable to many of these social and economic disadvantages (Imbusch et al., 2011; Kessler, 2014; Rodríguez, 2007; Waters et al., 2004). Social exclusion, marginalisation, the consolidation of 'ghettos', and especially, the generalisation and normalisation of crime and deviance in deprived areas (Berkman, 2007; Del Felice, 2008; Freiman & Rossal, 2010; Kessler, 2012; Miguez, 2008) might involve differences in the existence and intensity of informal sanctions of crime as well as the presence and/or weakness of moral beliefs and values about the wrongfulness of crime. Additionally, it is also not clear if macro-cultural singularities of Latin American societies (Inglehart & Carballo, 1997; Inglehart & Carballo, 2008), and particularly cultures of honour or machismo (Neapolitan, 1994; Rivera, 1978; Vandello & Cohen, 2003; Sommer, 2012) might moderate in any way the connection between moral beliefs and crime. The limited cultural scope of *legitimacy* studies also provides reasons to suspect the variability of legal attitudes across contexts, and particularly of its association crime. Diverse socio-political contexts might differ in terms of the content or key features to consider an authority as legitimate, the role played by the authority of the police in the society, or its behavioural consequences in terms of compliance with law/crime (Dirikx et al., 2013; Eisner & Nivette, 2013; Jackson et al., 2012). For example, in one of the few existent **studies in low income countries** Tankebe (2009a) found that in Ghana, where the police had a long history of corruption and violence, cooperation with the police was mainly utilitarian and determined by efficiency rather than by other legitimacy dimensions. The aforementioned social, economic and institutional conditions of many Latin American societies might decisively affect youths' perception of the legitimacy of authorities. Additionally, Latin-America's history of violence, abuse of force and corruption in the police, their active role in the dictatorships during the 70s, as well as low salaries, inadequate training, and poor equipment (Couttolene, Cano, Carneiro, & Phebo,

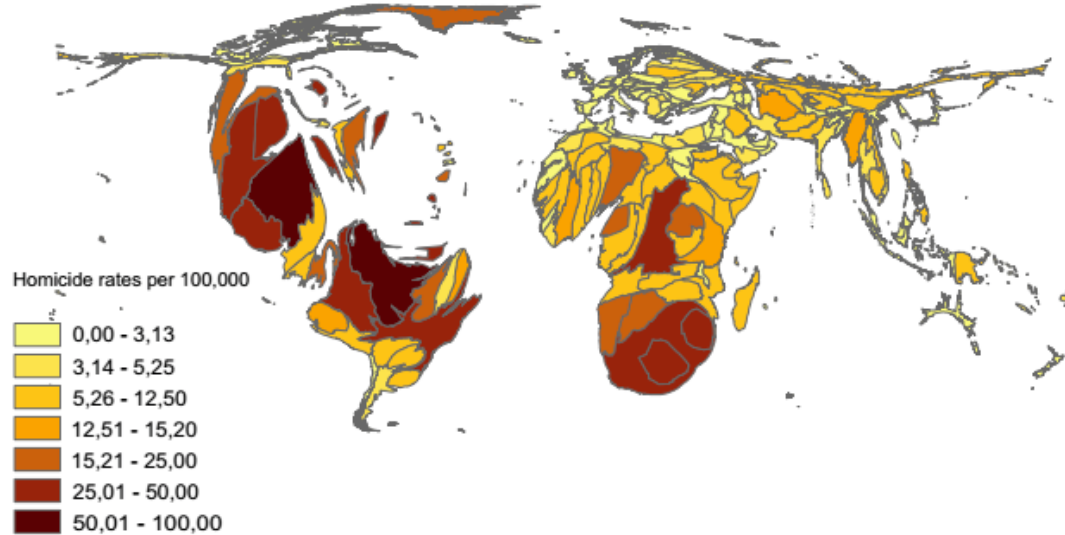
2000; Dammert & Bailey, 2005; Frühling, 2009; Imbusch et al., 2011; Isla & Miguez, 2011; Sain, 2010; Sozzo, 2005; Zavaleta, Kessler, Alvarado, & Zaverucha, 2016) might also generate differences in the perception of legitimacy of the police and in its connection with compliance with the law. When societies have weak or illegitimate institutions and authorities, it is more likely that individuals use private forms of violence to solve conflicts (Schuberth, 2013; Tankebe, 2009). Recent research in Latin America has shown that the perception of institutional illegitimacy together with high levels of violence are among the main predictors of support for violent vigilantism (Nivette, 2016).

### **I.c. The need for research to inform policy-making in developing societies**

A final point is the need for research to inform public policies in low- and middle-income regions of the world, particularly in Latin America. Empirical evidence shows that crime and specifically violence is highly concentrated in the world: 'almost half of all homicides worldwide are committed in just 23 countries, homes to one tenth of global population' (Eisner, 2015:1). Currently, Latin America is considered one of the most violent regions on the planet in terms of the high incidence of crime, the variety of forms of violence, and its persistence (Briceño-León, Villaveces, & Concha-Eastman, 2008; Imbusch et al., 2011; UNODC, 2014). In fact, violence in Latin America is considered an 'epidemic problem' according to World Health Organization standards. According to the Homicide Monitor of the Igarapé Institute (2015) 'fourteen of the twenty most murderous countries in the planet are in Latin America and the Caribbean, and one third of the world homicides take place in Latin America and the Caribbean while only 8% of the global population live there'. Additionally, while crime and violence have been diminishing in most regions of the planet in recent decades (Pinker, 2011), one of the few places where this trend is not taking place is central America, and in some countries in Latin America, particularly Uruguay (Eisner, 2014; Lappi-Seppala & Lehti, 2014; Malby, 2010; UNODC, 2014).



Figure 3: Proportional distribution of homicide rates in 2012



Source: Instituto Igarapé in Eisner (2015:5)

As Joseph Murray claimed in the recent WHO and University of Cambridge Global Violence Reduction Conference 2014 ‘*We know least about the causes of violence where it matters most*’ (Murray, 2014). Ironically, most of the scientific research on prevention of violence is located in the developed nations and only 10% is located in low- and middle- income societies despite the fact that they concentrate more than four out of five of violent deaths (Eisner, 2015; Eisner & Nivette, 2012; Krisch, Eisner, Mikton, & Butchart, 2015).<sup>30</sup> Assuming that the nature and relative relevance of criminological theories, causal mechanisms and risk factors do not differ across regions is a wild guess. Recent cross-cultural research shows that this assumption is false (see for example for the Latin America region, Murray, 2014; Murray et al., 2015; Rodríguez et al., 2015). If this is the case, prevention programmes cannot be merely imported and will need to be adapted to the new cultural and institutional setting in order to be successful (Farrington, 2015; Nelken, 2010; Tonry, 2015).

---

<sup>30</sup> In fact one of the six key policy recommendations defined in the WHO and University of Cambridge Global Violence Reduction Conference was to ‘Tackle the Biggest Problem Areas First: Focus on Low- and Middle-Income Countries, Hot Spots and Top Violent Cities’ (Krisch et al., 2015).

Three additional problems aggravate the situation in Latin America. First, the scarcity of reliable systems of information and criminological data sets required for the design and evaluation of crime prevention policies (Dammert, Salazar, Montt, & Gonzalez, 2010; Guerrero et al., 2012; Ribeiro, Borges, & Cano, 2015). Second, the underdeveloped state of academic institutions and the limited nature of research and understanding of the phenomenon of youth crime and violence (Basombrio & Dammert, 2013; Imbusch et al., 2011). Finally, costs of crime and violence are high and significantly affect the economic development of the region. According to a recent study of the Inter-American Development Bank, on average the costs of crime in Latin America are 3% of the gross domestic product which is approximately what is spent on infrastructure or the percentage of incomes of the poorest quintile of the population (Jaitman, 2016).<sup>31</sup>

In recent decades, Latin-American countries have made a strong emphasis on deterrence policies focusing on increasing certainty of arrest and severity of penal sanctions (Dammert & Salazar, 2009; Basombrio & Dammert, 2013). Some authors claim that in recent years there has been a 'punitive turn' in the criminal justice policies of many countries in the region (Müller, 2012; Swanson, 2013; Wacquant, 2009). Although there have been few high-quality evaluations of these policies, there is some evidence of deterrence effects, particularly when it comes to certainty, both from experimental (Di Tella and Schargrotsky, 2004) and quasi-experimental studies (Bukstein & Montossi, 2009; Costa, de Faria, & Iachan, 2015; Ibáñez, Rodríguez, & Zarruk, 2013). Economic studies provide additional empirical evidence that deterrent policies in the region provide (together with socio-economic characteristics) incentives to engage in criminal activities (Soares & Naritomi, 2010; see also Cerqueira, 2014; Cerro & Rodríguez, 2014b; de la Fuente et al., 2011; de Mello and Schneider, 2010; Munyo, 2015). However, there are also studies which cast doubt on the deterrent effect of police levels (Balbo & Posadas, 1998), conviction rates (Matus, 2005), imprisonment rates

---

<sup>31</sup> According to another study from the Inter-American Development Bank the costs of crime and violence in Uruguay for 2010 was 3.1% of the gross domestic product (Aboal, Campanella, & Lanzilotta, 2013).

(Cerro & Meloni, 2000), investment in security (Santos, 2009), certainty of arrest (Borraz & Gonzalez, 2010; de la Fuente et al., 2011) or severity of penal sanctions (Balbo & Posadas, 1998; Matus, 2005).

All in all, the empirical base for suggesting that deterrence policies work and therefore that offenders are rational and respond to incentives is inconsistent and mostly based on macro-level econometric studies. There is a need to develop theoretically informed and methodologically sound research, particularly including more adequate measures of rationality and non-rational mechanisms in order to devise the optimal design of institutions in Latin America.

## Summary

The goal of this chapter was to show the rationale of this PhD dissertation. I claimed that this study is important for three main reasons.

First, I argued that although there has been extensive research testing the rationality assumptions, two issues require further inquiry: a more precise estimation of rationality size-effect in comparison with non-rational causal mechanisms; and a more thorough analysis of how non-rational mechanisms moderate the connection between rationality and crime. Regarding the first issue I analysed three important methodological problems that characterise most of the literature in rationality. One first problem is that many studies are based on small, convenient and biased samples that truncate the variance of both the predictors and the outcome. The danger of obtaining biased estimates of rational and non-rational predictors is increased given the small and underpowered samples, the problem of publication bias, and the lack of culture of replication studies. A second problem is that most studies test rationality assumptions with a limited set of less serious and minor crimes. Thus, in order to validate rationality hypothesis it is important to develop more studies that include more serious crimes and global indexes of crime. A third problem is the lack of consistency in the

conceptualisation and operationalisation of the rationality construct. This heterogeneity weakens the adequate comparison of rational and non-rational predictors, and particularly undermines many empirical refutations of rationality which do not include fully operationalised versions of this theory. Regarding the second issue, although there are a considerable number of studies focusing on the interactive effects of self-control, there is much less research on the interactive effects of morality, and no research on legitimacy's interaction effects. At present, no studies include comprehensive measures of rationality interacting with these three non-rational mechanisms. Therefore, their potential interrelationships and their size-effects are still an open question.

In the second part of this chapter, I argued that most of the empirical research in criminology and particularly testing rationality, morality, legitimacy and self-control has been conducted in the US and Europe. There is a lack of strong empirical evidence about how well these causal mechanisms work in other regions of the world, particularly in low- and middle-income societies. More research is important to know how these rational and non-rational mechanisms are associated with crime in different demographic, economic, cultural and institutional circumstances of Latin America. There has been an interesting increase in the number of criminological studies in the last two decades and particularly of those that apply an economic approach where rationality plays a key role. However, this research is mainly based on macro-level economic studies and suffers from three main problems: problematic evaluation of rationality micro-level causal mechanisms; weak inclusion of non-rational causal mechanisms which increases the danger of producing biased rationality estimates; and a number of methodological problems associated with the nature of data sets used, i.e., official statistics from criminal justice and health institutions. When it comes to studies that empirically evaluate non-rational causal mechanisms of crime, and particularly those involving moral values, perception of legitimacy and self-control, it is more difficult to find quantitative studies. Most of the few existent studies focus on self-control and almost no

research on morality and legitimacy has been conducted. Additionally, estimates of these non-rational predictors might be biased since these few studies do not include any measurement of rationality. To sum up, given that economic studies of crime tend to exclude measures of morality, legitimacy or personality traits, and given that studies that evaluate non-rational mechanisms exclude measures of rationality, it is difficult to estimate accurately the contribution of both sets of predictors to the explanation of crime and violence in Latin American context.

The chapter ends discussing the importance of conducting theoretically informed and methodologically sound criminological research to help the design of cost-efficient prevention policies in the most violent regions of the planet. Although there has been an increase of criminological studies in the last decade in Latin America, there is still a lack of knowledge on the rationality of crime and its implications for public policies. Particularly, the empirical evidence regarding deterrence strategies demands more research that evaluates empirically the strength and interrelation of rational and non-rational predictors using validated measures. This dissertation aims to tackle this issue. Now that the rationale of this study has been established, the next chapter will describe the theoretical framework and the main hypothesis.

## Chapter II. Theoretical framework

In the previous chapter I argued about the importance of conducting research in Latin America that integrates more valid measures of rationality and non-rational mechanisms and its interactions; that goes beyond the explanation of non-serious types of crimes; and that involves larger and representative samples of the population. The next step is to discuss the theoretical framework and research questions of this PhD dissertation which are used to pursue these goals. In the following pages I tackle these goals in three sections.

I shall start considering the strict or neoclassical model of rationality and its methodological problems. I will initially describe its key conceptual assumptions of criminal behaviour (goal-directed, self-interested, atomistic, oriented to the maximisation of utility, rational, lacking special motivational states) and its macro-level methodological approach. Then I will present four key reasons why these models are so widespread despite the lack of realism of its assumptions and the questionable validity of its measures: the relevance of reliability and parsimony over realism; economics' instrumentalism and the priority of predictive success; the explanatory irrelevance of the micro level; and the inscrutability of individual preferences. Next, I will challenge these arguments and discuss several unsolved problems of the neo-classical model: the lack of predictive success; predictive success as an excessively overriding criteria and its complete disregard for realism of assumptions; the controversial equalisation between prediction and explanation coupled with the lack of empirical assessment of micro-causal links; the inadequacy of revealed preferences solution; and finally, the lack of empirical validity of some of its' key assumptions. Then, I will dedicate a section to review the empirical research of models of rationality in criminology that are based on micro-level data and perceptual studies and discuss the empirical relevance of its main dimensions, namely: the three characteristics of formal sanctions (severity, certainty and celerity); the dual effect of avoidance of sanctions as deterrent and stimulus of crime; the inclusion of informal sanctions both imposed by other

agents or self-imposed; the relation between formal and informal sanctions; the importance of tangible and intangible rewards of crime; and finally the inclusion of illegitimate opportunities. The next section focuses on describing the recent developments in behavioural psychology, particularly the social information processing model and the response evaluation and decision model, and their inclusion of cost/benefit evaluation of antisocial and aggressive behaviours. Finally, I will discuss the relevance of bargaining power and youths' self-perception of fighting abilities to explain youths' involvement in antisocial behaviour.

In the second part of this chapter I will review three non-rational causal mechanisms that might interact with rationality in the explanation of crime. First, I will discuss the role of morality. Here I will criticise its conceptualisation as a variant of rational choice's causal mechanism (i.e. another type of informal cost). I will argue for a non-rational definition based on some distinctive characteristics such as unconditionality, past orientation, the presence of a cognitive filter that blocks rewarding choices, and its public nature and its dependency on expectations about how to behave and how punish free riders. I will continue discussing the difference between moral norms and social norms, the contribution of studies of moral emotions in developmental psychology, and the recent incorporation of morality and emotions to the social information processing model. Next, I will review recent studies that evaluate morality's direct and moderating effect upon crime. A second non-rational causal mechanism that will be examined here is legitimacy. Again, I will argue for its non-rational definition, distinguishing the concept of legitimacy from the concept of morality, and discussing its diverse conceptualisations, forms of operationalisation and controversies about its necessary and sufficient components. Then, I will also review results from existent micro-level studies that evaluate legitimacy's direct connection with crime. A third non-rational causal mechanism that I will evaluate here is self-control. I will make explicit three non-rational complementary aspects (failure to anticipate long-term costs, lack of ability to restrain, emotional

component). I will also review empirical evidence about the interactions of self-control with sanction threats and discuss the three different type interpretations in the literature (invariance hypothesis, inelastic individuals; hypersensitive individuals).

The third and final section of this chapter will go over the main research questions and hypothesis of the study regarding both principal and interaction effects of the four main constructs: rationality, morality, legitimacy and self-control.

## **II.a. Rational mechanisms**

### **II.a.i. The strict neoclassical model of rationality**

The neoclassical rational choice model of crime was formally developed by Becker (1968; 1993). Since then, it has been extensively applied to the workings of the criminal justice system to understand the deterrent effects of: imprisonment (Johnson & Raphael, 2012; Hjalmarsson, 2009; Lee & McCrary, 2009; Levitt, 1996; Weisburd, Einat, & Kowalski, 2008); the death penalty (Dezhbakhsh, Rubin, & Shepherd, 2003; Dezhbakhsh & Shepherd, 2006; Ekelund, Jackson, Ressler, & Tollison, 2006; Ehrlich, 1977; Katz et al., 2003; Mocan & Gittings, 2006); specific law enhancements such as the California's three strikes law (Kessler & Levitt, 1999); increasing arrests (Corman & Mocan, 2013; Levitt, 1998); increasing police resources (Evans & Owens, 2007; Marvell & Moody, 1996; Levitt, 1997; McCrary, 2002); and laws that facilitate the use of lethal force in self-defence (Cheng & Hoeckstra, 2012). Some economists have extended this framework beyond the criminal justice system to the education system and the labour market. For example, Grogger (1998) analysed the connection between falling real wages and youth crime. Lochner and Moretti (2004) focused on the inverse link between graduation from high school and incarceration. Aizer and



Doyle (2013) also analysed how incarceration increases juvenile offenders dropout rates from high school and, in turn, increases their adult incarceration. Others have expanded the neoclassical analysis through the inclusion of both legal and illegal human capital associated with legal and illegal labour markets and its inertial effects over individual choices between work and crime (Mocan, Billups, & Overland, 2005). Finally, some economists have explored less orthodox topics such as the connection between crime, height and weight since they operate as disadvantages in the labour market (Bodenhorn, Moehling, & Price, 2012; Bodenhorn & Price, 2009) or connections between physical attraction and crime through loss of human capital in the labour market (Mocan & Tekin, 2010).<sup>32</sup> This approach to crime combines a conceptually strict or 'thin' version of rationality with a particular methodological approach. In the next pages I will: introduce its five key conceptual characteristics; comment on its methodological approach; and finally present four arguments in favour of strict rationality models despite the lack of realism of its assumptions and the problematic validity of its measures.

Conceptually, the neoclassical model assumes that crime like any other type of human behaviour is goal-directed, self-interested, atomistic/free, oriented to the maximisation of utility, rational, and does not require any special type of motivational or personality components. Let us briefly describe each feature.

First, criminal behaviour is future-oriented and conditional upon the attainment of goals in opposition to sociological models where behaviour is usually conceived as past-oriented and following rules, norms, or being guided by learned habits (Gambetta, 1987; Elster, 1989d).

Second, crime is 'egoistic' or guided by considerations that best realise the actor's own self-interest in opposition to others actors' interests or values

---

<sup>32</sup> Many of these models involve specifications to Becker's model. I have neither the space nor the technical competence to discuss them here but useful introductory reviews on these issues can be found in McCarthy (2002) and Eide et al. (2006).

(Becker, 1968; Bushway & Reuter, 2008; Paternoster, 2010). However, multiple studies conducted by experimental economists have showed that individuals not only care about their own gains but also about others payoff, that is, they care about fairness and reciprocity, challenging the '*selfishness axiom*' (Henrich et al., 2007).<sup>33</sup> Although economic theory, and particularly classical economic theory is usually based on self-interest, the rational model of action does not need to include this assumption (Elster, 2012). There is nothing irrational about having altruistic preferences or caring about others' pay-off. Thus, McCarthy distinguishes the neoclassical Chicago school model based on self-interest from the 'present aim standards' school which is less strict and assumes that individuals consider costs and benefits of any kind, whether they are egoistic or altruistic (2002:421, see also Hechter & Kanazawa, 1997).

Third, criminals are relatively free actors determined only by their own decisions (Paternoster, 2010). There is an atomistic depiction of agents whose key properties are not affected by other agents, groups, or institutions (Coleman, 1990; Kincaid, 1995; Pettit, 2002). The offender is the only strategic agent in a stable environment where other agents lack the ability to act strategically (Elster, 1983). Game theory enables the inclusion of dynamic interaction among several strategic decision makers. Although the economic approach to crime is mostly based on decision theory, some authors have applied variations of game theory (for a brief introduction see McCarthy, 2002:430-434; see also Matsueda, 2013).

Fourth, crime is conceptualised as just another type of economic decision where individuals respond to incentives and are guided by the assessment of costs and benefits in order to maximise utility. Individuals engage in crime when its expected utility is superior to the expected utility of other legal alternatives

---

<sup>33</sup> The behavioural economist Hebert Gintis argues differently: rational actors can include not only self-regarding preferences but also other-regarding preferences where actors are interested in improving the pay-offs of other actors as long as it has an impact in their own pay-offs. Thus, other – regarding preferences is not the same as altruism. Rational actors cooperate with others not for the sake of helping others, but with the expectation that the other will reciprocate (Gintis, 2013).

(Becker, 1968; Ehrlich, 1977; McCarthy, 2002). Although the conceptual framework enables the inclusion of different tangible and intangible costs and benefits, economists have mostly focused on the balance between the costs associated with the probability of arrest, conviction and punishment, the opportunity costs of punishment, (i.e., losing income from legal employment), and the financial/monetary benefits of crime (Tittle et al., 2010).

Fifth, an individual's decision to commit a crime is 'rational'. At a very basic level, to be rational means to be able to achieve goals in the most efficient way (Weber, 1951). However, according to Elster, rationality involves optimisation at three levels (See Figure 4). First, the actor should choose those courses of action 'that best realize the desires, given his beliefs about the consequences of choosing them' (2007:54). This first optimisation condition involves consistency between what agents want (desires or preferences), what they think has to be done to get what they want (beliefs), and what they actually do (actions). The two key mental states have a different status: while preferences are exogenous or given and do not need to pass a rationality test, beliefs need to be optimally grounded on information available (Elster, 1983). In other words, preferences are used to check the rationality of actions and beliefs but they are not subject to any rationality check themselves (Elster, 1989c). Therefore, the second level of optimisation consists in having to infer beliefs 'from the available evidence by procedures that are most likely [...] to yield to true beliefs' (Elster, 2007:54). Since beliefs should be adequately grounded on evidence they cannot be affected by desires. When that is the case, an irrational causal mechanism called 'wishful thinking' takes place: the actor believes what he desires to be the case (Elster, 2007; Hedström, 2005).<sup>34</sup> <sup>35</sup> The third condition of optimality requires that the

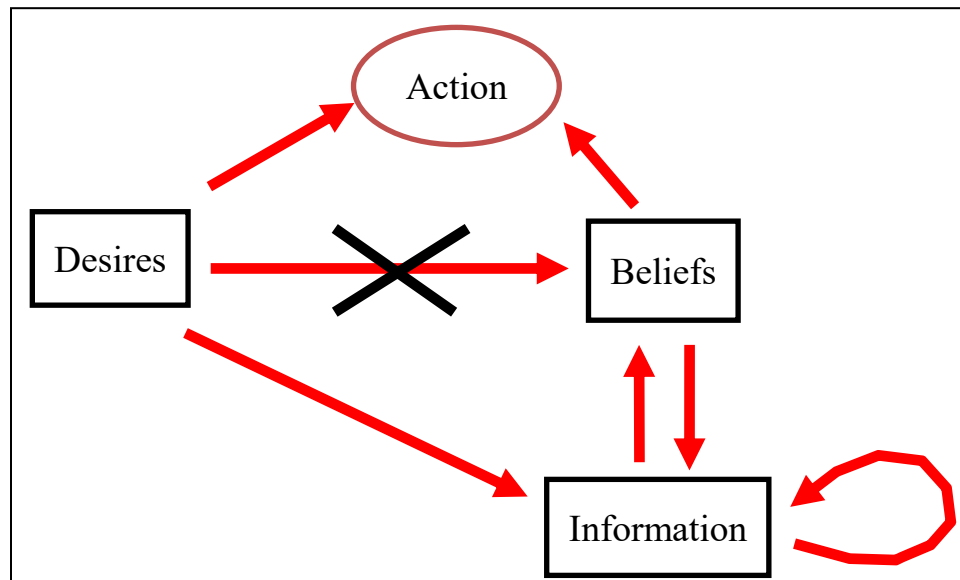
---

<sup>34</sup> There is key difference between a stricter and less realistic model of rationality where beliefs are truthful since actors have perfect information, and a less strict model where beliefs do not need to be truthful, but rather need to be reasonable surmised as truth. Given certain evidence, it is rational to believe X even if it later turns out that it could be false. Being rational is not being successful, but rather, not having good reasons to think we might have decided in a more optimal way (Elster, 1983).

<sup>35</sup> In criminology, this second level of rationality refers to the connection between objective and subjective probabilities of punishment. That is, how accurate are actors' perceptions and beliefs

search for information should also be optimal. Actors need to expend an optimal amount of resources (neither too much, nor too little) gathering information based on how relevant the decision is (desires) and what the expected costs of searching for more information are (beliefs) (Elster, 1989c).<sup>36</sup>

Figure 4: Rationality



Source: Elster, 2007

Finally, a corollary of previous assumptions is that there is no need to appeal to special motivations or personality traits to explain crime. The difference between criminals and non-criminals lies not in motivations that are constant or given (self-interested maximisation of expected utility), but in how costs and benefits are evaluated by actors (Bushway & Reuter, 2008; Eide, 2000; Eide, Rubin, & Shepherd, 2006; Paternoster, 2010; Paternoster & Pogarsky, 2009). As Eide and colleagues (2006) state, the ‘...explicit assumption that individual preferences are constant distinguishes *criminometric* studies from most other

---

about the costs and benefits of committing crimes. Interestingly, although this is one of the key assumptions of rationality, empirical evidence shows that is hard to argue that offenders’ beliefs about costs of crime are based on rational procedures of collecting information (Apel, 2013).

<sup>36</sup> However is it possible to make such an optimal decision? Long ago, Nelson & Winter (1982) warned us that it was very difficult: in order to make a rational decision we need to collect information, but gathering information is costly and can be done inefficiently either by collecting too little or too much information. In order to know when to stop searching for information we need to do an additional search for information to make a rational decision to know when to stop searching for information, and so on.

studies in criminology...[And, even if]...preferences differ among individuals, estimates of the effects of sanctions will be relevant for an “average” person’ (2006:15). Most neoclassical models are based on official statistics and do not involve direct measures of how individuals perceive the different costs and benefits of crime. Therefore, the differential assessment of costs and benefits refers simply to the fact that actors face a differential structure of costs/benefits, which also implies differential opportunity costs of committing crimes.

Methodologically, most of these studies are based on aggregated cross section or time-series of official statistics and only in a few cases are individual or micro-level data sets employed (Eide et al., 2006). These aggregate studies, also labelled as ‘macro-level’ or ‘ecological’ studies, associate objective measures of certainty and severity of punishments (e.g. imprisonment rates, length of sentences, level of police resources, etc.) as independent variables with official crime rates as dependent variables (Nagin, 1998; Nagin, 2013b; Tittle et al., 2010). As mentioned, some economic studies have also included non-criminal justice measures of independent variables associated with rationality such as wages, school performance, human capital and the like.<sup>37</sup>

Despite strong criticisms of unrealism of their assumptions and weak validity of their measures (Akers & Sellers, 2012; Matsueda et al., 2006; Piliavin et al., 1986; Young, 2011; Williams & Hawkins, 1986) strict models of rationality have been defended on various grounds in the social sciences.

First, lack of realism in models’ assumptions are acknowledged but it is argued that there is a trade-off between including complex and realistic non-rational causal properties such as norms, emotions, values, etc., and weakening the parsimony or fruitfulness of the explanatory models (Jasso, 1988; Kanazawa,

---

<sup>37</sup> Again, whilst I lack technical competence to assess the various statistical analyses applied in these studies it is clear that there have been major methodological advances from initial basic cross-section bivariate correlations conducted in the early 1980s, to the more recent use of instrumental variable regressions and panel time series (for useful reviews on this issue see Eide et al., 2006, and Nagin, 2013a).

1998; Kincaid, 1995). This ‘tractability instrumentalism’ (Hedström, 2005) or ‘sociological dandyism’ (Goldthorpe, 1998; 2004) prioritises simplicity, precision, and parsimony over realism (see also Katyal, 1997).

Second, the lack of realism in strict rationality models’ assumptions is considered irrelevant. There is no such thing as ‘realistic models’ and some degree of abstraction or reduction of social complexity is an inevitable condition of the social sciences (Hedström & Swedberg, 1998; Hernes, 1998).<sup>38</sup> Therefore, from the ‘instrumentalist position’ the decisive criteria for assessing models should be their predictive success rather than the realism of their assumptions (Blaug, 1992; Friedman, 1953; Kanazawa, 1998).<sup>39</sup>

Third, the focus is the aggregated consequences of actors and their choices, therefore, there is no particular interest in explaining the behaviour of individuals. Since the latter play only an auxiliary role in explaining the former, the reality of agents’ psychological assumptions is of little relevance (Hicks, 1939; see also Hechter & Kanazawa, 1997). On similar lines, it has been argued that, since what matters in explanatory terms is the structure in which individuals make options, and since on many occasions different sets of motivational individual states (preferences and beliefs) produce the same macro outcomes, assuming false motivational/psychological individual states does not affect adequate explanations of aggregates (Statz & Ferejohn 1994 in Hausman, 2001).

---

<sup>38</sup> As Hermes claimed: ‘There is a widespread misconception that social science is about human beings. This fallacy brings to mind the riposte of Matisse when a critic assailed one of his works with the words: ‘This is not a woman. A woman cannot look like that’. To which Matisse responded: ‘It is not a woman. It’s a painting depicting a woman!’ (1998:74).

Some economists argue that the theoretical emphasis of their discipline simply follows standard procedures in the philosophy of science. In economics, ‘real persons’ with a more complex and detailed characterisation are considered ‘pre-theoretical entities’ and the focus is on non-observable ‘theoretical entities’ such as ‘economic agency’. What is the difference with what physicians do? As Ross claims: ‘I have never heard anyone insist that physicists ought to stop modelling fields and manifolds and go back to generalizing directly about rocks and tables’ (Ross, 2012:692).

<sup>39</sup> However, some behavioural economists have argued that expected rationality and particularly utility maximisation does not need to be defended only as an ‘*as if*’ story. Recent neuroscience studies are starting to provide evidence of maximisation of utility in the neural circuitry and functioning of the brain (Gintis, 2009; see also Sanfey, Loewenstein, McClure, & Cohen, 2006).

Finally, many economists assume explicitly or implicitly Samuelson's 'revealed preferences' approach (1938). Mental states are an inscrutable and non-observable entity, which cannot be measured in a valid way. Asking people through surveys what they think is useless, since, due to social desirability, they would provide us inaccurate and false reasons for their behaviour (Becker, 1990; Heinecke, 1988). The only alternative is to observe directly people's behaviour and infer which were their original preferences. Hence, when we observe agents' behaviour and they choose A over B, they are 'revealing' their invisible preferences for A over B. As long as actors also choose B over C, and A over C, and therefore act according to the transitivity of preferences assumption, it can be assumed that actors are rational and we can use economic theory to explain the aggregate consequences of individual actions excluding problematic elements such as preferences (Blaug, 1992; Hausman, 2011; Sen, 1973; Varese, 2001).<sup>40</sup>

#### **II.a.ii. Problems around the strict rationality model**

Strict rationality models and the aforementioned arguments used to defend rationality as a key explanatory property in social sciences and particularly in criminology have raised a number of serious objections.

First, the idea that assumptions can be inaccurate or even plainly false as they play only an instrumental role in the explanation of macro outcomes demands that neoclassical models achieve a level of predictive success that has been called into question in social sciences (Elster, 2000; Elster, 2009b; Rosenberg, 2008) and particularly in criminology (Pratt & Cullen, 2005; Young, 2004). As Elster has argued '[The]...theory of quantum mechanics is accepted because its predictions are verified with nine-decimal accuracy. Similarly, in spite of the general objections to rational-choice theory...one might be willing to accept it if its predictions were verified with comparable many-decimal precision.

---

<sup>40</sup> Or as illustratively Becker has stated: 'De gustibus non est disputandum' (In matters of taste, there can be no disputes) (Stigler & Becker, 1977).

However, anyone with the slightest acquaintance with economics or political science will dismiss the idea as laughable. Often, scholars are happy if they get the sign right' (2009b:7).

Second, it is one thing to accept that models inevitably simplify reality and cannot include every aspect of reality, and quite another to include assumptions that are knowingly false just because they enable the production of effective predictions under sophisticated statistical models (Sen, 1980 in Hedström, 2005). Instrumentalism fails to distinguish between propositions that are 'descriptively incomplete and those that are descriptively false' (Hedström, 2005:62).<sup>41</sup> Moreover, there is a substantial difference between acknowledging that there should be a trade-off between the realism of a model and its predictive power on the one hand, and assuming that prediction is the overriding criteria on the other hand (Kincaid, 1995; Sugden, 2000; 2009). Strict rationality models are 'a form of social science fiction' so removed from the real world that undermines any pretension to provide an adequate explanation (Elster, 2009b). As Rosenberg argues, it is the comparison with physics that reminds us to be careful with the lack of concern with realism at the micro level. The kinetic theory of gases requires 'gas molecules to behave like billiard balls on a table...[even though]...they are point masses, that is, have mass but not volume, and that there are no intermolecular forces acting between molecules – they just bounce off each other with perfect elasticity' (Rosenberg, 2008:94). However, this law predicts well because these two assumptions, although unrealistic, are close to the truth description of molecules. The reasons for defending models that predict

---

<sup>41</sup> Moreover, in relation to giving so much relevance to elegance and parsimony, Hedström continues to argue that to '...use false assumptions because they lead to tractable and elegant solutions reminds me of the man who was crawling under the lamp post looking for his lost key. When asked what he was doing he answered: I am trying to find a key I lost over there. But if you lost the key on the other side of the street, why on earth are you looking over here? [...] The man answered: Why on earth should I waste my time looking over there? The light is so bad that I'd never find anything there! [...] No matter how much easier the introduction of knowingly false assumptions make the analysis, it will not help us to find the correct explanation because the resultant theory then looks for answers in the wrong places' (Hedström, 2005:64). On similar lines, Kahan argues that economic approach to crime 'is practical but thin...It is the very economy of economics that ultimately subverts it: its account of human motivations is too simplistic to be believable' (1997:2477).



well is that their assumptions, although unrealistic, are more likely to be true (2008:94).<sup>42</sup>

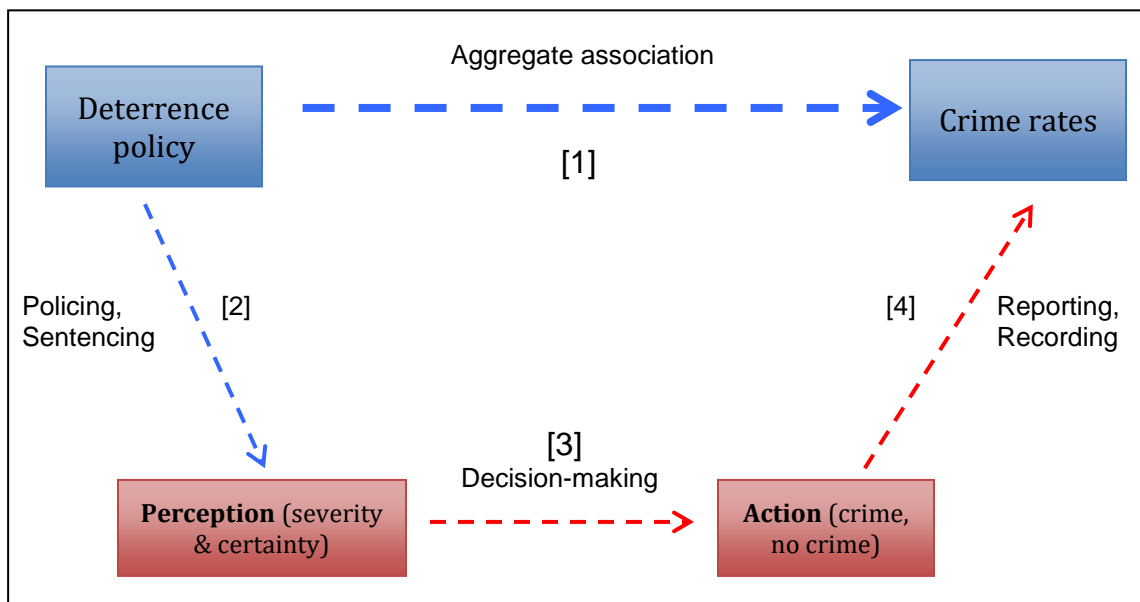
Third, the instrumentalist focus on the association between phenomena, controversially equates prediction with explanation. However, if we are interested in the explanation of crime, we would like to know not only if two phenomena are associated (a necessary but insufficient condition to identify an explanatory relationship), but also how and why these associations took place (Elster, 1989a). We require an account that follows a 'reductionist strategy' and 'narrows the gap between cause and effect' (Hedström & Swedberg, 1998:25). The main goal is to make explicit the internal workings of the explanatory 'black boxes' and identify what processes generate the causal link between causes and effects (Boudon, 1998; Elster, 2000; Hedström & Bearman, 2009; in criminology see Sampson, 2011; Wikström & Sampson, 2006; Wikström, Oberwittler, Treiber, & Hardie, 2012). This is a very pressing issue for strict rationality models based on ecological studies, given that they employ aggregated level variables, despite their theoretical framework explicitly assume methodological individualism explanatory premises (Eide et al., 2006; Matsueda, Piliavin, & Gartner, 1988). They only establish the connection between macro-level phenomena and infer rationality without actually testing the micro-level mechanisms that connect both phenomena (Coleman, 1990). On these lines Hausman (2001) argues that in neoclassical economics, individual choices should not be assumed as a 'scaffold' that can be discarded once we get to the macro level. Individual components play a key role in the causal link that connects two macro-level states, for example, when trying to predict how a new tax will lead to a new equilibrium. Wikström (2007) makes the same point in criminology except, that rather than macro-equilibriums he mentions changes in deterrence policies and their effects on aggregate crime rates (see Figure 5). Deterrence macro-level studies based on

---

<sup>42</sup> Assuming an instrumentalist approach has the additional problem that 'makes the empirical success of a theory a source of mystery' (Little, 1995:8). What can explain that a theory is able to generate stable successful predictions other than that its underlying axioms and mechanisms are true or approximately true?

official statistics assume rather than prove the connection between penal sanctions and crime through individuals' perceptions (Kleck et al., 2005; Nagin & Pogarsky, 2003). As mentioned before, many of the most sophisticated macro studies that provide empirical support to rational models might demonstrate the connection between a change in penal costs and a change in crime rates, and yet, are unable to disentangle if the operating causal mechanism is a rational one (deterrence) or something different like incapacitation (Blumstein, Cohen, & Nagin, 1978; Nagin, 2013a; Paternoster, 2010).

*Figure 5: Macro-micro connections  
(Wikström's adaptation of Coleman's Boat)*



Source: Wikström, 2007

Fourth, defending strict rationality models based on consistency of choice (Samuelson's revealed preferences argument) is not without problems. For starters, the crucial link between preferences and actions is absent and consequently it is speculative. What is worse, the lack of independent or non-behavioural measures of preferences makes it difficult to avoid the problem of tautology, and behaviours end up being simultaneously an indicator of preferences and what is to be explained (Sen, 1973). Additionally, it is impossible to discriminate adequately rational from irrational behaviour. Since preferences

have been excluded and consistency of choices is the unique empirical proof of rational behaviour, there is no way to differentiate between cases of irrational behaviours that violate the transitivity principle, and cases where there is a change in preferences over time and behaviour remain rational (Rosenberg, 1992; 2008).

Finally, macro-level measures used by the strict rationality models have been questioned as valid indicators of individuals' perceptions of penal sanction. One of its most problematic assumptions is perfect information which means that actors actually 'know the objective certainty of arrest and imprisonment' (Matsueda et al., 2006:97). As actors' perceptions are not measured and tested, the empirical validity of a close connection between objective probabilities of punishment and subjective estimations of punishment is always inferred (Kleck et al., 2005; Williams & Hawkins, 1986). However, one of the 'dirty little secrets' of deterrence studies (Paternoster, 2010:804) is that there is no systematic association between objective and subjective probabilities of crime; individuals are not well informed about costs of crime (Apel, 2013; Kleck et al., 2005; Lochner, 2007; Nagin, 1998; Paternoster, 2010). This weak empirical connection between macro and micro level is a strong argument for demanding the measurement of deterrence concepts at the correct level of analysis: the individual level (Matsueda et al., 1988). Additionally, economists' criticism of the validity of self-reported measures (e.g. Heinecke, 1988) is not tenable as research has shown that self-report measures are not only valid and reliable but also a better methodological option than official measures usually employed in ecological studies (Hindelang, Hirschi, & Weis, 1979; Matsueda et al., 1988; Thornberry & Krohn, 2000).

### II.a.iii. Criminological models of rationality based on micro-individual data and perceptual measures

The aforementioned problems, and particularly the scepticism about the true nature of individuals' subjective perceptions as a causal link to crime, lead many scholars to explore more adequate ways of testing rationality assumptions through 'perceptual studies'. The key idea is that it is problematic to assume that deterrence operates automatically: penal sanctions are ineffective or causally irrelevant as long as individuals are unaware of them (Gibbs, 1975; Zimring & Hawkins, 1973; Kleck et al., 2005). Therefore, the strong assumption that actors know the probability of outcomes is abandoned and individuals are allowed to have their subjective probability (Nagin, 1998). Thus, perceptual studies seek to use surveys to measure directly the perception of costs and benefits of crime, rather than to infer it from behaviours (Matsueda, 2013). In this section: I will review the three key aspects of the perception of sanction threats (severity, certainty and celerity), its interactions and its explanatory relevance; I will discuss the inclusion of the perception of avoidance of punishment both as stimulus for crime and as deterrent; I will analyse the importance of going beyond legal punishment and including informal costs, its relationship with formal sanctions and its empirical relevance; and finally I will consider the inclusion of rewards and opportunities.

In principle, rational agents have incentives to avoid the costs associated with penal sanctions as much as possible. Three characteristics of penal sanctions are relevant: severity, certainty, and celerity. There is an inverse relationship between involvement in crime and: the severity, or beliefs about the magnitude of penalties; the certainty, or beliefs about how likely is it that an offender will be caught and punished by the authorities; the celerity or belief about the immediacy of penal sanctions following the crime (Gibbs, 1975; Paternoster, 1989b). However, empirical research has shown that these characteristics are not equally relevant. Whilst there has been strong empirical

support for the deterrent effect of certainty, the effects of severity and celerity have been less conclusive (Bachman et al., 1992; Legge & Park, 1994; Lochner, 2007; Horney & Marshall, 1992; Matsueda et al., 2006; Nagin & Paternoster, 1993; Nagin, 1998; Nagin & Pogarsky, 2001; Paternoster, 1987; Pratt et al., 2006). However, there are some caveats. First, most deterrence studies do not include tests of the celerity effect (Akers, 1997; Loughran, Paternoster, & Weiss, 2012; Nagin & Pogarsky, 2001). Some authors argue for the irrelevance of celerity in the decision to commit a crime (Gibbs, 1975), and others about its inverse effect, as people might prefer delayed punishments (Paternoster, 1989b). Nagin and Pogarsky claim that it is a matter that has to be settled empirically and that there is no reason in principle to favour deferring the punishment rather than 'getting it over with it' (2001:868).<sup>43</sup> Second, it has been argued that severity's weak effect may be due to: problems of invalid measurement; the use of aggregate measures that sum up sanctions with very different levels of seriousness; or model specification issues (Paternoster, 1989a; Pratt et al., 2006; Williams & Hawkins, 1986). Finally, another matter of controversy is the existence of a multiplicative/interactive effect where severity and certainty are connected. Deterrence effects can be evaluated at least in two ways: i) as the *addition* of two independent effects (severity and certainty); ii) or as the multiplication of these two interconnected effects (Cochran et al., 2008). The latter involves the assumption that the effect of severity is dependent on sufficiently high levels of certainty and conversely the deterrent effect of certainty will be stronger when punishment is perceived to be severe (Blumstein et al., 1978; Grasmick & Green, 1980; Klepper & Nagin, 1989; Williams & Hawkins, 1986). However, the greater the severity of the legal sanction, the less certain it is that it will be applied, and at the same time, penal sanctions with low certainty should be severe enough to have minimal deterrent effect (Akers, 1997).

---

<sup>43</sup> I will come back to this issue when I discuss impulsivity and rationality in part II.c.iii. (self-control).

Additionally, Stafford and Warr have argued that an individual's involvement in crime is influenced not only by experiences of punishment but also by experiences of avoidance of punishment. Therefore, specific deterrence<sup>44</sup> is reformulated as the 'effect of direct [or personal] experience with punishment and avoidance of punishment' and general deterrence as the 'deterrent effect of indirect [or vicarious] experience with punishment and punishment avoidance' (1993:126 – 127). According to Stafford and Warr, the stimulating effect on crime associated with avoidance of punishment might be more relevant than the deterrent effect of punishment. Although there is little research that specifically tests this theory, the studies which have looked at this aspect are generally supportive of this hypothesis (see for example, Freeman & Watson, 2006; Paternoster & Piquero, 1995; Piquero & Paternoster, 1998; Piquero & Pogarsky, 2002; Sitren & Applegate, 2007; 2012). However, other authors have argued for an alternative causal mechanism called 'gambler's fallacy' or 'resetting effect': individuals who get involved in crime and avoid punishment on several occasions might feel that their luck is about to end and might think that there is greater certainty of being caught next time; alternatively, individuals that have been punished several times after committing a crime, might believe that these experiences increase the likelihood of not being detected and sanctioned in future crimes (Pogarsky & Piquero, 2003). Both cases (Stafford & Warr's theory and Pogarsky & Piquero's resetting effect) involve a deviation from strict rational formation of beliefs (see Elster's second optimisation filter in section II.a.i.) as their cost estimates are grounded on their biased personal experience and/or their peers' experiences rather than on actual probabilities. Particularly, Pogarsky & Piquero's resetting of the costs estimate of sanctions is based on the incorrect assumption that a series of random events are in fact connected and influence the probability of the future event. Therefore, future deviations in the opposite

---

<sup>44</sup> A distinction is made between specific and general deterrence. Specific deterrence means that an individual's practical experience of penal punishment will influence his perceptions of the likelihood of suffering future sanctions, and will make him less likely to re-offend in the future. General deterrence implies that individuals do not get involved in crime initially as they are deterred by their perception or abstract knowledge of penal sanctions they might suffer (Pogarsky & Piquero, 2003).

direction are more likely. The causal mechanism that produces these non-rational beliefs is availability heuristic.<sup>45</sup>

Another key issue in perceptual studies is the need for rational choice explanations to include a wider set of costs beyond the threat of legal sanctions as independent variables of crime (Williams & Hawkins, 1986; Grasmick & Bursik Jr., 1990). Focus on informal or extra-legal costs enables rational choice models to integrate the sociological dimension of social and moral norms traditionally neglected by orthodox economic models (Elster, 2009c; Mehlkop & Graeff, 2010; Smelser & Swedberg, 2005; Swedberg, 1990). There is a strong influence of social control theory and its emphasis on informal sanctions from family or school as sources of external control (Hirschi, 1969; Sampson & Laub, 1993). There is also an acceptance of the compatibility and potential integration between social control and rational choice theories (Hirschi, 1986, see also Grasmick & Bursik Jr., 1990; Paternoster, 1989a; Zimmerman, 2008).

Informal sanctions or costs have been conceptualised and operationalised in several ways. First, one source of informal costs are 'stigma' or 'reputational costs', and refers to how other significant actors (peers, family, teachers, neighbours, etc.) evaluate and disapprove of adolescents' involvement in criminal or deviant behaviour (Paternoster, 1985; 1989a; 1989b; Paternoster, Saltzman, Waldo, Theodore, & Chiricos, 1983<sup>46</sup>, Williams & Hawkins, 1986).<sup>47</sup> The 'opportunity costs of crime' or 'rewards for not committing crimes' form a second

---

<sup>45</sup> Specifically, heuristic availability takes place when a 'judgment about the likelihood of an event is shaped by the ease with which it can be brought to mind, and recent events are more readily available than earlier one' (Elster, 2007:131).

<sup>46</sup> In Paternoster et al. (1983) items associated with informal costs are associated with Hirschi's concept of 'attachment' and involve measuring how important it was that other significant actors (peers, family, girlfriend/boyfriend) approved of his/her behaviour, how influential it was, and how much he/she wanted to be the same kind of person as these significant others (1983:462)

<sup>47</sup> It is one thing to think and express that a particular type of behaviour is wrong or morally questionable, but is quite another thing to feel negative emotions (e.g. shame) to those who commit that type of behaviour. Whilst the latter requires the former, the opposite is not necessarily true.

type of informal sanction in a broad sense.<sup>48</sup> The negative social consequences of committing a crime vary across individuals and depend on their stakes in conventional spheres: family, education, work, etc. (Hirschi, 1969; 2004). Therefore, individuals with larger investments in conventionality will have more fear of suffering the rupture or breakdown of social relationships and accomplishments, including jeopardising actual or future jobs, educative opportunities, romantic partners, conventional peers, etc. (Matsueda et al., 2006; Nagin & Paternoster, 1994; Williams & Hawkins, 1986; 1989; Wright et al., 2004). Similarly, Williams and Hawkins make a distinction between 'attachment costs' (weakening and even breakdown of interpersonal relationships with significant others) and 'commitment costs' (loss of current accomplishments such as being expelled from school or fired from work, and reduction of future opportunities such as obtaining a job, getting married, etc.) (1986:564–566).

Grasmick and Bursik speak of two additional types of extra-legal costs that rational individuals anticipate when they decide whether to become involved in crime.<sup>49</sup> First, in terms of 'external controls', the individual might feel embarrassment, social disapproval or loss of respect from close and significant actors with whom he is strongly attached (family, peers, partner, neighbours, teachers, employers etc.). This type of social cost imposed by significant others involves both a short-term cost, namely a 'psychological discomfort', and a more long-term one which involves the deterioration and loss of social bonds, social capital and opportunities. This cost includes emotional consequences and the already mentioned attachment and commitment costs. Second, the individual might feel shame, remorse, or self-disapproval for breaking the law as he/she considers these types of act morally wrong owing to his conscience and previous internalisation of norms. Unlike embarrassment, shame is a 'self-imposed punishment'. Like formal sanctions, shame and embarrassment also integrate

---

<sup>48</sup> In the case of the strict economic version, opportunity costs of crime focus on individual's income or wages (Eide et al., 2006).

<sup>49</sup> Williams and Hawkins (1989) use a similar conceptual distinction between 'self-stigma' and 'social stigma'.



ideas of certainty and severity. That is, individuals evaluate how likely they are to experience shame and embarrassment (certainty) and how emotionally painful (severity) would be to experience those emotions (Grasmick & Bursik Jr., 1990:839–841, see also Cochran, Wood, Sellers, & Cochran, 1999; Grasmick, Bursik, & Kinsey, 1991; Grasmick & Kobayashi, 2002; Nagin & Paternoster, 1993; Paternoster & Simpson, 1996; Rebellon, Piquero, Piquero, & Tibbetts, 2010). Some empirical research shows that shame seems to be a stronger deterrent of crime than embarrassment (Grasmick & Bursik Jr., 1990; Makkai & Braithwaite, 1994).<sup>50</sup>

There are a couple of points to be made about the definition of shame and guilt in rational choice's explanation of crime. A first issue is that Grasmick and colleagues' terminology is inconsistent with the psychological literature on emotions. While Grasmick and colleagues define shame as the guilt that an individual imposes on himself and experiences privately, in the psychology of emotions, the terms guilt and shame are used to refer to two different emotions: both involve a negative evaluation and produce physical pain, but they differ in the type of negative evaluation (global referring to the person in *guilt* as opposed to specific referring to the behaviour in *shame*) and on the nature of the emotional reaction (public generated by others in *shame* as opposed to private and self-inflicted in *guilt*) (Tangney, Stuewig, & Mashek, 2007, see also Elster, 2009a). However, in criminology, Braithwaite (1989; Makkai & Braithwaite, 1994) and Rebellon et al (2010) also use this conceptualisation of shame as public and dependent on the reactions of other actors. In addition, a similar concept of guilt as private is used in studies on the development of aggression in children and adolescents by Malti and colleagues (Malti & Ongley, 2013; Malti & Krettenauer, 2013). Second, the definition of emotions as 'inner sanctions' that individuals decide to impose on themselves analogous to external sanctions seems somewhat counterintuitive. When we feel shame or guilt due to something we do,

---

<sup>50</sup> While most of the cited literature tests the effects of shame and guilt using youth crime samples and mundane crime as dependent variables, Makkai & Braithwaite (1994) and Paternoster & Simpson (1996) use samples composed of managers.

we do not choose to feel them as a way of punish ourselves. They simply happen as emotional reactions (Frijda, 1986; Loewenstein, 1996; Loewenstein & Lerner, 2003). Finally, it is important to notice that according to Grasmick and colleagues, only those actors who have moral beliefs about the legitimacy of law and/or have a self-image discordant with breaking the law would feel guilty or remorseful about committing a crime (Grasmick & Bursik Jr., 1990; Grasmick & Kobayashi, 2002).<sup>51</sup>

On a separate issue, there is disagreement in respect to the importance of informal costs and their relationship with formal sanctions. First, in terms of their relative importance, there is evidence suggesting that informal costs are deterrents at least as strong as formal penalties (Nagin, 1998; Nagin & Pogarsky, 2001; Williams & Hawkins, 1986) and in some cases they have even stronger inhibiting effects on illegal behaviours (Grasmick & Bursik Jr., 1990; Green, 1989; Paternoster, 1985; Paternoster et al., 1983). Extra-legal costs have also an effect moderating the connection between the perception of legal costs and crime (Makkai & Braithwaite, 1994; Paternoster & Simpson, 1996), and in some cases weakening considerably the role of legal sanctions (Paternoster, 1985; 1987; Paternoster et al., 1983). Second, there is a discussion about the additive or interactive nature of the relationship between both types of sanctions. On the one hand, some authors argue that the deterrent effect of extra-legal costs is independent and takes place even in those situations where penal sanction does not take place (Bouffard, 2002; Grasmick & Bursik Jr., 1990). On the other, some authors claim for the 'socially mediated process of deterrence' (Wenzel, 2004b:550), that is, extra-legal costs are relevant but only contingent upon formal sanctions. Therefore, it is the possibility of being detected by the criminal justice system ('fear of arrest'), rather than the crime itself ('fear of the act'), that

---

<sup>51</sup> Whether it is adequate to conceptualise emotions in this way, and whether it is adequate or not to speak about rational choice models when morality and beliefs play such an important role is a matter I will come back in the discussion about morality in the next section (II.c.i. morality). As well, the extent to which emotion as a self-imposed cost is a sound concept consistent with rational choice framework or involves causal mechanisms more associated with irrationality will also be discussed along with the conceptualisation of morality.

generates the fear of hostile disapproval from significant others and from the actor's own moral conscience (Wenzel, 2004a; Williams & Hawkins, 1986; 1989; Zimring & Hawkins, 1973). A third consideration is that informal sanctions should not be assumed as independent of the proportion of individuals that have broken the law and have been punished. The deterrent effect of informal costs might be dependent on the fact that it is a relatively rare event and most people do not get arrested and legally punished. There might be a depreciation of the stigmatising effect of being arrested and punished by the state when it becomes a widespread event (Nagin, 1998). Furthermore, when crime is widespread, an individual might assume that there is low likelihood of being arrested (as it will diminish authorities' capacity to detect criminals, all other things being equal) and also less likelihood of suffering moral aversion, social disapproval, or any other reputational cost (Kahan, 1997).

Probably due to its initial focus on the consequences of law and criminal justice policies, much of the deterrence literature has mostly focused on the costs of crimes rather than on the rewards (Baker & Piquero, 2010; Ward et al., 2006).<sup>52</sup> This limited attention to benefits is not a minor issue as there are reasons to believe that the decision to commit a crime might be taken under a limited rationality much more guided by present and short-term rewards than by future and long-term penal sanctions (Clarke & Felson, 2004; Piliavin et al., 1986). This is even more relevant if we take into consideration the nature of most mundane crimes as providing 'immediate, easy, and certain short-term pleasure' (Gottfredson & Hirschi, 1990:41). Therefore, criminological models of rational decision-making that exclude benefits are 'incompletely specified' (Nagin & Paternoster, 1993:482). In fact, some research has even shown that youths' decision to commit crimes is better explained by their perception of benefits of crime than by their perception of costs (Dhimi & Mandel, 2012; Piliavin, Gartner, Thornton, & Matsueda, 1986). Rational choice models in criminology have

---

<sup>52</sup> D'Arcy and Herath define deterrence theory as 'essentially a subset of rational choice theory that pertains to the perceived *cost portion* of the rational decision process' (2011:653). Italics are mine.

included rewards in two ways: *monetary* and *tangible* gains usually obtained from crimes such as theft, robbery, insurance fraud, etc.; and also intangible and psychic or emotional returns such as peer approval, sense of accomplishment, excitement, fun, coolness, thrill/adrenaline, sexual pleasure, etc. (Bachman et al., 1992; Bouffard, 2007; Clarke, 1983; De Haan & Vos, 2003; Feeney, 1986; Katz, 1988; Loewenstein, Nagin, & Paternoster, 1997; Matsueda et al., 2006; Paternoster & Simpson, 1996; Piquero & Tibbetts, 1996; Tibbetts & Herz, 1996). Whilst some authors like Katz (1988), Ferrell, Hayward, & Young (2008), or Young (2007) argue that psychic returns play a major and independent role in the explanation of crime, other authors such as Tunell (1992) argue that they 'are ubiquitous and second only to monetary returns as important motivators' (Matsueda et al., 2006:102). A review of thirteen studies conducted by Baker and Piquero (2010) showed that the perception of benefits of crime was significantly associated with offending, both for material and psychic benefits, and that the relationship with crime was particularly strong among low-risk individuals.

Finally, a decisive component in rational decision-making is opportunity. Besides an individual's motivation, a necessary situational condition for crime is the presence (and perception) of criminal opportunities, or in routine activities theory language, of 'suitable targets and absence of capable guardians' (Cohen & Felson, 1979; Felson & Boba, 2010). Taking advantage of adequate criminal opportunities and avoiding detection and potential sanctions is part of the rational evaluation of costs of crime (Matsueda et al., 2006). Opportunities have usually been operationalised through two types of proxies closely connected with the social control framework and particularly with the idea of absence of supervision: first, time spent in activities outside home with peers where adults are absent; second, knowledge and level of supervision that parents effectively exercise over the individual (Paternoster, 1989b; Matsueda et al., 2006; Paternoster &

Pogarsky, 2009).<sup>53</sup>

### II.a.iii. Rational evaluation of costs from a psychological perspective: the social information processing model

The study of antisocial behaviours, and particularly of aggression, in behavioural psychology has led to the analysis of how youths' cognitive processes are associated with their decision-making, their cost-benefit evaluations, and their involvement in different types of aggression. One of the most relevant and well-supported models is Crick and Dodge's social information processing theory (SIP). This theory claims that individuals' behaviour is dependent on their reading, analysis and making sense of information in their daily interaction with the social environment. There are five steps or domains of mental processing that take place whenever individuals face social stimulus. First, they need to perceive and organise information about the stimulus, its multiple dimensions, and the social situation ('encoding of cues'). In a second step, the meaning of this encoded information has to be interpreted adequately allowing the attribution of causality and intent to the initial stimulus ('interpretation of cues'). Third, the agent needs to identify his/her specific interests and goals and preferred outcomes ('clarification of goals'). The fourth stage involves the identification of potential ways of reacting to the stimulus either by using old ones drawn from similar situations already experienced in the past or by elaborating new ones ('response access or construction'). Finally, in the most sophisticated step, the agent assesses multiple alternatives ('response decision') so as to select the specific behavioural response to the stimulus (Crick & Dodge, 1994, 1996; Dodge & Crick, 1990).

---

<sup>53</sup> Some authors also have used peer's involvement in crime as a proxy of illegal opportunities (Paternoster, 1989b). However, the construct validity of this measure has been questioned since it is actually measuring differential association (Akers, 1990).

A more advanced version of the SIP model was developed by Dodge together with Fontaine and other colleagues: the *response evaluation and decision model* (RED). This model extends the analysis of the fifth step incorporating several criteria for the evaluation of alternative responses involved in youths' decision-making processes in aggressive behaviour, namely: how likely would it be for the adolescent to respond in that way? ('response efficacy'); how adequate or acceptable would it be to respond in that way? ('response evaluation');<sup>54</sup> how likely is it that this behavioural response will lead to the expected outcome? ('outcome expectancy');<sup>55</sup> how valuable is the expected outcome? ('outcome valuation') (Fontaine, 2012; Fontaine & Dodge, 2006; Fontaine et al., 2010; Fontaine, Yang, Dodge, Bates, & Pettit, 2008).<sup>56</sup>

Additionally, the SIP/RED models have shown that different types of aggression (reactive vs. instrumental) showed functioning problems in different domains or steps of the model.<sup>57</sup> On the one hand, initial steps of the model such as encoding and interpretation of stimulus are more relevant for the explanation of reactive aggressive behaviours. The basic idea is that cognitive limitations and biases play a key in the understanding of reactive violence. Individuals that have a predisposition to perceive and interpret provocations and hostile meanings in neutral or ambiguous situations are more likely to respond aggressively.<sup>58</sup> On the other hand, instrumental or proactive aggression is more associated with

---

<sup>54</sup> Note that this domain the model includes moral beliefs or moral judgement. In recent years, thanks to authors such as Lemerise and Arsenio, the SIP model has been improved through the incorporation of the morality and emotions. I will briefly come back to this issue in the next section II.c.i., focused on Morality.

<sup>55</sup> Outcomes can be emotional or intrapersonal (how the individual thinks he will feel) or societal or interpersonal (how the individual thinks other agents may perceive him) (Fontaine et al., 2010).

<sup>56</sup> Notice that some of these criteria (e.g. outcome expectancy and outcome valuation) tap on some of the themes included in aforementioned criminological models, particularly regarding the evaluation of likelihood and intensity of formal and informal costs and benefits of getting involved in crime.

<sup>57</sup> This typology of violence differentiates between a type of violence that is more cold or non-emotional, strategic, thoughtful, and motivated to achieve a goal (instrumental or proactive), and another one that is more impulsive, spontaneous, emotional or hot, and usually motivated by anger or frustration, and/or as a response against provocations or unfair situations (reactive or defensive) (Dodge, 1991; Fontaine, 2007; Merk, de Castro, Koops, & Matthys, 2005; but see Bushman & Anderson, 2001, for criticisms of this distinction).

<sup>58</sup> The term used to refer to these cognitive problems is "provocation interpretational bias" (PIB).

processing biases in later and advanced steps of the model: youths that initiate aggression in a deliberate and non-impulsive way are more likely to expect positive outcomes and think it is unlikely that they will suffer negative consequences (Crick & Dodge, 1996; Fontaine et al., 2008; Fontaine, 2006, 2015).

The SIP/RED model and its explanation of both types of youth aggression has received empirical support from multiple studies both in conventional samples (Crick & Dodge, 1996; Fontaine, Yang, Dodge, Pettit, & Bates, 2009; see meta analytic review Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002) and offender samples (Dodge, Price, Bachorowski, & Newman, 1990; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Smithmyer, Hubbard, & Simons, 2000). Although most of the research has been conducted on aggressive behaviours, research with SIP/RED models show that the model is also suitable to explain more instrumental and less reactive forms of antisocial behaviour such as cheating, stealing, use of drugs, or vandalism (Fontaine, 2006, 2007). In short, this psychological model provides interesting empirical evidence regarding the relevance of rational cost/benefit analysis particularly for the more proactive and instrumental forms of youth antisocial behaviour.

#### **II.a.iv. Formidability: perception of fighting abilities and aggression**

In recent years models of animal conflict have provided useful tools to understand better youth involvement in violence and aggressive behaviour. Research in evolutionary biology has shown that animals with more bargaining power obtain a greater proportion of resources, and have not only greater chances of reacting in an aggressive way when challenged, but also greater chances of deploying aggression successfully, and less chances of suffering harmful effects due to aggression (Sell, Eisner, & Ribeaud, 2016). This bargaining power has diverse bases such as: 'formidability' or fighting aptitudes; 'coalitional strength' or capacity to use aggression associated and coordinated

with others; and 'mate value' or organisms' attractiveness as a potential mate to have a healthy progeny (Sell, Hone, & Pound, 2012; Sell, Tooby, & Cosmides, 2009; Sell et al., 2016).

This model has been applied to understand human aggression. According to Sell and colleagues, although physical violence is rarely used in actual societies, humans' capacity to deal with conflicts was originally generated, selected and tailored in much more violent earlier environments where the aforementioned bargaining power was decisive. Furthermore, the prediction is that even nowadays in modern and strongly regulated societies, individuals' aggressive reactions will still be adjusted and modulated in part by individuals' fighting ability. Thus, those individuals with fighting abilities will think that violence is an adequate strategy to solve conflicts with third parties and will more likely resort to aggression, particularly males (Sell et al., 2010; Sell et al., 2012). The assumption behind this model is that individuals have the capacity to evaluate adequately their own and adversaries' formidability mainly through some traits such as upper body size, total body size, voice, physical strength, etc. (Muñoz-Reyes, Gil-Burmann, Fink, & Turiegano, 2012; Sell et al., 2009).

Recent research with a sample of Spanish adolescents shows that although there was a significant association between self-perceived fighting ability and aggression, this relationship was significant for men and the strength of the relationship diminished with age (Muñoz-Reyes et al., 2012). Another study conducted with a Swiss sample of adolescents (z-proso study) found that fighting ability, coalitional strength and mate value were associated with youth aggression, but more strongly and consistently for males than females (Sell et al., 2016).



## II.b. Non-rational mechanisms

### II.b.i. Morality

Until recently, morality has been generally neglected by criminological theory and research (Wikström, 2006). As a special type of preference, moral norms have been considered irrelevant and excluded in neoclassical models where the main explanans is the self-interested instrumental cost/benefit calculation (Becker & Mehlkop, 2006; Tittle et al., 2010; Wenzel, 2004a). In fact, as some critics argue 'strictly rational actors should never feel obligated to conform to any norm that conflicts with utility maximization' (Mehlkop & Graeff, 2010:196). Tittle and colleagues argue that even in soft versions of rationality where intangible costs and benefits are included, it is still unclear how to integrate morality (Tittle et al., 2010). In this section I will pursue the following goals: to challenge the idea that morality can be understood solely as a rational mechanism and describe four distinctive non-rational characteristics of moral-oriented behaviours; to distinguish the concept of moral norm from the concept of social norm; to review recent research on moral emotions in developmental psychology; and to review the main findings of empirical research on morality's direct and interaction effects on crime.

Some criminologists argue that morality can be integrated into the rational-choice model (seen in previous sections) as an additional informal cost that can be experienced and anticipated by those who commit a crime (Bouffard, 2007; Grasmick & Bursik Jr., 1990; Pryor, Dalenberg, McCorkle, Reardon, & Wicks, 2008). Therefore, the underlying explanatory mechanism still assumes that behaviour is conditional upon the achievement of goals, thereby involving benefit/cost calculations (Elster, 1989d). However, these solutions offer an inadequate or incomplete understanding of the normative dimension and its causal influence on human behaviour. The idea that we evaluate whether we commit a crime or not based on a 'cold' estimation of how certain it is that we will

feel (or self-impose) guilt and how intense that feeling would be captures very poorly the reactive and unconscious role played by moral emotions in our everyday life.<sup>59</sup> Norms and particularly moral beliefs constitute a non-rational causal mechanism as individuals not only avoid breaking the law because they fear some negative consequence may occur but, more importantly because they evaluate crime as intrinsically 'wrongful' or 'abhorrent' to their moral sense or conscience (Bachman et al., 1992; Braithwaite, 1989; Kroneberg, Heintze, & Mehlkop, 2010; Paternoster & Simpson, 1996; Paternoster & Simpson, 1993; Piquero, Paternoster, Pogarsky, & Loughran, 2011; Pogarsky, 2002). More generally, behaviours guided by morality have some distinctive features that offer scope for thinking that they should not be included merely as another variant of rational behaviour. Four characteristics are worth mentioning.

First, moral-oriented behaviours are not 'outcome-oriented' or conditional upon future achievements; they are rather basically deontological or unconditional. Behaviours oriented by norms follow the form 'never do X' or 'always do Y', rather than 'do X in order to obtain Y' (Elster, 1989b). Hence, they are largely insensitive or inelastic to differential structures of formal and informal rewards and sanctions and to rational consideration of alternatives. Individuals comply with moral norms and do not commit crimes not just (or not only) because

---

<sup>59</sup> The behavioural economist Heber Gintis offers an alternative view of non-consequentialist moral motivations from a rational choice perspective. Gintis distinguishes three types of agents or motivations. First, the rational selfish maximiser usually applied in traditional economic models: the homo economicus. This is a 'sociopath' agent that has no regard for others and only looks after his interest. Second, the homo socialis is a 'conditional reciprocator': he has concern for the wellbeing of other agents and reciprocity but only as long as it ultimately has benefits for him. Finally, the homo moralis is an 'Aristotelian agent' who follows moral rules or goals such as honesty, loyalty, trustworthiness, not for their expected benefits on oneself, others, or the community, but because of their intrinsic value. Since Gintis argues for a definition of rationality based on consistency with no substantive restrictions on actor's goals, moral behaviour would still be rational. Moral values are integrated as just another type of goal in the actor's preference function together with self-regarding and other regarding goals (Gintis, 2009, 2015). I am not sure how well Gintis' model overcomes the problem of describing adequately the nature of morality and its workings. Again, thinking of morality as merely another preference that actors maximise in intentional and deliberate ways does not seem to fit the intuitive idea of moral behaviours that we have as more reactive and non-conscious. Additionally, definitions of rationality that are too ample and capture such a diversity of components run the risk of losing analytical precision and the capacity to be empirically evaluated and falsified. Almost any behaviour can be interpreted as rational!

they are trying to avoid sanctions. They comply because they have a sense of obligation and feel it is the right thing to do even if they face important costs (Bachman et al., 1992; Elster, 1989b; 2009c; Paternoster & Simpson, 1996; Paternoster & Simpson, 1993; Piquero et al., 2011; Pogarsky, 2002; Sen, 1982).<sup>60</sup> Moral actions are 'intrinsically worthy' and do not require additional motivations, particularly formal or informal rewards, in order to be pursued (Pinker, 2011).<sup>61</sup> Morality, in de Waal words, involves 'strong convictions...[that]...can't come about through a cool rationality: they require...powerful gut feelings about right and wrong' (de Waal, 2009:18). Likewise, Korsgaard also argues for this non-rational character of morality as the 'capacity for normative self-government' that allows individuals not merely to choose the most efficient mean to obtain a certain end, but rather to reflect about ends for their own sake regardless of their outcomes or benefits (Korsgaard, 2009:113). This argument does not necessarily mean that individuals who follow moral norms do not obtain benefits either external (e.g. respect from others) or internal (e.g. self-esteem). Rather, that those benefits are not, in Davidson's (1963) terms, operating *ex ante* as the main causal reasons for action.

Second, norm-oriented behaviour follows some type of rule previously learned or internalised by individuals.<sup>62</sup> Behaviour is 'pushed' by the past, rather

---

<sup>60</sup> Modifying McPherson's (1984) phrase quoted by (Paternoster & Simpson (1996:554) it could be said that 'there are too many subtle opportunities to cheat, and too few formal and informal guardians and observers, to make it plausible that the only effective motives supporting moral behaviour are the prospects of formal and informal penalties'.

<sup>61</sup> As Pinker argues, when it comes to moral issues, 'we also have to show that our heart is in the right place, that we don't weigh the cost and benefits of selling out those who trust us. When you are faced with an indecent proposal, anything less than an indignant refusal would betray the awful truth that you do not understand what it means to be a genuine parent or spouse or citizen' (2011:761).

<sup>62</sup> It is, however, worth making some caveats regarding the assumption that morality is simply or exclusively learned by individuals. The idea of individuals born as 'moral blank slates' has been challenged by neuro-psychological research, which shows that morality is affected by human cognitive design (Greene, 2005). Experiments in moral psychology have provided empirical evidence that babies seem to be 'hardwired with an innate moral sense', and the ability to make some disinterested judgments about the goodness and badness of others' actions, kindness and malice (Bloom, 2013). Neuroimaging studies offer additional insights showing that moral decisions generate neural activity in specific areas of the brain (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Moll et al., 2002). Studies using these same methodologies have also shown that antisocial behaviour is associated with inadequate functioning of the neural circuitry related to

than 'pulled' by future potential rewards (Gambetta, 1987; 1998). Wikström also emphasises this past orientation of moral values due to its routine and habitual component. While action based upon deliberation over alternatives is concerned with what is possible and what might happen in the *future*, action based on habits is oriented to the *past* and to previous and known responses (Wikström, 2006).

Third, moral norms act like a filter to the set of available choices or courses of action considered by the individual (Paternoster & Simpson, 1996). According to situational action theory, attractive or rewarding criminal alternatives that would otherwise be selected are not even taken into consideration or perceived ('unthinkable behaviours') as a possibility due to strongly internalised moral norms (Wikström, 2006; Wikström, 2010; Wikström et al., 2011). Similarly, in frame selection theory, 'norms' impose a cognitive framing restriction of information in the decision-making process that simply eliminates a subset of those courses of action that enable norm violation behaviour (Becker & Mehlkop, 2006; Mehlkop & Graeff, 2010; Kroneberg et al., 2010).<sup>63</sup> According to neurocriminologist Raine, most individuals seldom consider the possibility of committing crimes because just the idea of crime develops a feeling of uneasiness as the product of multiple conditioned emotional responses in which individuals were socialised in their childhood: 'Criminal thoughts then get rubbed

---

morality, particularly with its emotional components rather than with its cognitive components (Raine & Yang, 2006). Research has also shown that there is no moral centre of the brain and multiple neural structures are involved in moral decision-making (Greene, 2007; 2011). In particular, antisocial behaviour has been associated with impairments in the several areas of the brain: the ventral and polar/medial prefrontal sectors, the amygdala, and the angular gyrus, and the posterior superior temporal gyrus (Raine, 2013; Raine & Yang, 2006). Finally, a recent review conducted by Siegel and Crockett shows that moral judgment can also be significantly altered by the brain chemistry, and particularly by a specific neuromodulator: serotonin. The inverse relationship between serotonin and aggression observed in the literature can be explained due to the role that serotonin has: altering social values; increasing preference for fairness and reciprocity; and increasing aversion to harm other agents (Siegel & Crockett, 2013; see also Crockett, Clark, Hauser, & Robbins, 2010).

<sup>63</sup> These considerations have methodological implications for the validity of deterrence measures. What is the point of asking questions about crime risks to conventional persons who have never even thought of carrying out crimes? (Klepper & Nagin, 1989; Wikström et al., 2011). As Wikström and colleagues put it: 'what can we learn about the role of the threat of punishment in preventing rape by asking a person who has never or would never consider committing such an act?' (2011:202).

out of your cognitive repertoire – they are off your radar screen’ (Raine, 2013:116). This unconscious component plays an even stronger role when we make a distinction between deliberate and habitual acts. ‘The choice between conformity and criminality does not constitute a real problem, but it is a routine reaction’ (Wittig 1993 in Becker & Mehlkop, 2006:202). Specifically, Wikström’s theory distinguishes between actions based on deliberation of alternatives and actions based on habits. Individuals’ ‘perception of action alternatives’ depends not only on their moral values but also on their moral habits, which are ‘automated responses to a familiar circumstance based on a moral habituation to act in a particular way as a response to the particular circumstance’ (Wikström et al., 2011:418). Therefore, individuals acting out of moral habits might be even less susceptible to criminal options.<sup>64</sup>

Finally, a fourth feature of moral norms is that they are publicly shared by members of a defined community, therefore they generate and are sustained by expectations about how to behave and how to react when people deviate from accepted behaviours (Elster, 1989b, 1989d). Not only are we strongly compelled to follow moral norms but also to disapprove of others who do not comply with them and wish that they do not get away with it (Gintis, 2013; Pinker, 2011). Complying with norms and punishing free riders who don't comply is costly and does not make sense in the context of rational self-interested actors interacting without an enforcement authority. However, empirical evidence from experiments shows that individuals are willing to ‘irrationally’ invest resources to help those who conform to social norms and to punish those who do not. This ‘altruistic punishment’ takes place not only with second parties (Camerer & Thaler, 1995; Fehr & Gächter, 2002) but also with third parties when deviation or antisocial behaviour does not even directly hurt them or their closer relatives (Fehr,

---

<sup>64</sup> However, is it reasonable to claim that moral behaviour always implies the absence of perception of criminal alternatives? For example if an individual with strong moral values faces the problem of being rejected by a girl, or being insulted by a peer, it seems plausible to argue that he does not perceive rape or a murder as behavioural alternatives. However, with less trivial crimes (e.g., not paying the train ticket) individuals might perceive the alternative and the low chances of being caught, and still avoid doing it just because they evaluate it as morally wrong.

Fischbacher, & Gächter, 2002; Fehr & Fischbacher, 2004; Turillo, Folger, Lavelle, Umphress, & Gee, 2002). This 'altruistic punishment' might involve costs of diverse magnitude for the punisher agent which can vary from murder, serious harm or physical pain to more indirect forms of aggression such as exclusion from social life or social disapproval (Eisner & Malti, 2015). According to Elster, the irrationality of norms is explicit even the mildest forms of 'altruistic punishment': social disapproval. Social disapproval of individuals who violate norms is a costly behaviour that uses up energy and might involve losing social capital and economic opportunities. Rational actors should avoid such losses as far as possible. Therefore, if actors express disapproval and they are still rational it should be because i) they fear informal sanctions for not expressing disapproval, and ii) the costs of avoiding disapproval are greater than the cost of expressing disapproval. However, while expressing disapproval has a constant cost, the cost of receiving disapproval does not. Agent A would probably not express indignation and contempt towards agent B who did not express disapproval to agent C who did not express disapproval to agent D who violated a moral or social norm. Therefore, pure rational mechanisms do not seem to fully explain why agents follow norms and punish expressing disapproval to each other when a violation of norms takes place (Elster, 1989b; 2009c).<sup>65</sup>

However, Elster argues that there are two differences between moral and social norms. First, in terms of the context of generation, while social norms necessarily require that other agents observe the individual, moral norms are

---

<sup>65</sup> However, two caveats are worth mentioning. First, some research has shown that altruistic punishment is not as universal as many think (Haidt, 2012). This view regarding that altruistic punishment is widespread is problematic since it is mostly based on lab experiments studies. Guala's (2012) review of studies '*in the wild*' conducted by anthropologists and economic and social historians show that altruistic punishment is rare in small scale-societies where free riders / offenders can be punished in ways that are not costly for the individual that wants to punish: either through indirect hostility (e.g. gossip) or through group or community punishment. Second, reactions to the altruistic punishment of free riders are not universal across societies. A study conducted by Herrman and colleagues shows that while in some places like Zurich, Boston, or Copenhagen, punishment of free riders achieves a deterrent effect, in other places like Athens, Riyadh, or Muscat, free riders not only do not start cooperating after punishment, but they also get angry and start punishing back other players. Thus, this 'antisocial punishment' is more likely to develop and spread in places where there is a fragile rule of law and weak civic norms of cooperation (Herrmann, Thöni, & Gächter, 2008).

elicited independently of the presence of other actors. Individuals follow social sanctions mainly to evade informal sanctions from others, particularly contempt from the observers, which in turn produces shame in deviant individuals. This brings us to the second difference, namely the emotional mechanisms at play. While social norms are based in this combination of contempt and shame, moral norms are based on guilt.<sup>66</sup> Although observers disapprove and feel indignation when observing moral norm violators (Pinker, 2011), the important point is that it is not a necessary condition for the emergence of guilt in offenders (Elster, 2007; 2009c).<sup>67</sup> <sup>68</sup> Thus, part of what means being moral is not only to judge others but also to judge oneself: individuals feel satisfaction when they do virtuous acts and as well feel corrupted and guilty when they get involved in immoral ones (Bloom, 2013; Gintis, 2015).

In the last ten years, studies in developmental psychology have shown the relevant role of emotions and its relationship with the moral domain in the explanation of aggression (Eisner & Malti, 2015). Research has shown that moral behavior involves two key components: children not only have a cognitive understanding of the validity moral norms, but also they acquire a personal and emotional commitment and acceptance of them (Malti, Gummerum, Keller, &

---

<sup>66</sup> Guilt and shame are used in a different sense than Grasmick and colleagues.

<sup>67</sup> Elster makes a third distinction: quasi moral norms: norms that are conditional not upon other agents' disapproval, but conditional upon other agents' behaviour, namely, their compliance with norms (2009c). An example of a moral norm is if I would never consider taking a newspaper in the street without leaving money in the newspaper dispenser even if nobody is around to notice my small theft. Alternatively, we are speaking of social norms if I refrain from stealing the newspaper just because I fear being looked at with contempt and indignation by bystanders. Finally, quasi moral norm would be at play if I do not steal the newspaper because I observe that others comply with norms and leave money after taking the newspaper. If I see that everybody steals the newspaper I would probably do the same.

<sup>68</sup> Along similar lines, Wenzel distinguishes between personal norms (analogous to Elster's moral norms) which are 'people's own moral standards', and social norms (analogous to Elster's social norms) which are 'moral standards attributed to a social group' (Wenzel, 2004b:550-551). Personal norms can be, and usually are, obtained through socialisation processes of transmission of social norms. However, the overlap between both types of norms is far from perfect and many social norms may lie outside the individual's personal ethics. Social norms and their associated social costs increase the deterrent effect of legal sanctions. However, the deterrent effect of social norms disappears when individuals already have strong personal norms that exclude deviant behaviours (Wenzel, 2004a; 2004b).

Buchmann, 2009).<sup>69</sup> This attribution of moral emotions is developmental and studies have shown its association with age in the happy victimiser pattern. Younger children are able to understand the cognitive validity of the moral norm but unable to associate the correspondent moral emotions of guilt or sadness. Rather, they tend to anticipate that perpetrators would be happy because they only take into account the benefits of aggression (Arsenio et al., 2006; Krettenauer, Malti, & Sokol, 2008). Children's emotional experiences and attributions play a key role helping to anticipate potential negative effects of transgressions and to adequate their conduct accordingly (Arsenio, 1988; Arsenio, Gold, & Adams, 2006). Attributions of moral emotions, and particularly of guilt, for one's own wrongdoing or that of hypothetical wrongdoers, is a motivational force for action tendency and therefore may have causal relevance in the explanation of youth aggression (Malti, Gasser, & Gutzwiller-Helfenfinger, 2010).<sup>70</sup> An increasing number of studies and a meta-analysis have shown that there is a significant association between attribution of moral emotions such as guilt or sadness and children and adolescents' involvement in prosocial behaviour and avoidance of antisocial and violent behavior (Arsenio et al., 2006; Malti & Keller, 2009; Malti, Gasser, & Buchmann, 2009; Malti & Krettenauer, 2013).

A final complementary development is Arsenio and colleagues efforts to integrate morality and emotions in Crick and Dodge's social information processing model (SIP) seen in previous section. They propose the integration of morality (using Turiel's moral development model) and Crick and Dodge's model. Both models focus on harm/victimisation and on the relationship between violent

---

<sup>69</sup> According to Paul Bloom (2013) the difference between normal people and psychopaths lies precisely in feeling emotions. Telling right from wrong is a necessary but insufficient condition for having a moral sense. We also need to have compassion and be sensitive to others people's feelings and suffering.

<sup>70</sup> Notice that this psychological conceptualisation of moral emotions where youths attribute and anticipate what type and intensity of negative emotions they will feel, and then choose their behavioural response, can come close to Grasmick and colleagues' rational choice model. As I have argued in this section, a less rational interpretation of this model would demand that moral norms and emotions play a more deontological, unconscious and reactive causal role in youths' behavior.



behavior and youths' ways of processing and interpretation of information: the SIP model places a strong emphasis on youths' attribution of intentions of others, and particularly hostile intentions; moral development theory stresses childrens' judgement of intentionality to identify a harmful behaviours as immoral (Arsenio, Gold, & Adams, 2006). What both models require is a more adequate integration of emotional processes, particularly, how the relationship between biases in cognitive processes and youths' aggressive behaviours is moderated by negative feelings, a weak capacity of recognise others' emotions, or lack of emotional regulation (Arsenio, 2010; Lemerise & Arsenio, 2000; Calvete & Orue, 2012). Additionally, research has shown interesting links between living in hostile and unfair environments and individual's moral expectations regarding society's institutions and other agents' intentions. Arsenio and colleagues have argued that harsh, violent and unfair social environments together with having problematic relationships with parents can have a deep influence on youths' moral judgments. These deep emotional and 'toxic' experiences can foster a very cynical view in adolescents, eroding their beliefs in a legitimate and fair social order, their empathy and concern for others, and stimulating harmful and insensitive behaviours towards others (Arsenio, Adams, & Gold, 2009; Arsenio & Gold, 2006).<sup>71</sup> Some recent research in Colombia provides some evidence for this hypothesis. For example, a study conducted with displaced children and adolescents from a poor neighbourhood which had been exposed to violence showed that although they thought in 'the abstract' that stealing and doing harm to others was wrong, moral judgments changed significantly when they were put in the 'contextualized situation of revenge': a relevant proportion of the respondents endorsed both behaviours, and most of the sample thought that others agents would very likely steal or harm others (Posada & Wainryb, 2008). Another study also conducted in Colombia found that children and adolescents' moral judgments were affected by experiences of displacement and exposure to violence. Participants that were exposed to high levels of violence thought it was

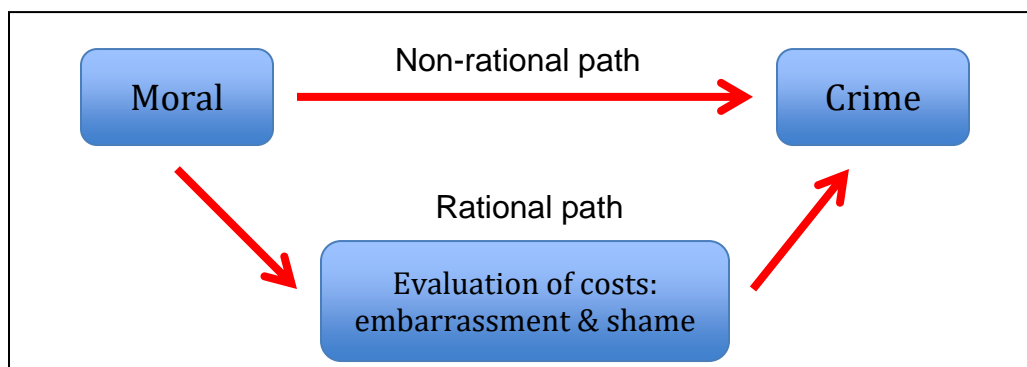
---

<sup>71</sup> Arsenio and Gold's theoretical framework is partially based in the literature on legitimacy, particularly on Tyler and colleagues' studies. I will come back to this topic in the next section.

more legitimate to harm others or deny resources when they suffered provocations, and also thought that it was more reasonable to respond and retaliate for retributive motives (Ardila-Rey, Killen, & Brenick, 2009).

A final point to be made is that interestingly this conceptualisation of morality as a non-rational causal mechanism of crime is sometimes present implicitly in more rational versions of informal sanctions discussed in previous sections: Grasmick and colleagues' self-imposed sanctions. Grasmick and Kobayi state that only those individuals who 'believe in the moral legitimacy of the law [...] or who have a self-concept incompatible with breaking the law experience guilt feelings or shame should they violate the law' (2002:26). It is worth mentioning two key differences. First, in this rational version, individuals with strong moral beliefs do perceive criminal alternatives. Second, morality is to be included just as another type of preference (Tittle et al., 2010). Therefore, individuals may commit crimes even if they believe they are condemnable. Individuals with moral beliefs evaluate before committing a crime how likely it is that they will feel shame, and how painful this shame would be, that is, what effect will crime have on his or her self-image (Grasmick & Bursik Jr., 1990); or how strong will the cognitive dissonance will be (Kroneberg et al., 2010). Therefore, in this case, morality constitutes an insufficient condition to avoid breaking the law and has an effect on crime only indirectly and through a rational causal mechanism (the evaluation of anticipated emotional costs) (Figure 6).

*Figure 6: Non-rational morality vs. rational morality*



Empirical research has shown that morality not only has a strong and independent effect on individual's involvement in crime (Antonaccio & Tittle, 2008; Schoepfer & Piquero, 2006)<sup>72</sup> but also an interactive effect. Individuals who consider it morally wrong to commit crimes are less responsive to rewards or sanctions, rendering deterrence superfluous. Instrumental considerations only deter those individuals with null or weak moral commitments (Bachman et al., 1992; Burkett & Ward, 1993; Paternoster & Simpson, 1996; Svensson, 2015; Tittle et al., 2010; Wenzel, 2004a; Wikström et al., 2011). However, some research shows that deterrent effects are stronger for those with stronger moral commitments (Gallupe & Baron, 2010; Pauwels et al., 2011; Piquero, Bouffard, Piquero, & Craig, 2016),<sup>73</sup> and still other studies have found that there are no interactive effects between morality and deterrence (Grasmick & Green, 1981; Jensen, Erickson, & Gibbs, 1978). Additionally, it is not clear if the causal relevance of moral beliefs both as independent and intervening explanatory factor of crime might not be conditional on the type of offence. Perhaps the explanatory relevance of moral beliefs (and the irrelevance of deterrence) mainly pertains to serious crimes such as murder, robbery, rape, and is less relevant with non-serious crimes such as drug use, vandalism, tax evasion, etc. (Bachman et al., 1992; Piquero et al., 2011). However, the type of sample used in some of these studies might affect the relationships observed between morality, crime and other causal mechanisms. Most of these studies are based on samples of university students which might have a truncated variance in the moral values of individuals

---

<sup>72</sup> Additional support for the direct explanatory role of morality in crime can also be obtained from research in two mainstream criminological theories: Akers' social learning theory (1998) that includes moral beliefs in the category 'definitions', and Hirschi's social bonding theory (1969) that also includes moral concerns in the category 'beliefs' (Akers, 1990; Becker & Mehlkop, 2006; Antonaccio & Tittle, 2008).

Additionally, two existent meta-analyses provide empirical evidence that moral judgment is an important predictor of juvenile delinquency (e.g. Nelson, Smith, & Dodd, 1990; Stams et al., 2006). However, they use a different measurement of morality based on Piaget and Kohlberg's progression towards understanding of moral norms/values and justice. Most of the studies included in these reviews are based on production measures where subjects answer to open questions that are coded later (e.g. the Moral Judgment Interview) and recognition measures where subjects evaluate presented judgments (e.g. the Defining Issues Test).

<sup>73</sup> In fact, Gallupe and Baron (2010) found the interactive effect between strong morality and deterrence is only valid for soft drug use. When it comes to hard drug use, they found no evidence of significant interactions. Likewise, Pauwels and colleagues' results showed little support for interaction effects between rationality and morality, except for vandalism and assault.

and might affect study results. Likewise, studies conducted with non-conventional samples such as street youths (e.g. Gallupe & Baron, 2010) or incarcerated offenders (e.g. Piquero, Bouffard, Piquero, & Craig, 2016) suffer from similar problems and might also produce biased estimates.

### II.b.ii. Legitimacy

Tyler and colleagues argue that cooperation and compliance with the law (and avoidance of crime<sup>74</sup>) can be obtained in two ways. On the one hand, a social control or instrumental model that assumes that people are self-interested, rational and obey the law when they believe that credible threats of sanctions of crime are too high. On the other hand, a voluntary compliance or 'legitimacy model' is where individuals follow the law not because they fear punishment or expect some reward, but rather because it is 'what should be done' or 'the right thing to do': they perceive law and ruling authorities as legitimate and therefore, entitled to be accepted and obeyed (Tyler, 1990; 2007; 2008; Tyler & Fagan, 2006). When people believe in the legitimacy of institutions, the internalisation of these feelings of commitment becomes a strong motivational base to self-regulate and voluntarily avoid committing crimes regardless of external sources of control or sanctions (Eisner & Nivette, 2013; Tyler, 1990) Despite the increasing relevance of legitimacy as an explanatory factor of crime in criminological studies, there are important disagreements about how to conceptualise legitimacy, which are its key dimensions, or how should it be measured (Eisner & Nivette, 2013; Tankebe, 2013). In what follows, I will focus on these controversies and develop the following five goals: to make explicit legitimacy's irrational component and differentiate it from a similar causal mechanism (morality); to describe Tyler and colleagues' three-dimensional concept of legitimacy (obligation, confidence, identification) and its key causal determinant (procedural justice); to present some criticisms of this definition

---

<sup>74</sup> Compliance is measured as an absence of violation of norms and legal rules. Hence, they are inversely worded delinquency items (Nivette & Eisner, 2013).

mainly in terms of including obligation/trust and excluding procedural justice; to present the closely related concept of legal cynicism; and briefly to comment on the empirical results in micro-level legitimacy research.

As can be seen in Tyler's contrast between the two models, legitimacy theory involves a non-rational causal mechanism which follows Hirschi's (1969) logic: it is based on the absence of motivation. The perception of illegitimacy of institutions, the belief that following rules and obeying authorities is no longer what ought to be done, debilitates individuals' self-regulation and will to obey law and to avoid crime (Tyler, 1990; see also Eisner, 2001; Eisner & Nivette, 2013).<sup>75</sup> However, there is a complementary causal mechanism with a motivational component: the perception of illegitimacy and inefficiency of institutions to exercise control and order also pushes individuals to resort to crime and violence as a private way to solve conflicts, punish/retaliate aggressors, and seek justice (Black, 1983; Eisner, 2009; Kane, 2005; Nivette & Eisner, 2013).<sup>76 77</sup>

Both legitimacy and morality involve a similar non-rational causal mechanism of compliance with law: an internal motivation where a specific value/norm operates as a filter of possible courses of action and guides the individual to act consistently with that value/norm even against their rational

---

<sup>75</sup> However, 'one man's mechanism is another man's black box' (Suppes 1970 in Hedström & Swedberg, 1998:10). Any causal mechanism might be subsequently specified in more specific additional ones. In terms of emotional mechanisms, one exception in legitimacy literature is Murphy and Tyler's (2008) research that explores how the connection between legitimacy and compliance/crime is mediated by emotions (Eisner & Nivette, 2013).

Along these lines, defiance theory combines procedural aspects of justice with social integration and emotional components in order to explain how identical sanctions might produce completely opposite effects: When individuals have weak social bonds, they perceive sanction as unfair and stigmatising, feel indignation instead of shame and, therefore, rather than being deterred by sanctions they respond defiantly by engaging in more crime (Bouffard & Piquero, 2010; Sherman, 1993).

<sup>76</sup> Interestingly, a lack of legitimacy expands and constrains individuals' options. On the one hand it limits the available alternatives for solving conflicts since institutions are no longer perceived as a credible solution. On the other, it also expands the available alternatives because individuals are less bound by institutions, and hence, they take into consideration criminal options (Kirk & Matsuda, 2011).

<sup>77</sup> Nivette and Eisner (2013) mention a third causal mechanism associated with inequality but it is specifically linked to 'political' legitimacy in macro-level studies.

pursuit of self-interest. However, whereas legitimacy constitutes an 'obligation to societal authorities or to existing social arrangements [...] moral values are personal standards' about what is right and what is wrong' (Tyler, 1990:382). While on many occasions there is a match between morality and legitimacy, and citizens comply with law because they think it is legitimate and because they agree it is morally right to behave in the particular way indicated by law, sometimes when there is contradiction between both, morality is overridden by legitimacy and people feel obligated to comply with law although they have moral disagreements (Jackson et al., 2012; Tyler, 1990; 2006). In other words, while legitimacy theory states that individuals think that 'complying with the law is morally right', individuals do not necessarily defend the specific moral foundations of law, but rather the moral relevance of obeying the law independently of its moral content.<sup>78</sup>

Originally, Tyler defined legitimacy as a characteristic of authorities, institutions or rules that involved the 'acceptance by people of the need to bring their behaviour into line with the dictates of an external authority' (1990:25). Therefore, the legitimacy of authorities involves not only the right to rule or to exert power over individuals, but that this right is subjectively recognised by ruled individuals (Bottoms & Tankebe, 2012; Tyler, 1990). Tyler's notion of legitimacy rests on actors' non-instrumental and normative internal feeling of voluntarily *obligation* and responsibility towards authorities and institutions, even when obeying them might involve decisions perceived as against their personal moral values or their self-interests (Fagan & Tyler, 2005; Tyler, 2009). Legitimate authorities are seen as 'deserving' voluntary deference to their decisions and rules or 'entitled to be obeyed by virtue of who made the decision or how it was made' (Tyler, 1990:377). Additionally, a second dimension of legitimacy is support and confidence in police honesty, decency and preoccupation with citizens' rights and wellbeing (Tyler, 1990). Lately, a third dimension has been

---

<sup>78</sup> However in some definitions Tyler is more ambiguous and states that people comply with the law and authorities because they believe that 'law describes morally appropriate behaviour' (Tyler & Darley 2000 in Tyler & Fagan, 2006:240).

added that involves the level of identification or alignment that citizens have *with* the background, views and values of the police (Jackson et al., 2012; Tyler & Fagan, 2008; Tyler & Huo, 2002).

The legitimacy of authorities and institutions is associated with how citizens' experience and perceive their actual performance. However, it is not enough that authorities or law enforcers are competent in doing their job but they have to exercise their authority and make decisions in procedurally fair ways (Tyler, 1990; 2006; 2009). Although citizens indeed take into consideration 'outcomes-based judgments', the crucial aspect is the concept of 'procedural based judgments', that is, they care not only what output they get and how favourable it is, but particularly how it is delivered (Gau, 2011; Paternoster, Brame, Bachman, & Sherman, 1997; Sunshine & Tyler, 2003; Tyler & Fagan, 2006; Tyler, 2011). When citizens are treated in a just and respectful way, their 'person's status as an important member of the societal group is confirmed' (Gau, Corsaro, Stewart, & Brunson, 2012:334). By contrast, when they experience unfair and disrespectful treatment they feel rejected, worthless members of society, and it erodes their identification and sense of obligation to rules and authorities (Gau, 2011; Jackson et al., 2012).

More specifically, legitimacy literature speaks of three components of procedural justice: First, citizens judge the fairness of procedures, which involves assessing both the quality of decision-making and the quality of interpersonal treatment. The first dimension refers to citizens' concern that law enforcers' decisions are neutral or unbiased, that is, based on facts, objective indicators, and the application of rules rather than on arbitrary or subjective views. Additionally, citizens appreciate the transparency and objectivity of the process as well as their participation, or at least, concern for citizens' opinions and points

of view.<sup>79</sup> Quality of interpersonal treatment implicates that citizens are treated with dignity, politeness, sincerity, and respect for their human rights (Paternoster et al., 1997; Sunshine & Tyler, 2003; Reisig, Bratton, & Gertz, 2007; Tyler & Fagan, 2006; Tankebe, 2009a).<sup>80</sup> Second, it is argued that individuals' perception of legitimacy is also informed by their distributive justice judgments. Citizens are concerned with an equal and fair distribution of police outputs and services across different groups of society regardless of citizens' gender, ethnicity, social class, etc. (Reisig et al., 2007; Tyler & Fagan, 2008; Tankebe, 2013).<sup>81</sup> Finally, Tankebe argues that there is an additional dimension of procedural justice, namely the belief that police also have to obtain and show an effective provision of outputs. Contrary to pure instrumental motivations where citizens comply with the law because the costs of deviance are too high, here the causal mechanism is different: citizens' normative beliefs include the idea that a legitimate authority which serves society should effectively fulfil their role and achieve their goals, diminishing crime and deviance (Bottoms & Tankebe, 2012; Tankebe, 2013).<sup>82</sup>

However, there is disagreement among researchers in the legitimacy field about what is the more adequate way of conceptualising and operationalising legitimacy. First, although the obligation to obey was originally considered by Tyler as the 'most direct extension of the concept of legitimacy' (2003:310) it is neither a sufficient nor a necessary component in many legitimacy studies (Eisner & Nivette, 2013; Tankebe, 2013). While some authors include additional components such as trust, support, common beliefs (Tyler & Fagan, 2006; Tyler,

---

<sup>79</sup> It is unclear if the citizens' view is part of the quality of decision-making or part of the quality of interpersonal treatment. While Tyler & Fagan (2008) assume the latter position, Tankebe (2009a) assumes the former one.

<sup>80</sup> Some authors have included an additional third dimension: citizens' comprehension of authorities' decisions. Citizens are more willing to trust and obey authorities if they realise the reasons and motivations that ground their actions (Tyler, 2003 in Piquero, Gomez-Smith, & Langton, 2004).

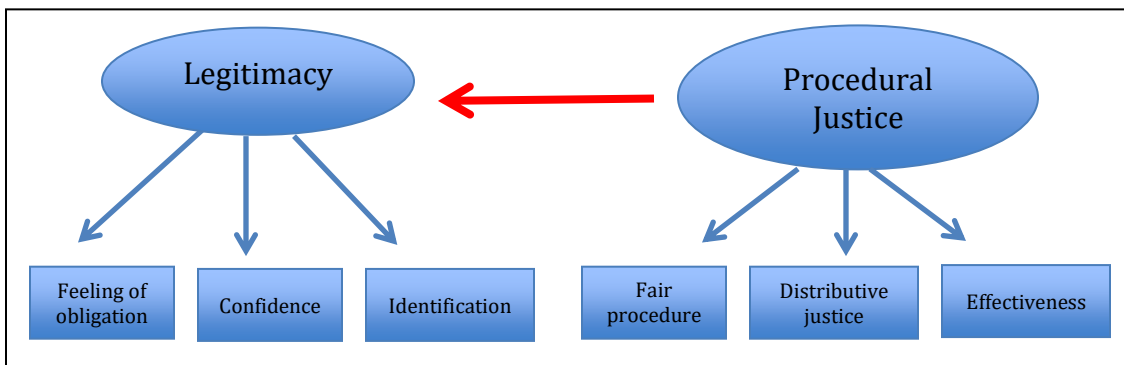
<sup>81</sup> However, Tyler (2003; Sunshine & Tyler, 2003) also argues that distributive fairness plays a less relevant role than procedural justice in the explanation of legitimacy and compliance (Reisig & Lloyd, 2008).

<sup>82</sup> Tankebe claims that the concept of legitimacy should be less dismissive of the dimension of distributive fairness. For example, in the context of prisons, research shows that outcomes constitute a key element in prisoners' belief in the legitimacy of prison officers and the legitimacy of the prison regime (Sparks & Bottoms 2007 in Tankebe, 2009a).



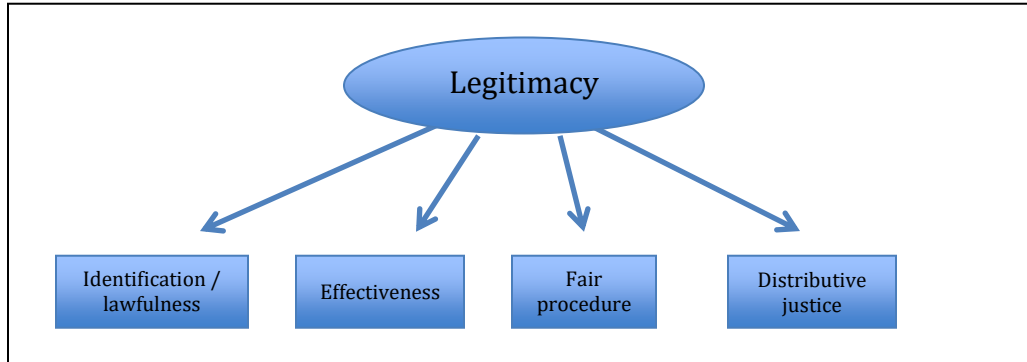
Schulhofer, & Huq, 2010; Jackson et al., 2012), others exclude obligation as part of the definition of legitimacy (Fagan & Tyler, 2005; Piquero, Fagan, Mulvey, & Steinberg, 2005; Jackson & Sunshine, 2007). The latter definitions based on indirect or proxy measures have been criticised for not being able to test the motivational state of obligation to comply with law and rather have to infer it (Reisig & Lloyd, 2008; Bottoms & Tankebe, 2012). The former definitions have been questioned because they tend to equalise feelings of obligation and legitimacy when not all forms of compliance with law due to obligation have normative bases (e.g. ‘dull’ or pragmatic obedience in a context of lack of alternatives) (Bottoms & Tankebe, 2012). Furthermore, it is argued that obligation is a different concept and should be defined and measured separately from legitimacy (Tankebe, 2013) but also that trust or confidence are analytically different constructs and should not be considered dimensions of legitimacy either (Kaina, 2008).<sup>83</sup> Second, there is also disagreement in relation to the role of procedural justice. While Tyler and colleagues consider it an independent construct that causally explains compliance with law, others like Tankebe (2013) include it as a dimension of the definition of legitimacy (See Figure 7 and Figure 8). On these lines, some authors like Hawdon argue for a less linear and more complex, reciprocal and interactive connection between legitimacy and procedural justice (Hawdon 2008 in Mazerolle, et al., 2013).

*Figure 7: Tyler and colleagues' legitimacy model*



<sup>83</sup> Factor analysis confirms this point since items from obligation and trust load on two different factors and both subscales have different effects on compliance (Gau, 2011; Reisig et al., 2011).

Figure 8: Tankebe's legitimacy model



Another legal attitude concept used in legitimacy literature is legal cynicism. The connections between legitimacy and legal cynicism are not clear. Whilst in some cases legal cynicism is referred to as the other side of legitimacy, that is, 'a measure for the lack [or absence] of legitimacy' (Eisner & Nivette, 2013:6, see also Murphy et al., 2009), measures generally used do not conform exactly to legitimacy measures. According to Sampson and Baruch, a key issue is to challenge the assumption that contexts of anomie/normlessness and subcultures (or tolerance) of deviance inevitably go together. Following the social control tradition (Hirschi, 1969; Kornhauser, 1978), they argue that in contexts of normlessness where legal norms and institutions are very weak and scarcely enforced, individuals are not 'tolerant' of deviance and do not generate an alternative normative system. Instead, individuals maintain conventional values, condemn crime, but become cynical about complying with the law as they assume that deviance and violence are inevitable owing to the weakness and irrelevance of conventional values and social control agencies (Sampson & Bartusch, 1998; see also Carr, Napolitano, & Keating, 2007; Kane, 2005). Therefore, legal cynicism refers to an individual's values and attitudes toward law, and more generally social norms. More specifically, it is the 'sense in which laws or rules [of the dominant society] are not considered binding in the existential, present lives of respondents' and therefore, whether it is reasonable under these circumstances to commit a crime or act outside community norms (Sampson & Bartusch, 1998:786). Kirk & Papachristos (2011) developed a

specific legal version that excludes social norms and focuses on distrust of legal authorities and explains crime when law and its enforcement agents are perceived as illegitimate, unresponsive, and unsuited to provide public safety.

Following Eisner and Nivette's (2013) review of the literature, there is a body of micro-level studies that have shown that individuals' legal attitudes (perception of legitimacy and/or legal cynicism) directly affect their involvement in crime or compliance with law (Fagan & Piquero, 2007; Fagan & Tyler, 2005; Gau, 2011; Jackson et al., 2012; Papachristos, Meares, & Fagan, 2012; Reisig, Wolfe, & Holtfreter, 2011; Sunshine & Tyler, 2003; Tyler, 1990).<sup>84</sup> Although most of these individual level studies have a significant and positive relationship between legitimacy and compliance, Eisner and Nivette (2013) warn about the weakness of the net effect sizes which tend to be at best modest and even null after controlling for other causal factors. Although some studies included interesting controls of legitimacy, notably self-control (Reisig et al., 2011) or morality (Jackson et al., 2012), no analysis of interactions was conducted in any of these studies.

### **II.b.iii. Self-control**

Rational choice theory has traditionally considered differences in individual propensities or personality traits as external or given (Nagin & Paternoster, 1993; Pauwels, Weerman, Bruinsma, & Bernasco, 2011). However, in the last 20 years, criminologists have explored the interactions between rational assessment of costs and benefits of crime and personal traits, notably including Gottfredson and Hirschi's self-control theory, one of the most influential and supported theories in criminology (Pratt & Cullen, 2000). In what follows, I will define self-control and its main dimensions; make explicit its non-rational character as a causal mechanism

---

<sup>84</sup> Gau et al. (2012) is not included in Eisner & Nivette (2013). I am not including three micro-level studies mentioned by the aforementioned reviewers: two connected with white collar crime (Murphy, 2005; Tyler & Blader, 2005); and one focused on recidivism of offenders in a restorative justice experiment (Tyler, Sherman, Strang, Barnes, & Woods, 2007).

in three ways (failure to anticipate negative consequences, failure to refrain from behaviours even though anticipating negative consequences, and its visceral/emotional character); and briefly review the main findings of research on the interactive effect of self-control and perception of sanctions in the explanation of crime.

Self-control is among those theories that emphasise 'constraint' causal mechanisms rather than 'motivational' ones (Tittle & Botchkovar, 2005a). Motivations are irrelevant as *explanandum* of crime since there is little or trivial variance between individuals. Following a classical utilitarian perspective, Gottfredson and Hirschi argue that all individuals share a natural motivation (or are equally attracted) to commit 'acts of force and fraud' because they demand little effort, 'skill or preparation', and provide instant and 'easy gratification of desires' and few 'long-term benefits' (1990:89). The key explanatory difference of crime is individuals' capacity to resist temptation to commit crimes and to control this inherent motivation through a stable trait called self-control, which is generated early in life due to inadequate parental socialisation. Although low self-control individuals are not totally out of control or unresponsive to incentives (Nagin & Paternoster, 1993; Ward et al., 2006) they are less able to abstain from short-term benefits through anticipating long-term negative consequences associated with crime (Hirschi & Gottfredson, 1994). In other words, individuals with low self-control tend to 'take the quick and easy way regardless of consequences' (Hirschi & Gottfredson, 2001:82). Low self-control individuals tend to: i) be 'impulsive', 'short-sighted', and unable to 'delay gratification'; ii) lack 'diligence' and 'tenacity' in working towards goals and prefer simple tasks to complex ones; iii) be more 'adventuresome', 'active', 'risk taking', and reckless; iv) be more physically oriented and value less activities that require mental skills); v) be 'self-centred' and 'insensitive' to the needs and problems of others; and vi) to have a more volatile temperament and little tolerance for frustration (Gottfredson & Hirschi, 1990:89 – 90; see also Grasmick et al., 1993, Hirschi &

Gottfredson, 1993; 2001).<sup>85</sup> Opportunities play an ambiguous role in this theory. On the one hand, Gottfredson and Hirschi argue that given the trivial and mundane nature of deviance, criminal opportunities are 'limitless'. Additionally, individuals with low self-control tend to have more outdoors life-styles and thus more opportunities for deviance, suggesting a self-selection mechanism (Gottfredson & Hirschi, 2003). On the other hand, they have admitted that 'opportunities to commit a particular crime are severely limited' (Hirschi & Gottfredson, 1993:50) and they have given some credit to opportunities as an additional necessary, but secondary, causal 'pre condition' for crime to take place (Hirschi & Gottfredson, 1995). Some studies seem to confirm that opportunities have a direct and interactive effect on crime in combination with self-control (Desmond, Bruce, & Stacer, 2012; Grasmick et al., 1993; Hay & Forrest, 2008; Longshore, 1998; Longshore & Turner, 1998; Seipel & Eifler, 2010).

Is it adequate to consider self-control as a non-rational causal mechanism? Individuals with low self-control, and, specifically, impulsive individuals, have more present-oriented temporal preferences than high self-control individuals. However, owing to the uncertainty of the future, rational actors should have a future discount rate, that is, they will always prefer obtaining positive outcomes sooner rather than later, and negative outcomes later rather than sooner (Piquero et al., 2011).<sup>86</sup> However, there are three reasons that support the non-rational character of self-control.

---

<sup>85</sup> These six sub-dimensions have been used in the most well-known and validated measure of self-control: the Grasmick et al. (1993) scale. However, Gottfredson and Hirschi mention other dimensions which have seldom been operationalised in self-control tests, such as gregariousness or tolerance to pain (Ribeaud & Eisner, 2006). Additionally, although there is still controversy about whether attitudinal/cognitive or behavioural measures should be used in order to generate valid and reliable measurements of self-control (see chapter IV), research has shown that both types of measures are equally supportive of self-control theory (Tittle, Ward, & Grasmick, 2003).

<sup>86</sup> However, as previously mentioned individuals might prefer to be punished and get over it as soon as possible. Hence, celerity will have the opposite effect on negative discount individuals: punishments with greater delay would be perceived as more costly (Nagin & Pogarsky, 2003; Piquero et al., 2011).

First, it is important to distinguish impulsivity as a 'failure to consider the future' from time discounting – a closely related mental causal mechanism that involves the tendency to deliberately prefer short-range outcomes and discount/devalue future or remote outcomes (Loughran, Paternoster, & Weiss, 2012; Nagin & Pogarsky, 2004; Piquero et al., 2011).<sup>87</sup> Self-control is based on the former mechanism. Since crime usually involves short-term benefits and uncertain long-term costs, self-control's key explanatory mechanism is the failure to consider those distant costs (Gottfredson & Hirschi, 1990, Wright et al., 2004).<sup>88</sup> When low self-control individuals do not consider significant negative distant costs they are being myopic and whilst they may be 'rational in local terms', they are being 'irrational in global terms' (Elster, 1979). Individuals with low self-control 'act rationally in choosing immediate gratification that seems to have minimal perceived costs, although those acts of crime often turn out in the long run to be 'irrational' because of unanticipated negative consequences that unfold later' (Tittle et al., 2010:1031). Thus, it is perfectly rational to prefer (a) short-term cost/benefits to (b) long-term costs/benefits. However, a necessary condition for making a rational decision between (a) and (b), is to perceive and evaluate (b) as a less attractive option than (a). Low self-control individuals do not fulfil this last condition, since they chose (a) without even considering (b).

Second, Tittle and Botchokovar have defended another interpretation of self-control's non-rational character where it is more about a 'lack of ability to restrain' than a 'failure to anticipate long-term costs'. Individuals with low self-control may 'recognize the possibility of long-term destructive consequences and may want to restrain themselves but simply lack the capacity to do so' (2005a:340).

---

<sup>87</sup> Additionally, unlike impulsivity, time discount is not conceptualised as a time-stable individual trait and usually varies in the same individual over time or across different consumption goods (Loughran, Paternoster, & Weiss, 2012).

<sup>88</sup> Italics are mine. Gottfredson and Hirschi state that the 'dimensions of self-control are [...] factors affecting calculation of the consequences of one's acts. The impulsive or short-sighted person fails to consider the negative or painful consequences of his acts; the insensitive person has fewer negative consequences to consider' (1990:95).

Finally, an additional argument is the presence of an emotional component ('volatile temper') among its sub-dimensions. The involuntary and visceral character of emotions produces short-circuits in a person's rational evaluations by reducing individuals' attention, disregarding long-term consequences, and ignoring other actors' wellbeing (Loewenstein, 1996, see also Bouffard, Exum, & Paternoster, 2000; Elster, 1999; 2009a).<sup>89</sup>

On these same lines, there is a significant body of research in developmental psychology that shows that poor cognitive and emotional functioning and impulsivity seriously affects children and adolescents' capacity to evaluate and anticipate costs and benefits. Particularly, research has supported the relevance of callous-unemotional (CU) traits as a 'developmental extension' of the construct of psychopathy and a key component to explain youth conduct problems, antisocial behaviour, violence, and particularly instrumental violence (Frick, 2009; Frick et al., 2003; Kahn et al., 2013). This trait is identified with a subpopulation of youth with exceptionally severe and stable patterns of aggressive behaviour that show features such as shallow and defective emotional processing, lack of empathy and guilt, instrumental use of other people, defective recognition and low sensitivity to punishment cues and sad and fearful expressions, weak and impaired responsiveness to distress cues in others, and overestimation of benefits of using violence in interaction with others (Blair,

---

<sup>89</sup> However, some authors consider that emotions are a necessary condition for rationality. Neuroscience research led by Damasio and colleagues has shown that rational decision-making is strongly associated with previous emotional processes rooted in bio-regulatory processes. Damasio's somatic marker hypothesis establishes that emotion-related signals or somatic markers associated with visceral and sometimes non-conscious responses are relevant for cognitive processes and rational decision-making. Somatic markers generate negative outcomes collected in the somatosensory cortex that later produce signals to the part of the brain where decision-making takes place: the prefrontal cortex. Thus, in many decisions, the adequate identification of options as beneficial or prejudicial cannot be done exclusively through cognitive or cold rational processes (Bechara & Damasio, 2005; Damasio, 1996). Similarly, Loewenstein and colleagues have proposed the idea of 'risk as feeling' where feelings such as worry, fear, or anxiety play a key role informing rational decision-making and cognitive processes (Loewenstein, Weber, Hsee, & Welch, 2001; see also Slovic, Finucane, Peters, & MacGregor, 2004). An interesting example in criminology is Loewenstein and colleagues' (1997) study which showed how sexually aroused individuals were more likely to be aware of the costs of getting involved in a rape in relation to non-sexually aroused individuals.

White, Meffert, & Hwang, 2013; Frick, Ray, Thornton, & Kahn, 2014; Kimonis, Frick, Munoz, & Aucoin, 2008).

The direct effect of self-control on crime has been thoroughly tested and corroborated in the last two decades by multiple studies and at least one meta-analysis (Pratt & Cullen, 2000). When it comes to interaction effects, the initial expectation would be that low self-control individuals would be less elastic/responsive to costs of crime and therefore less likely to be deterred.<sup>90</sup> However, research is not conclusive on the moderating effect of self-control on the relationship between perceptions of sanctions and crime. While some still argue that deterrence will work for the entire population, others challenge this assumption and call into consideration individual characteristics and identify 'deterable offenders' (Pogarsky, 2002). Yet even among the latter, there is disagreement about the direction of the potential effect or its magnitude (Maxson, Matsuda, & Hennigan, 2011; Pauwels et al., 2011). Three main positions can be identified in the recent empirical research.

First, few studies have supported classical rational choice framework 'invariance hypothesis' where all individuals are equally deterable, and hence, low self-control individuals were neither more deterable nor less deterable (e.g. Cochran et al., 2008).<sup>91</sup>

Second, there is empirical support for the more direct interpretation: individuals with low self-control are undeterable or inelastic to the threat of

---

<sup>90</sup> Impulsive individuals do not necessarily need to be completely undeterable 'as they could be deterred by such short-term costs of legal punishment as the inconvenience of arrest, just as their criminal behaviour may be motivated by short-term values, such as momentary thrills' (Ward et al., 2006:581).

Gottfredson and Hirschi argue that perception of the certainty of being punished can be integrated in their theory as an opportunity for crime. Since 'immediate costs and benefits dominate the thinking of individuals with low self-control, even they will tend to be intimidated by the prospects of rapid reaction by the criminal justice system' (2003:13-14).

<sup>91</sup> Given the truncated variance of sample (college students) and of the dependent variable (self-reported academic dishonesty), authors warn of the problematic generalisability of their results (Cochran et al., 2008).



punishment. In other words, 'sanction threats are thought to fall on deaf ears' (D'Arcy & Herath, 2011:645). In a scenario methodology survey, Nagin & Paternoster (1993) were the first to empirically support the interaction effects of self-control over crime. They found that intention to commit theft, drink-driving and sexual assault in low self-control individuals was associated with their lower perceptions of the costs of crime and their consideration of benefits of crime as more valuable. In another paper, both authors showed that the deterrent effect of certainty and severity of social costs on offending intentions was lower for present-oriented and self-centred individuals (Nagin & Paternoster, 1994). Block and Gerety (1995) also assessed the effect of the threat of punishment in a less prone criminal sample (college students) and more prone criminal sample (offenders in prison). Although both samples were responsive to sanction threats, college students were more deterred by the severity of sanctions and prisoners were more sensitive to the certainty of sanctions. Piquero and Tibbetts (1996) also found evidence for the moderating effect of low self-control. Particularly, individuals with low self-control took threats of informal punishment less into consideration and gave more priority to the possibility of obtaining physical benefits. In a college student survey concerning drinking and driving, Nagin & Pogarsky (2001) observed that the severity of sanctions was less relevant when individuals were more present-oriented. Afterwards, both authors did a randomised experiment where participants could obtain extra payment if they cheated in a quiz and found that present-oriented individuals were more likely to cheat and less responsive to the presence of supervision (Nagin & Pogarsky, 2003). Finally, in a hypothetical scenario methodology that enabled participants to develop for themselves the consequences of committing a crime, Bouffard (2007) found that low self-control individuals were more likely to experience psychic benefits if they got involved in analogous behaviour such as fights.

Third, some studies have found the opposite effect: low self-control individuals are more deterred by threats of sanctions. Piquero & Pogarsky (2002) conducted a scenario methodology survey with university students where

impulsive individuals were more responsive to sanction threats in their intentions to drive while intoxicated. In particular, impulsive individuals were more deterred by the severity of punishment than by certainty, and more affected by their personal experiences of avoidance of punishment than by vicarious avoidance of punishment experiences.<sup>92</sup> Wright and colleagues (2004) used the Dunedin study from New Zealand and observed also that the deterrent effect of sanction threats was more effective with low self-control individuals but had little or null effect on high self-control individuals. Tittle and Botchkovar conducted a survey of adults in Russia and observed 'little evidence of an interactive effect of self-control and sanction fear, but when such interaction is observed, it is in the opposite direction from that suggested by self-control theory' (2005a:337). In a study of convicted offenders in a supervision programme in New Jersey, Pogarsky, (2007) found that deterrent effects of sanction threats were not only also present in low self-control offenders, but they were even stronger in comparison with high self-control offenders.

These contradictory interaction effects between self-control and sanction threats have been interpreted calling to morality. Wright and colleagues argue that only non-socialised and amoral individuals actually take into consideration costs and benefits of crime. Individuals who have been successfully socialised into conventionality have moral beliefs and accept norms are already inhibited from crime and will be 'immune to the threat of punishment' (2004:184).<sup>93</sup> Schoepfer & Piquero (2006) have also defended a connection with moral beliefs, arguing that only when individuals possess low morals does low self-control have the opportunity to 'rear its ugly head' and become a key causal factor of crime. Wikström and colleagues have also resorted to morality to make sense of these puzzling empirical results. As mentioned in previous sections, according to

---

<sup>92</sup> Piquero and Pogarsky (2002) is one of the few studies that empirically evaluates the connection between impulsivity and personal and vicarious experiences of avoidance of punishment testing Stafford and Warr's theory.

<sup>93</sup> Wright et al. (2004) use an illustrative metaphor: using threat sanctions to deter socialised individuals with moral inhibitions might be as effective as reducing the prize of meat in order to increase vegetarians' demand for meat.

Wikström's situational action theory (SAT), individuals with high moral beliefs and habits do not even perceive the possibility of breaking the law. Most conventional persons have never been involved in a crime or even been in a situation where they had to estimate the costs and benefits of committing a crime.<sup>94</sup> They do not get involved in crime regardless of their level of self-control<sup>95</sup> or the perception of sanction threats. External controls (deterrence) and internal controls (self-control) are only relevant to individuals with weak moral values who experience a conflict between their desires and moral rules to follow and consider crime as a behavioural alternative. When these situations occur, if an individual facing temptations/provocations is not strong enough to exercise self-control, he will act following his desires, rather than his moral beliefs, taking into consideration the specific levels of enforcement of the particular setting where action is carried out (Wikström, 2006; 2007; Wikström & Svensson, 2010; Wikström et al., 2011).<sup>96</sup>

### II.c. Research questions and hypothesis

In this final brief section I will present the research questions and hypothesis that guide this PhD dissertation. I will first describe the general research question. Then I will describe the different hypothesis regarding the principal effects of *rationality* and its different sub dimensions. Then I will continue

---

<sup>94</sup> Nevertheless, these two assumptions made by SAT are problematic. First, as mentioned in the previous section, the idea that individuals with strong moral values do not perceive criminal alternatives may be reasonable for very serious crimes like rape or murder but less reasonable for less serious crimes and antisocial behaviors such as small thefts, cheating, or running away from home. Second, it is also very problematic to claim that most people have never been involved in any type of crime or antisocial behaviour. Both in the Montevideo sample (m-proso) and in the Zurich sample (z-proso) most of the respondents were involved at least once in their life in some sort of deviated act such as illegal downloading, driving a vehicle without a legal licence, or fare-dodging.

<sup>95</sup> In SAT self-control is not merely seen as a personal trait but rather a 'situational concept'. More precisely, 'an individual's ability to exercise self-control is an outcome of the interaction between his/her executive capabilities (an individual trait) and the settings in which he/she takes part' (Wikström & Treiber, 2007:238).

<sup>96</sup> However, Wikström and colleagues have challenged this connection between morality and low self-control, arguing that low self-control operates as a necessary condition only when people have high levels of morality and wish to conform but lack the will or capacity to do so. When individuals have low moral beliefs, crime takes place regardless of their level of self-control.

describing the more specific research questions and hypothesis regarding principal and interaction effects of the three non-rational causal mechanisms: morality, legitimacy and self-control.

The general question that guides this PhD dissertation is the following: is involvement in deviance and crime among youths in Montevideo a rational behaviour or to what extent do three non-rational causal mechanisms, namely, morality, legitimacy, and personality traits, play a relevant explanatory role?

### *Rationality*

**Question I:** Is involvement in violent crime, property crime, and more generally deviant behaviour a rational decision among youths in Montevideo?<sup>97</sup>

**H1a:** Perception of costs and benefits of crime has an independent direct effect: youths that perceive higher (lower) benefits or utility in crime are more likely to have a higher (lower) involvement in crime

**H1b:** Perception of higher (lower) formal costs (associated with the police) involves a lower (higher) involvement in crime

**H1c:** Perception of lower (higher) informal benefits (associated with parents and friends) involves a lower (higher) involvement in crime

**H1d:** Formal costs (associated with the police) and informal benefits (relative to friends and parents) are associated. The connection between formal costs and crime involvement will be conditional on the strength of informal benefits. Individuals with high (low) informal benefits will be less (more) sensitive to formal costs, and will be more (less) involved in crime

---

<sup>97</sup> Unless it is explicitly stated, the hypotheses apply to the explanation of three types of outputs: general crime, property crime and violent crime.

**H1e:** Informal costs and peers' involvement in crime are associated (depreciation of informal costs hypothesis). The connection between informal costs and crime involvement will be conditional on the level of participation in crime of peers. Individuals who have (lack) peers involved in crime, will be less (more) sensitive to informal costs, and will be more (less) involved in crime<sup>98</sup>

**H1f:** Perception of higher (lower) benefits<sup>99</sup> involves a higher (lower) involvement in crime and deviant behaviour, and will have a greater effect on crime than costs

**H1g:** Perception of higher (lower) opportunity costs involves a higher (lower) involvement in crime and deviant behaviour<sup>100</sup>

**H1h:** More (less) opportunities for crime involves higher (lower) involvement in crime and deviant behaviour<sup>101</sup>

**H1i:** The greater (lesser) the perception of strength, resources and skills to fight, the greater (lower) the probability of involving in violent crime

*Challenges to rationality: i) morality*

**Question II:** Are strict versions of rational models correct and moral norms/principles, play an irrelevant role, either as a principal effect (**2b**) or as an interaction effect (**2c**), in the explanation of crime among teenagers in Montevideo?

---

<sup>98</sup> The cost of informal sanctions depreciates when significant others are also involved in criminal behaviour. Even if family members or friends disapprove of a youth's involvement in crime, its power as informal cost is weakened as long as the youth perceives that crime is a generalised form of behaviour.

<sup>99</sup> Benefits are exclusively understood as psychic benefits, namely, admiration from parents and peers.

<sup>100</sup> Opportunity costs involve in this case the adolescent's level of commitment, school performance and his/her beliefs about the usefulness of school for his/her future.

<sup>101</sup> Opportunities involve the amount of unsupervised activities outside home and level of parental supervision

**H2a:** Conventional moral norms/values are significantly associated with crime: the higher (lower) the score in conventional norms/values, the lower (higher) the involvement in crime (principal effect).

**H2b:** The connection between the evaluation of benefits and the costs of crime and crime involvement will be conditional on the strength of moral norms/values. Individuals with weak (strong) conventional norms will be more (less) elastic or sensitive to the rational assessment of benefits/costs when getting involved in criminal/deviant behaviour (*interaction effect*).

*Challenges to rationality: ii) legitimacy*

**Question III:** Are strict versions of rational models correct and does the perception of the legitimacy of institutions play an irrelevant role as a principal effect (**3b**) or as an interaction effect (**3c**), in the explanation of crime among teenagers in Montevideo?

**H3a:** The perception of the legitimacy of the police is significantly associated with crime; the lower (higher) the perception of legitimacy in social institutions, the greater (lower) the involvement in crime and deviance (principal effect).

**H3b:** The connection between the evaluation of benefits and costs of crime and crime involvement will be conditional on the strength of the perceived legitimacy of the police. Individuals with weaker (stronger) perceived legitimacy of institutions will be more (less) elastic/sensitive to rational assessment of costs/benefits when getting involved in criminal behaviour.

*Challenges to rationality: iii) self-control*

**Question IV:** Are strict versions of rationality correct and differences among individuals play an irrelevant causal role, either as a principal effect (**4b**) or as an

interaction effect (**4c**), in the explanation of crime among teenagers in Montevideo?

**H4a:** Self-control predicts involvement in crime and deviant behaviour; the lower (higher) the self-control, the higher (lower) the involvement in crime (principal effect).

**H4b:** The connection between rational evaluation of benefits and costs of crime and involvement in crime will be conditional on the strength of self-control. Individuals with low (strong) self-control will be more (less) inelastic or less sensitive to the rational assessment of benefits/costs, and will be more involved in crime.

## Summary

The goal of this chapter was to describe the theoretical framework, questions and hypothesis that guide this PhD dissertation.

In the first part of this chapter I focused on rational choice and its different models and frameworks not only in criminology but also in some branches psychology.

I started with a discussion of the strict or neoclassical model of rationality. Two well-known problems are its unrealistic assumptions and the problematic validity of its measures. However, there are some reasons why despite these problems the strict model has been such a widespread explanatory strategy among criminologists and economists. First, there is a trade-off between realism and parsimony/precision, and economic models prioritise the latter as more relevant scientific values. Additionally, since some degree of abstraction is unavoidable, realism is of little value as criteria to evaluate theories. It is better to assume an instrumentalist criterion and assess models on their predictive

success. Another reason is that psychological or micro-level assumptions are only relevant as long as they help to explain the aggregated level. Therefore, whether models are based on realistic psychological assumptions or not is a secondary issue. A final argument involves the lack of trust regarding the capacity of social sciences to measure in a valid and reliable way inscrutable or unobservable components of human nature. However, the strict model still involves several complications. Five of them were reviewed in this section. First, despite their defence of the instrumentalism, the predictive levels of success of these models are very modest. Second, there is confusion between arguing for a trade-off between realism and predictive power, and assuming the latter as the overriding criteria. The perverse effect is the development of models that include any assumption no matter how unrealistic they are, as long as they involve improvements in the predictive power. Third, it is problematic to assume explanation and prediction as interchangeable. The explanation of crime demands not only to find an association/prediction, but also, the identification of interlocking causal mechanisms of the association. Fourth, the revealed preferences solution is unsatisfactory because it does not provide independent non-behavioural measures. Thus, it cannot provide empirical support for the link between preferences and behaviour and cannot differentiate rational from irrational behaviour when preferences change over time. Finally, the validity of measures used by strict models regarding perceptions of sanctions has been seriously challenged by criminological research.

Given all the problems faced by these models, a next reasonable step was to review rational choice models in criminology more adequately evaluated through micro-level data and perceptual studies. Here, I first reviewed the literature regarding three main characteristics of penal sanctions: severity, certainty, and celerity. While research confirms the relevance of certainty, empirical support for severity and celerity is less conclusive. Then I went over Stafford and Warr's model calling to focus not only on the more visible deterrent effect of suffered sanctions but also on the more invisible effect of avoidance of



sanctions. Another relevant issue tackled in this section was the review of criminological studies that have included a wider set of informal sanctions. These extra-legal punishments involved reputational and attachment costs associated with significant others, feelings of embarrassment and social disapproval regarding others, and internal emotions of remorse or self-disapproval. Studies reveal that these types of sanctions are at least as relevant as formal sanctions in terms of deterring from crime. Furthermore, I showed some empirical evidence that they play a moderating role between formal sanctions and involvement in crime. However, there is still an ongoing discussion regarding the additive or interactive nature of the relationship between both types of costs. The next topic reviewed was the role played by rewards in the decision to get involved in crime. Unfortunately this dimension has received little empirical attention but scarce existent research shows that youth crime seems to be significantly associated not only with monetary rewards, but also with intangible or emotional ones. A final component that was reviewed was the inclusion of illegitimate opportunities as key situational component for crime or violence to take place.

In the last years the evaluation of costs and benefits in the explanation of antisocial behaviour has been integrated in some developments in behavioural and developmental psychology. In particular, I reviewed two models (SIP and RED) that emphasise how aggression is associated with adolescents' cognitive processes and their interpretation of information from the social stimulus of the environment. The SIP/RED models describe several mental steps in the development of youth aggression. However, empirical research has shown that while initial steps such as encoding or interpretation are more associated with reactive aggression, later steps regarding a 'more cold' evaluation of certainty and intensity of outputs correlate more with instrumental/proactive forms of violence. Another recent useful development for the understanding of the rational underpinnings of violence reviewed in this section are evolutionary biology models of animal conflict. The main hypothesis is that youths are able to evaluate adequately their own and others formidability through body signs. Although there

is still little research in criminology, some promising evidence from recent studies shows that fighting ability and coalitional strength are significantly associated with youths' aggression, particularly for males.

The second part of this chapter was devoted to analysing and discussing three non-rational causal mechanisms and its relationship with rationality.

First, I defended the concept of morality as a non-rational causal mechanism by both questioning approaches that conceptualised it as a type of informal cost, and by describing four distinctive characteristics of morality: its non-outcome-oriented or 'intrinsically worthy' character; its backward orientation where behaviour is pushed by the rules/habits from the past; its workings as a cognitive filter that eliminates potentially rewarding courses of action; and finally the fact that moral norms are publicly shared and generate expectations about how to behave and how to react when somebody does immoral acts. Precisely one of the marks of the irrationality of morality is the fact that individuals are willing to punish altruistically those who do not conform instead of assuming a free rider role. Another relevant topic regarding morality is moral emotions. I tackled this issue reviewing recent research in developmental psychology of moral emotions showing the key role of guilt in moral norms' functioning, and particularly the importance of emotional attribution for aggression. Moral behaviours involve not only cognitive understanding, but also an emotional experience. I described empirical evidence that showed that when attribution of negative emotions fails, there were more chances of observing antisocial behaviours. The next part of this section discussed the recent integration of morality and emotions with the SIP/RED models and specifically how recent research showed that living in hostile and unfair environments could significantly influence youths' cognitive processing, their interpretation and expectations regarding fairness of institutions and other agents, and ultimately their involvement in violent behaviour. I ended this section describing empirical

evidence regarding morality's direct and interaction effects on crime and deviance.

The second non-rational causal mechanism examined in this chapter was legitimacy. I started describing two underlying mechanisms that characterise legitimacy: the perception of illegitimacy of institutions weakens individuals' will to comply with the law; at the same time this institutional illegitimacy and inefficiency to control drives individuals to use crime and violence to solve conflicts. Then I continued distinguishing the concept of legitimacy from the concept of morality and described in detail Tylers' conceptualisation involving three key dimensions: feeling of obligation, confidence, and identification with values. Another relevant idea in the literature on legitimacy is procedural justice. I discussed its conceptualisation as an instrumental-oriented judgment, and its three main dimensions: fairness of procedures, distributive justice judgements, and effective provision of outputs. However, there is disagreement on how to define and operationalise the concept of legitimacy. I reviewed the most relevant conceptual disagreements over which are the necessary and sufficient conceptual components of legitimacy and which are rather potential causes. I also reviewed another concept of the legitimacy literature, legal cynicism, discussing and making explicit its differences and connections with the concept of legitimacy. Finally, I looked over the recent empirical studies on legal attitudes that showed a significant but small association with crime but no analysis of interactions.

The third non-rational causal mechanisms described in this chapter is self-control. I first described the definition of self-control, its' emphasis on constraint causal mechanisms rather than motivational ones, and its six key dimensions. In this section I also discussed the ambiguous causal role that the concept of opportunities has in the self-control framework. Then, I defended the non-rational character of self-control on three grounds. First, low self-control is not about having preference for short term over long term outcomes or time discounting, but rather the failure to consider those distant costs. Second, it has a

characteristic lack of ability to control or restrain. Finally, it has a visceral and involuntary component associated with the volatile temper dimension of self-control. This poor cognitive and emotional functioning that alters youths' capacity to evaluate costs and benefits has also been documented by research in developmental psychology, particularly by the study of callous-unemotional traits and its association with antisocial behaviour. I ended the section describing the empirical evidence regarding the direct and interaction effects on crime and violence of self-control, and discussing three different interpretations regarding the moderating effect of self-control: invariance hypothesis, undeterrable individuals, and hyper-deterrable individuals.

The third and final part of this chapter was dedicated to describing the research questions and hypotheses of this PhD dissertation involving the four key theoretical constructs: rationality, morality, legitimacy and self-control. Now that the theoretical framework and the key research questions have been established, I can continue to offer a description of the place where this study was conducted: Montevideo, Uruguay.

## Chapter III. Youth crime in Uruguay: sources of data, studies and policies

In the previous chapter I presented the theoretical framework and research questions that guides this PhD dissertation. I reviewed the literature on rational decision-making and crime, as well as in non-causal mechanisms such as morality, legitimacy and self-control. Now, it is important to offer an overview of youth crime in Montevideo, Uruguay, to provide a context for the study conducted in this PhD dissertation.<sup>102</sup>

The problem of youth crime in Uruguay is particularly serious for several reasons. First, there are problems of quality and availability of both official statistics and victimisation and self-report surveys regarding youth crime. Second, academic research is scarce and mostly characterised by qualitative methodologies and descriptive goals. Lastly, most of the prevention programmes that have been developed lack impact evaluation so there is no information whether they are having positive, neutral or even perverse effects. This chapter provides background that is useful to understand the limitations of existent data sets and studies and the need to develop more adequate tests of rational and non-rational criminological mechanisms associated with youth crime. Additionally this background is also useful to understand youths' incentives and disincentives for crime and antisocial behaviour in the context of Uruguay.

I will cover all these goals in the following sections. After putting forward some socio-economic and demographic indicators of the social situation of the youth population, I will focus on three key issues.

First, I will examine the sources of data, crime and violence indicators available in Uruguay, and the existing estimates on youth crime and violence. I

---

<sup>102</sup> A Spanish version of this chapter was published in Trajtenberg & Eisner (2014).

also will refer to the few sources of data on school violence, bullying and the use of psychoactive substances. Second, I will review the most important academic studies on youth violence and bullying in Uruguay. Finally, I finish the chapter describing the youth criminal justice system legal, the most recent initiatives on prevention of youth crime, and the current debate regarding rationality of youth offenders and the need to increase the severity of Uruguay's youth criminal law.

### **III.a. The social situation of adolescents**

Uruguay is administratively divided into 19 provinces, with Montevideo as the capital. From a demographic point of view, the country's main features are its small size (3,286,314 people), its advanced demographic transition,<sup>103</sup> a high level of urbanisation and the concentration of the population on a coastal strip (OPP-MIDES, 2013).

According to data from the Continuous Household Survey (ECH) of 2013, the age structure of the country is such that that elderly adults (aged over 65) make up 13% of the population, people aged 30-64 represent 42% of the population, young people aged 15-29 make up 22% of the total and people below the age of 15 represent 23% of the population. When we consider gender, 52% of the population are women, although the masculinity rate varies by age group: up to age 21 there are more men than women, and then the proportion is reversed. In terms of race, 94% say that their predominant race is white, 4% say black, 1% identify themselves as indigenous and the remaining 1% belong to other races.

Montevideo holds 40% of the country's inhabitants, almost exclusively concentrated in urban areas (99%). Compared to the rest of Uruguay, the capital's population is older (14% above the age of 65), has more females (53%)

---

<sup>103</sup> This means that the gross birth and death rates have stabilised at low values which provide for small demographic growth.

and less white people (93%). In particular, adolescents aged between 13 and 17 years represent almost 7% of the population of Montevideo, with a gender split of about half. Ethnic diversity in this group is bigger than elsewhere, with 91% whites, 7.5% blacks and 1.5% people of a different race. In terms of welfare, poverty is overrepresented in this age group (29.2%), compared with totals for Montevideo (15.7%) and Uruguay (11.5%).<sup>104</sup>

In terms of education, 79% of individuals aged 13-17 in Montevideo are in secondary school, 4% are in primary school, 3.5% are in technological schools (CETP) and almost 0.5% are in higher education. Among secondary school students, 68% are in state schools and 32% in private schools. 13% of youths do not attend any educational institution at all, which is more often the case for males (14.2%) than for women (11.4%). Finally, approximately 11% of adolescents said they neither studied nor worked (INE, 2013).

### **III.b. Data sources and characterisation of violence and youth crime**

Crime data in Uruguay basically has two sources: police reports recorded by the Ministry of Interior, and prosecutions by the judiciary. There are no annual self-reported victimisation surveys, although victimisation studies were carried out in the years 1999, 2000, 2001, 2006 and 2011.<sup>105</sup> Other sources of information are the Public Health Ministry, with data referring to externally induced deaths (suicides, homicides and accidents), and the Fundapro Observatory,<sup>106</sup> which uses media reports, crime victim reports and specific data on indicators of victimisation and insecurity conducted by consultancy firms. In Uruguay, not only is there a very problematic situation regarding the quantity and quality of available crime data. Additionally, the available data is not published periodically, systematically or in formats that foster its reutilisation.

---

<sup>104</sup> Poverty measured using the income or indirect method. ECH data, 2013.

<sup>105</sup> Some of these victimisation studies refer only to Montevideo and its metropolitan area. Micro-data is not available to the public.

<sup>106</sup> For more details, visit <http://seguridad.observatoriodfundapro.com/>.

The evolution of *police reports* shows an increase in several crimes in Uruguay in recent years: in 2000-2013, the homicide rate per 100,000 went from 6.5 to 7.7; the shoplifting rate went from 1,836 to 2,873, and the robbery rate went from 205 to 492.3. Further, in 2005-2013, the rate of domestic violence grew from 205.8 to 769, and rapes from 7.1 to 8.5. Finally, in terms of crime distribution, in 2013 Montevideo had 81% of all the robbery incidents (with a rate of 1019) and 63% of all homicides in the country (Montevideo's homicide rate is 12.2 per 100,000).

The results of the most recent available *victimisation* survey carried out in Uruguay in 2011 show that 31% of respondents had been victims of some crime during the last year, with differences between Montevideo (38%) and the rest of the country (22%). Further, the proportion of victims decreases with age. It goes from 36% in the youngest age group (under 29 years of age) to 23% among people aged 60 and older.<sup>107</sup> Gender differences are not so relevant: 33% of women and 28% of men said they had been victims of a crime over the last year (Ministerio del Interior-EQUIPOS/MORI, 2011). Other studies based on court statistics indicated that young males were more vulnerable to violent victimisation in Uruguay, except in the case of rape, which mostly affected women (Paternain, 2008). The overall percentage of unreported crimes in the year 2011 was 47%, although it varied by type of crime. The percentage of unreported crimes<sup>108</sup> is relatively high for attempted burglary (65%) and for injury and threats (61%); it amounts to about half the cases of non-violent robbery (56%), violent robbery (53%), bicycle theft (53%) and theft of objects inside a car (45%); and it is

---

<sup>107</sup> The National Youth Survey (Encuesta Nacional de Juventud, ENAJ) of 2008 also provides data on the victimisation of people between the ages of 12 and 29. With the exception of rape, the victimisation percentage is higher in Montevideo than in the rest of the provinces for all crimes. Among young people aged 15-19, 9.4% report they have experienced robbery or theft at home in the last 12 months; 8.4% have experienced robbery; 14.8% have experienced theft; 6.7% suffered injury; and 0.1% suffered rape.

<sup>108</sup> The percentage of unreported crime (the 'dark figure of crime') depends on aspects like confidence in the police and the cost of reporting the crime (time, travel distance, etc.), among others. Its effect not only distorts the total number of known crimes but also affects the crime structure and victim profile.



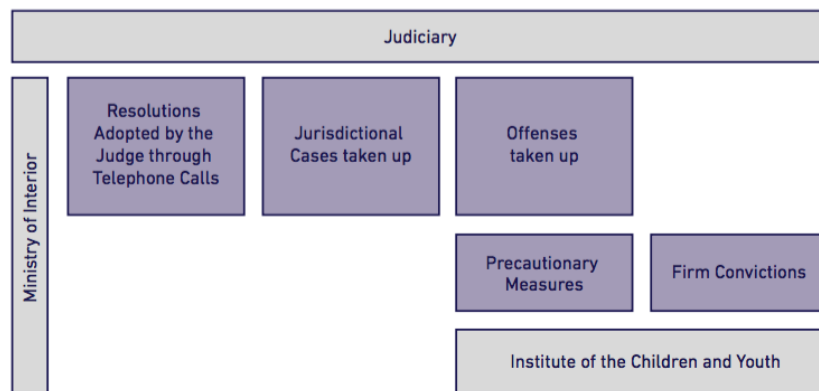
relatively low in cases of burglary (40%) and vehicle theft (3%) (OPP-MIDES, 2013).

As in countries all around the world, in Uruguay most perpetrators across all types of crimes are males (Junger-Tas, Ribeaud, & Cruyff, 2004). Court statistics from 2012 show that the likelihood of being charged with a crime is 7.5 times higher for men than it is for women (INE, 2013; see also Vigna, 2008). Uruguay data also confirms the other well-known universal regarding the declining relationship between crime and age (Farrington, 1986; Hirschi & Gottfredson, 1983). The recent study conducted by the University of Cambridge and the National Administration of Public Education (ANEP) confirms the sex ratio for youth violence. The sex ratio for the prevalence rate was almost 3:1, but when the incidence rate was considered, the difference was much larger and rose to 5:1 (Trajtenberg & Eisner, 2014). In terms of age group, the population with the greatest propensity to commit crimes is aged 18-25. This age group in itself contributes 43% of the total number of criminally charged adults for 2012 (INE, 2013). However, there are variations depending the type of crime: while crimes like theft and robbery have a huge participation of people in the 18-25 age group, with 56% and 66%, respectively, crimes like rape and fraud have a participation rate close to 18% and 19% respectively (INE, 2013). Although the data shows a decline of criminal activities as people grow older, the decline is more gradual for females than males, and the decline is for violent offences and substance offences rather than for property offences. (Vigna, 2012).

It is hard to tell the exact percentage of crimes that are committed by people under the age of 18 which is the age of criminal responsibility in Uruguay. 'Public data on the phenomenon of youth crime is characterized [more than general crime data] by fragmentation, lack of publicity, access problems, the impossibility of making comparisons and an absence of critical assessment. The latter in many cases also affects the very agencies in charge of detentions involving adolescents' (Lopez & Palummo, 2013:10). Beyond specific ad hoc

studies, the official and continuous sources of data on crimes committed by children and adolescents are i) police detention figures published by the Ministry of Interior, ii) cases opened and legal proceedings of the judiciary, and iii) admissions into the juvenile detention system registered by the Sistema de Responsabilidad Penal Adolescente (SIRPA) from the Instituto Nacional del Niño y el Adolescente (INAU).

*Figure 9: Outline of juvenile criminal proceedings*



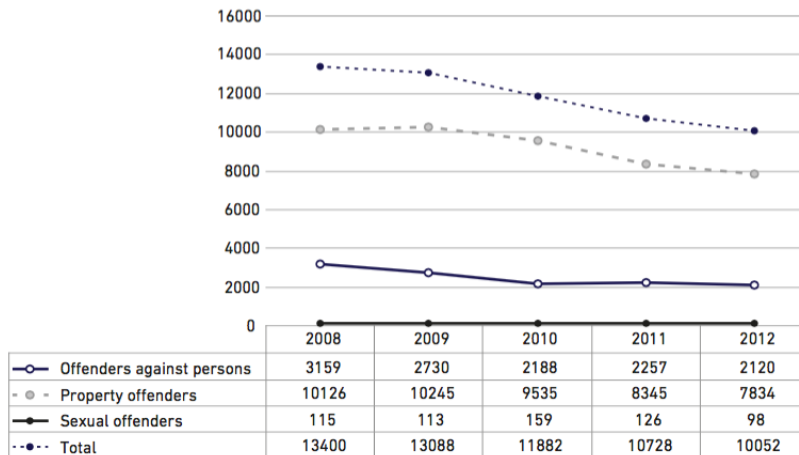
Source: (Arroyo, De Armas, Retamoso, & Vernazza, 2012: 92)

The lack of access to the data and the problem with unreported crimes affecting police data is aggravated by an additional difficulty: figures on police detentions of children and adolescents refer to individuals instead of crimes, and it is not possible to separate data by age groups. Thus, given that data includes children under the age of 13 who are criminally not responsible<sup>109</sup>, there is a problem of overestimating the number of youth perpetrators (Arroyo et al., 2012).

In Uruguay, police detentions affecting children and adolescents show evidence of a 25% reduction between 2008 and 2012. Property crimes constitute the majority of detentions affecting minors in every year under consideration, which to a great extent explains the overall reduction and represents approximately 78% of the total figure for 2012.

<sup>109</sup> In Uruguay the age criminal responsibility is 18 years old. However, youths between 13 and 17 years old are also criminally responsible but they are judged in a specific juvenile criminal responsibility system. See below.

Figure 10: Children and adolescents aged 11-17 detained by police, by type of crime in Uruguay, 2008-2012.



Source: (Vernazza, 2013) based on data from the National Observatory on Violence and Crime, Ministry of Interior

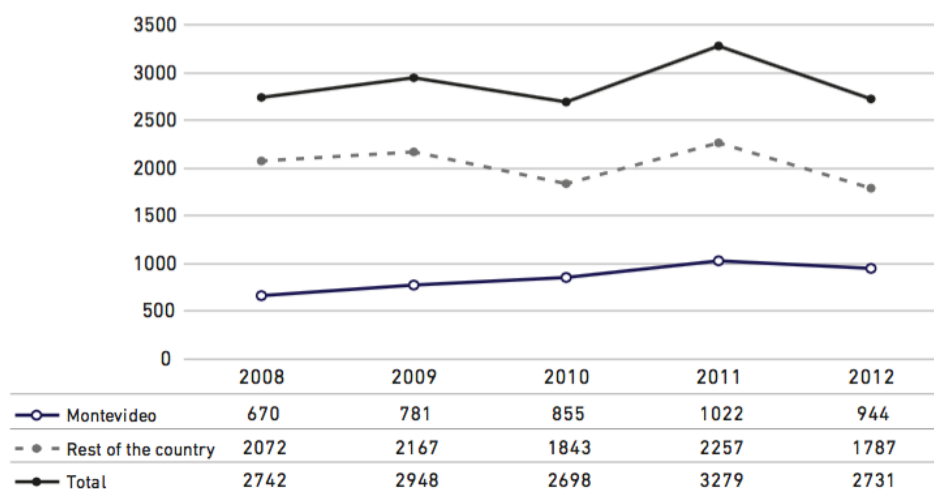
One indicator usually mentioned to measure the weight of juvenile crime on total crime is the ratio of adolescents arrested by police over the total number of crimes reported to police.<sup>110</sup> Data for 2005-2011 shows that this indicator is never above 8.4 arrested adolescents per 100 reported crimes, with its minimum in 2011 at 6.4 (Arroyo et al., 2012:91). However, according to data from the National Observatory on Violence and Crime of the Ministry of Interior, although this age group comprises only 8% of the total population, they account for 26% of homicides and more than 40% of all robberies (Munyo, 2013).

An alternative source to police data are those issued by the youth criminal justice system which provides figures that although have weaker validity, have stronger reliability (Aebi, 2008). Figure 11 shows that, in cases involving adolescents in conflict with criminal law in 2008-2012, there is a 41% increase in Montevideo, while in the rest of the country there is a 14% decrease. The comparison changes when we switch from absolute figures to rates, since the

<sup>110</sup> This indicator is methodologically very problematic since it uses different units of analysis in the numerator (crimes committed by people above the age of 13) and the denominator (people aged 11-17 arrested by police).

number of cases opened per 1,000 residents aged 13-17 in Montevideo (10.4) was higher than that in the rest of the country (10.2) in 2012 (Figure 12).

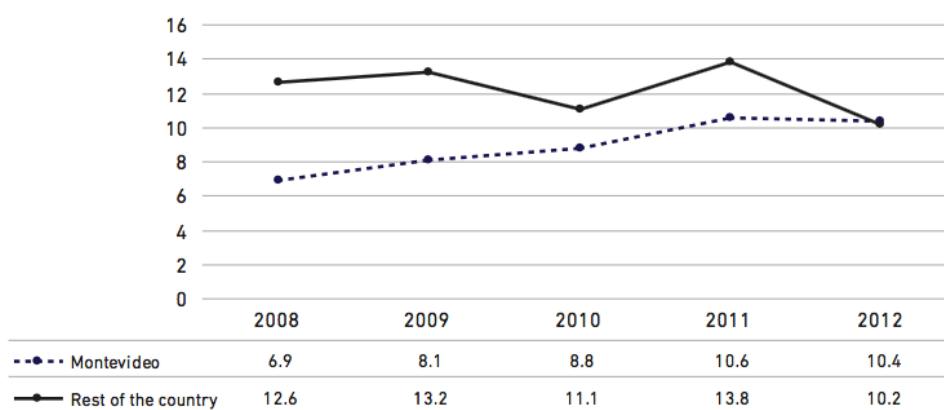
Figure 11: Evolution of cases of adolescents in conflict with criminal law in Uruguay, 2008-2012



**Source:** Prepared by the author based on data from (Poder Judicial, 2013b).

**Note:** Bear in mind that the drop in this indicator for 2012 may have been caused by a change in criteria, with isolated actions not counted as opened cases (Poder Judicial, 2013b).

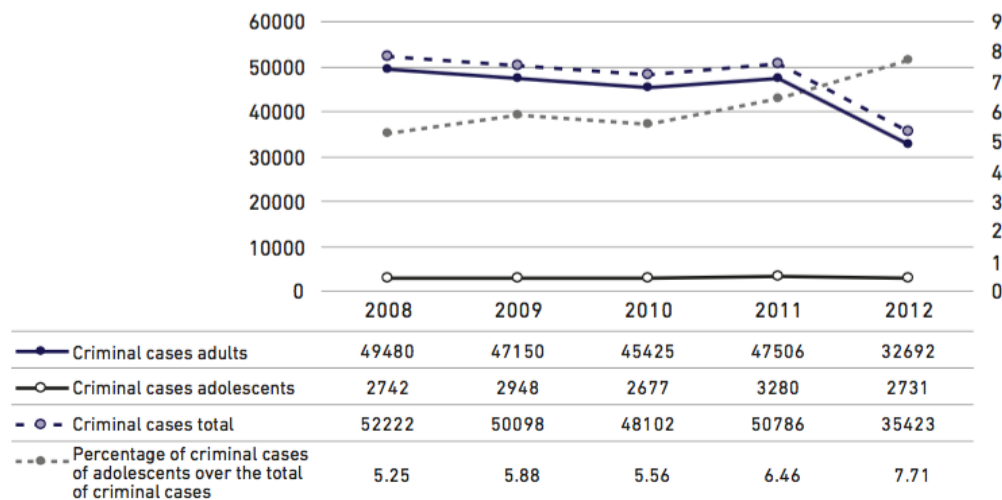
Figure 12: Rate of cases opened that involved adolescents per 1,000 residents aged 13-17 in Uruguay, 2008-2012



**Source:** Prepared by the author based on data from the Statistical Annual Directories of the (Poder Judicial, 2013a).

Another indicator of weight of juvenile crime on total crime can be obtained by comparing criminal cases opened against adults and against adolescents.<sup>111</sup> Figure 13 shows that the percentage of cases opened against adolescents was relatively small and always below 8% for the period between 2008 and 2012.<sup>112</sup>

Figure 13: Criminal cases opened against adults and adolescents (left axis) and percentage of adolescent criminal cases (right axis) in Uruguay, 2009-2012



**Source:** Prepared by the author based on data from the Statistical Annual Directories of the (Poder Judicial, 2013a).

**Note:** Cases opened in 2010 and 2011 involving minor offences in the Uruguayan capital are included in the Federal Criminal Courts. From 2012, isolated actions in criminal cases opened against adolescents are not taken into account.

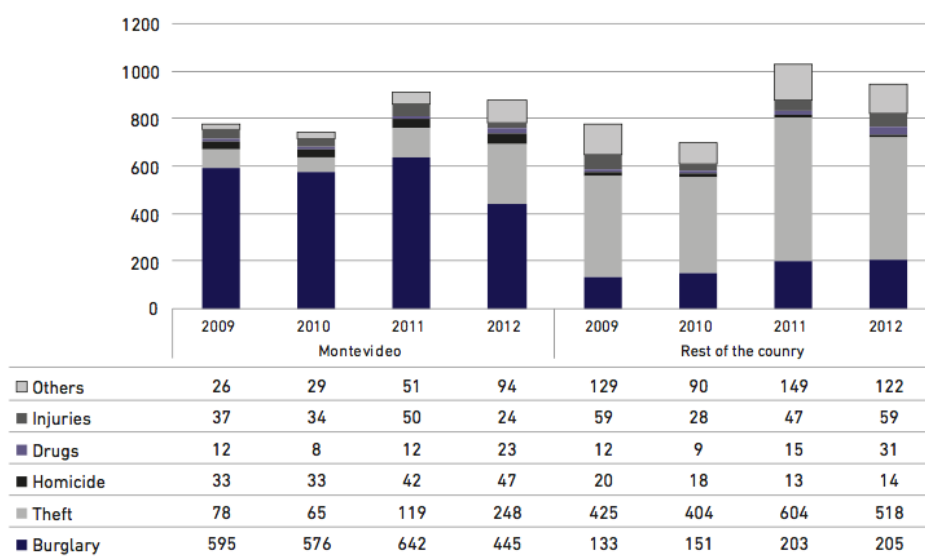
Reinforcing what we saw regarding police detentions, Figure 14 shows how most of the closed penal cases involving adolescents related to property crimes. There are differences between Montevideo and the rest of the country with relation to the most frequent type of crime, with robbery the most common in

<sup>111</sup> Cases opened correspond to the investigation stage, in which the judge brings together sufficient evidence to initiate criminal proceedings. Cases opened do not necessarily lead to orders of committal to trial, and they can be closed for lack of probable cause. The indicator helps to identify the volume of cases that reached the courts and for how many of those the judge thought it was appropriate to initiate proceedings (Arroyo et al., 2012:92).

<sup>112</sup> The number of cases opened against adolescents and adults fell in 2012, so the increase in the relative participation of the former was due to the fact that cases opened against adolescents fell less than those involving adults, not due to an increase in adolescent criminal cases in absolute terms. Finally, it is important to note that the interpretation of data for 2012 is affected by a change in the criteria followed by the judiciary.

the capital and theft the most common in the rest of the country. Montevideo shows more violent property crimes such as robbery as well as more homicides than in the rest of the country. Finally, the number of adolescents charged with crimes involving drugs has almost doubled in Montevideo and more than doubled in the rest of the country in the period 2009-2012.

*Figure 14: Structure of crimes in cases involving adolescents that were closed during the year in Uruguay, 2009-2012*



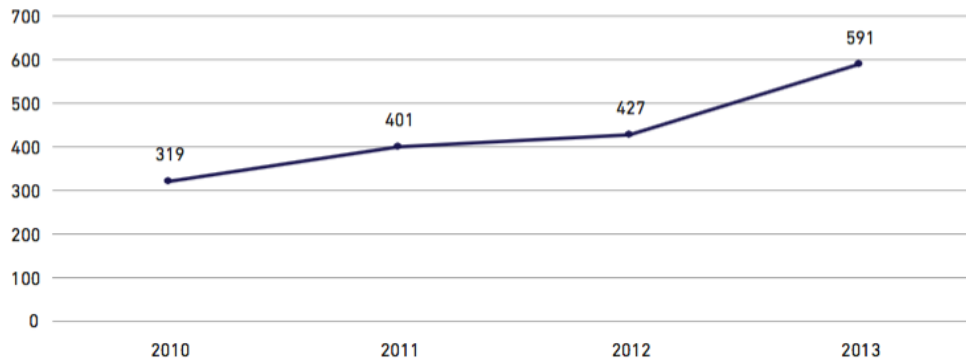
**Source:** Prepared by the author based on data from the Statistical Annual Directories of the (Poder Judicial, 2013a).

**Note:** Injury includes personal, intentional, serious and very serious injury.

A third source of data on youth crime are the adolescents detained in homes managed by SIRPA-INAU. Figure 15 shows a strong growth between 2010 and 2013 in the number of detainees, which went from 319 to 591. In the brief period in question, the number of people held at SIRPA rose by 85%.<sup>113</sup>

<sup>113</sup> As a reference to the reader, Uruguay's population of adults imprisoned in penitentiary institutions was 9,829 in February 2013, according to the figures of the Ministry of Interior published by the International Centre for Prison Studies.

Figure 15: Adolescents detained in SIRPA-INAU homes in Uruguay, 2009-2014



**Source:** Prepared by the author based on data from INAU's Information System for Children (AGEV - OPP, 2014).

**Note:** Annual average of young people detained in SIRPA homes, based on data for the 30th day of each month. This includes adults who were punished when they were minors and are still serving their time at SIRPA.

Data from 2010 on the adolescents who were admitted into the youth criminal system in Montevideo shows the following social profile: 92.7% males (vs. 7.3% females); 64.1% aged 16-17 (vs. 32.7% aged 14-15 and 3.2% aged 13); 68.9% had primary school, complete or incomplete, as their highest educational achievement; 65.3% were adolescents who neither studied nor worked (vs. 20.2% who were students, 12.7% who worked and 1.7% who both worked and studied); and 76.9% of adolescents who had been retained at school (vs. 23.1% without retention). Additionally, for Montevideo in 2010, 28% of the cases of youth offenders involved problems of drug addiction, with cocaine base present in 67.7% of all cases and marijuana present in 17.7%. Theft and robbery were the crimes that were most frequently punished by the juvenile criminal justice system, with 11.5% and 75.5% of all cases, respectively. The trend in Montevideo in recent years points to a reduction in theft together with an increase in robbery (Lopez & Palummo, 2013).

The Second Global School-Based Student Health Survey (GSHS), carried out on highschool students from the whole country during 2012 provides some

interesting data on antisocial and violent behaviour.<sup>114</sup> However, one of the most serious limitations is that it does not specify where the violence takes place (whether it is within the family, within certain institutions, etc.). Results showed that 16.3% of students report having been victims of physical assault at least once during the last 12 months. Victims are mainly men (18.6%, vs. 14.4% women). About 2.3% of students report having suffered sexual abuse, and surprisingly no statistically significant differences were found between males and females. Finally, 27% of respondents admit taking part in a fight or quarrel with peers during the last year. However, there are significant differences between males (38%) and females (17%). Finally, 5.9% of adolescents report belonging to a group that regularly engages in violent activities (GSHS, 2012).

The only reliable and valid source of self-report data on perpetration of youth violence is the recent study conducted in 2013 by the University of Cambridge and ANEP (m-proso) that involved a representative survey of 2,204 highschool students of Montevideo. Results showed that 16.5% of youths admitted being involved in at least one form of violent behavior during the last 12 months (23% for males and 9.7% for females).<sup>115</sup> Additionally, consistent to what has been observed in other studies (e.g. Averdijk, Muller-Johnson, & Eisner, 2012) there is a high concentration of repeated and serious aggressive violent behaviour in a small proportion of youths: 2% of the respondents were responsible for 70% of all the reported violent conducts. This study also provides information regarding youth victimisation: almost one in every four students admits having suffered violent victimisation last year (30% for males and 19.2%

---

<sup>114</sup> Between June and July of 2012, the GSHS collected the opinions of adolescents in the second, third and fourth years of secondary school in public and private educative institutions, in cities around the country with a population with more than 5,000 inhabitants. Using a combined two-stage sample and self-administered surveys, 50 educational institutions were surveyed, which involved 155 classes and 3,524 students.

<sup>115</sup> Four types of violent behaviors were considered in this study: carrying a weapon or a dangerous object to protect yourself or attack others; threatening someone to use violence to obtain their money or belongings; using force to take someone's money or belongings; and purposely kicking, hitting, or cutting someone to cause him/her injuries.



for females), and 3% of the sample suffered chronic violent victimisation (five or more victimisations in the last year) (Trajtenberg & Eisner, 2014).<sup>116</sup>

With regards to school-related violence or bullying there are no official, continuous records. Despite the growing interest in the phenomenon, there is no information system on violence in school environments in Uruguay. The data is partial, scarce, discontinuous, and most of the empirical evidence is qualitative.

The National Census on Learning survey that was carried out in 1999 by ANEP among students in the 9<sup>th</sup> year of school offered for the first time a national overview on this phenomenon. The most noteworthy result is that the perception of school-related violence was greater in Montevideo than in the rest of the country and that it is mainly associated with schools with a medium socio-cultural level that are large and public. Additionally, perception of violence appeared to be greater among males, among students who were not happy with the educational institution, and to a lesser extent among students with lower grades in their learning tests. On the other hand, expectations about continuing studying were not associated with a violence in schools (Viscardi, 2003).

The first National Survey on Coexistence in Schools was a survey carried out by ANEP in 2010. However, this study did not include data regarding students' self-reported perpetrated or suffered violence, rather on perceptions of school violence of directors, teachers and students in public schools and highschools of Montevideo (ANEP-OPP-UnaONU, 2010).<sup>117</sup>

The study conducted by the University of Cambridge and ANEP also provides information regarding prevalence of bullying behaviour. 20% of youths report having suffered at least one form of bullying behaviour in the last year, and

---

<sup>116</sup> Violent victimisation included three types of behaviours: being robbed by someone who used violence or threatened to use violence; being hit by someone so bad that he/she suffered injuries; and being forced to perform sexual acts.

<sup>117</sup> In 2012 ANEP also carried out the first census on this topic (Primer Censo de Convivencia y Participación) but results have not been published yet.

10% declared they suffered either physical aggression, robbery of belongings or sexual abuse. Additionally, with regards to perpetration, 13% of respondents admit having bullied other students in the last year, and 7% admit having either physically attacked other students, robbed his/her belongings or sexually abused others (Trajtenberg & Eisner, 2014).

The aforementioned Second Global School-Based Student Health Survey (GSHS) also provides information regarding drug use. In this study, youths showed a life prevalence of 29.7% for smoking and of 70.5% for alcohol consumption, while prevalence over the last month stood at 13.1% for smoking and 48.6% for alcohol. Regarding the relationship of alcohol with violence, only 17.6% of adolescents who did not drink alcohol the last month reported involvement in a fight. In contrast, 32.8% of adolescents who drunk alcohol last month got involved in a fight, and 46.8% of adolescents who drunk alcohol in an abusive way declared participation in a fight.<sup>118</sup> Students who drank alcohol also reported that they belonged to a violent group to a greater extent (8.5%) than those who did not drink alcohol (3.6%). Additionally, the survey showed a life prevalence of 13.3% in marijuana use, 2.7% in cocaine use and 2.1% in substances like cocaine base and ecstasy (GSHS, 2012).

The Fifth National Survey on Drug Use administered in 2011 to secondary school students is a further source of information on drug use.<sup>119</sup> According to this source, 'almost 3 out of 4 students used legal or illegal drugs during the last 12 months, be they experimental, occasional or regular users. Regarding last year prevalence by type of substance, during the last year 70% of students used alcohol, 20% smoked and 12% used marijuana, 7.7% used tranquilizers and sedatives (with and without medical prescription), 1.4% used cocaine and

---

<sup>118</sup> The threshold for abuse in alcohol consumption was set at 80 millimeters or more of pure alcohol on one single occasion. The survey uses a proxy indicator based on the number of alcoholic drinks students drank when they went out during the last 30 days.

<sup>119</sup> In 2011 the Observatorio Uruguayo de Drogas (OUD) carried out the Fifth National Survey on Drug Use, which involved young people aged 13-17 in all three stages of secondary school (Ciclo Básico, Bachillerato and UTU). The sample included 5.834 surveys administered in 320 classes and 105 educational institutions in cities with more than 10,000 inhabitants across the country.

inhalants, 0.4% used cocaine base, 0.3% used ecstasy (Junta Nacional de Drogas, 2011b:16). Males use all drugs in greater proportions than females, with the exception of tobacco and tranquilizers. Finally, Montevideo shows similar patterns to those observed in the rest of the country except for last year prevalence of marijuana where use was almost double among adolescents in Montevideo (Junta Nacional de Drogas, 2011b).

### III.c. Recent studies on juvenile crime and violence in Uruguay

Segmentation and quality problems affecting official data constitute a very serious obstacle for the analysis of youth crime in Uruguay. Further, the country lacks systematic surveys on crime, violence and victimisation, and there are very few ad hoc studies that have generated alternative data sets. In Uruguay, peer-reviewed journal articles on youth crime and deviance are very rare. Most of the scarce research is reported in books, book chapters and reports. In this context, the contribution of projects like this PhD dissertation becomes particularly relevant.

A substantial portion of the national literature on youth violence and crime consists of legal or social essays that do not make direct and specific use of the empirical evidence and instead focus on developing theoretical or normative debates. Regarding academic research based on empirical investigation, it is generally characterised by descriptive goals and mostly using qualitative methodologies. The shortage of quantitative studies that aim to explain juvenile crime is linked not just to the aforementioned problem of scarce data sets of good quality, but also to the fact that many Uruguayan social scientists that research crime topics follow a more critical/marxist scheme and explicitly reject the use of '*positivist*' causal or explanatory framework of youth crime (e.g. Cohen & Silva Balerio, 2003; Iglesias, 2000; Palummo, 2006; Pedernera & Silva Balerio, 2004; Uriarte, 1999).

In terms of content, a majority of the empirical research focus on defining the functioning of the adolescent criminal justice system (e.g. Aloisio, Chouhy, Trajtenberg, & Vigna, 2009; Arroyo et al., 2012; Cohen & Silva Balerio, 2003; De Martino & Gabin, 1998; Deus Viana & Gonzalez Perret, 2004; Dominguez & Silva Balerio, 2014; Fraiman & Rossal, 2011; Gonzalez & Leopold, 2013; Gonzalez, 2011; Lopez & Palummo, 2013; Lopez Gallego & Padilla, 2013; Martinez & Moyano, 2013; Martinis & Flous, 2013; Palummo, 2006, 2008, 2009, 2010; Trajtenberg, 2004; Vernazza, 2013; Viscardi & Barbero, 2010; Viscardi, 2006, 2011; VVAA, 2008). There a few articles that seek to describe the historical development of the juvenile criminal justice system (e.g. Arbesun, 2010; De Martino & Gabin, 1998; Fessler, 2013; Gonzalez & Leopold, 2013; Moras, 1992; Tenenbaum, 2011) and some that descriptively link the phenomenon of juvenile crime to social dimensions and variables (e.g. Aloisio et al., 2009; Anfitti, Rios, & Menese, 2013; Arroyo et al., 2012; Cano, 2014; Castillo, 2013; Chouhy, Trajtenberg, & Vigna, 2010; Fraiman & Rossal, 2009; Kaztman, 1996; Lopez & Palummo, 2013; Palummo, 2008, 2010; UNODC, 2010; Viscardi, 2006, 2007, 2012).

All in all, there is consensus in the literature around a few issues: i) most adolescents detained in youth criminal justice institutions for offences are male, with weak educational and employment ties, from low socio-economic strata and conflictive and unstructured families; ii) most detected youth offences refer to property crimes (theft and robbery); iii) the police detain these adolescents using selective procedures with weak legal underpinnings; iv) the judiciary operates based on punitive principles, casting aside the principle of proportionality and with procedural shortcomings; and v) institutions responsible for the application of socio-educational measures of rehabilitation of youth offenders have deficiencies in its functioning that sometimes lead to degrading treatment and violation of human rights of children and adolescents.

There is almost no quantitative research that tests criminological causal mechanisms. When it comes to rationality, there is no micro-level or perceptual studies on rational choice. However, there are two interesting macro-level econometric studies of youth crime using the neoclassical model of rationality (see section II.a.i) conducted by Munyo and colleagues. In the first study, Munyo (2015) estimated a dynamic economic model to explain the increase of juvenile crime between 1997 and 2010 which suggested that three factors can account for 91% of the variance observed: the evolution of legal wages relative to the monetary gains from crime; a new lenient juvenile crime regulation that includes the decriminalisation of attempted-theft; an increase in the escape rate from correctional facilities. A second involved a quasi-experiment that evaluated the impact on juvenile recidivism of a legal modification in 2013 that increases the severity of punishments establishing a minimum of one year of incarceration for serious violent crimes such as rapes, robberies, homicides, or kidnapping. Gandelman & Munyo (2016) found that more time of incarceration, even under very harsh conditions had a deterrent effect: an increase of 50% in the average sentence length, reduces 20% criminal recidivism.<sup>120</sup> As mentioned in Chapter I, there is very little research involving quantitative testing of non-rational causal mechanisms of youth crime in Uruguay. Chouhy and colleagues used a sample of 254 youth offenders confined or in an alternative justice programme and found that self-control was unrelated with delinquent involvement controlling for other predictors related with social learning, strain theory and social bond (Chouhy, Cullen, & Unnever, 2014). Unfortunately this study does not include any measures of rationality, morality and legitimacy. Additionally, problems of validity and reliability of some of the measures coupled with the small size of the sample,

---

<sup>120</sup> Recently, there have been other macro-level econometric studies using the strict neoclassical model of rationality framework, albeit, not focused on youth crime. Three studies have used panel data models for a similar period of time (between 1985 and 2005) to show that crime in Uruguay in this period is associated with deterrence predictors such as lack of police efficiency, number of police officers per 1,000 inhabitants, together with other more socio-economic and demographic variables such as unemployment, inequality, urbanisation rates, among others (Aboal, Lorenzo, & Perera, 2007; Borraz & Gonzalez, 2010; Campanella, 2008). Additionally, another study evaluated the impact of the anticipated release of offenders and the reduction of the severity of sentences under the *Ley de Humanización* from 2008, and found there was a small effect on property crime with violence but not in homicides (Bukstein & Montossi, 2009).

and the problem of unmeasured rational and non-rational cofounders, increases the risk of generating biased estimations. A study by Trajtenberg & Eisner (2014) used a big representative sample with more valid measures and found that self-control, morality and legitimacy were significant predictors of youth violence. However, the study was mainly exploratory since no multivariate statistical analysis was conducted. Additionally, the analysis focused on youth violence and excluded relevant antisocial and deviant behaviours committed by youths. Finally, this study also did not include rationality predictors.

#### **III.d. Recent studies on school violence in Uruguay**

If we turn to the study of violence in the school, the first work that was carried out in Uruguay was done in the 1990s, based on ANEP technical reports (Viscardi, 2003). Although public visibility of the problem and academic production have grown since then, academic research is still scarce. As well as with youth crime, the availability and the quality of official data sets also limits knowledge and research on this topic. Empirical research, be it qualitative or quantitative, is mostly based on case studies and does not allow for a generalisation of results.

Beyond a large number of qualitative studies focused on the discussion of school sociability and non-conflictive relationships in educative environments (e.g. Barcelo, 2005; Baridon, 2010; Giorgi, Kaplun, & Moras, 2012; Lozano, 2010; Rodriguez, 2002, 2014; Viscardi & Alonso, 2013; Viscardi, 2003, 2008a, 2008b) in recent years, there has been an increasing development of quantitative studies on bullying and school-related violence.

Perez Algorta (2004) examined the link between bullying and several psychological alterations in a school sample of 67 teenagers between 15 and 19 years old. The study implemented the Achenbach and Edelbrock's Youth Self-Report (YSR) and found adolescents involved in bullying dynamics, particularly

perpetrator-victims, were more likely to have higher levels of psychopathology than neutral adolescents.

Cajigas and colleagues validated the Aggression Among Peers Scale in a highschool sample of 607 students in Montevideo. Consistent with the literature, the study found a greater tendency for aggressive behaviour and lower impulse control to be predominant among males than females. Additionally, several dimensions associated with violence increased with age (Cajigas et al., 2006; Cajigas, Luzardo, Mungay, & Kahan, 2013).

Mazur (2010) analysed the relationship between bullying and academic performance in a school sample of 308 adolescents aged 11-17 in Colonia. The study included two aggression scales: the Aggression Among Peers Scale for adolescents and Cerezo's Test Bull-s scale. 3.6% of respondents were victims of bullying, 4.2% were perpetrators, and 0.6% were victims-perpetrators. Regarding academic performance, participants in bullying dynamics (particularly 'perpetrators' and 'victim-perpetrators') showed lower school performances in relation to youths not involved in bullying.

Another study conducted by Lozano and colleagues (2011) with a sample of 943 youths between 11 and 20 years old in Montevideo focused on the analysis of individual, family, community and social factors related to aggressive behavior. Results showed that 47.6% reported having perpetrated physical violence, 1.8% reported having perpetrated sexual violence, 50.5% reported psychological violence and 6% reported violence through technological media. These four types of aggressive behaviors were found to be explained by models that included key variables such as gender, age, cohabitation with parents, wealth, school retention and unhappiness.

Finally, a study by Roman & Murillo (2011) on violence and academic performance used data from the Segundo Estudio Regional Explicativo y

Comparativo (SERCE) carried out by UNESCO 2005-2009 in 16 Latin American countries. Results showed that violence among students in the sixth grade of primary school is a regional problem and negatively affects school performances. However, Uruguay is in a advantageous situation in comparison with other Latin American countries, particularly regarding the prevalence of behaviours like theft and physical mistreatment.

### III.e. Justice system and recent policy regarding youth violence and crime

In Uruguay the Convention on the Rights of the Child (CRC) in 1990 involved changing from a framework based on 'disability' to one that regards children and adolescents as 'subjects of rights'. In the criminal justice field, the CRC implied acknowledging special responsibilities from a certain age and the incorporation of a set of guarantees that guide the state's actions regarding juvenile crime<sup>121</sup> (Arroyo et al., 2012; Vernazza, 2013). In Uruguay, children below 13 years of age have no criminal responsibility, while youths aged between 13 and 17 years of age have a specific juvenile criminal responsibility system.<sup>122</sup> The Children and Adolescents Code (CNA)<sup>123</sup> made progress towards adapting national norms to the CRC, and designated the National Institute of the Children and the Adolescent called Instituto Nacional del Niño y el Adolescente (INAU) as

---

<sup>121</sup> According to the CRC, the principles that must guide the juvenile criminal justice system are legality, exceptionality and short time of imprisonment, specialisation within the youth criminal justice system, protection and guarantees for the adolescent's development, and non-regressive internal rules regarding to the treated subject.

<sup>122</sup> In Latin America, the juvenile criminal justice system refers to people aged 12-18 in Bolivia, Brazil, Costa Rica, Ecuador, El Salvador, Honduras, Mexico, Panama, Peru and Venezuela; 13-18 in Guatemala, Nicaragua, the Dominican Republic and Uruguay; 14-18 in Chile, Colombia and Paraguay; 16-20 in Cuba; in Argentina there is no criminal responsibility system until the age of 16 (Arroyo et al., 2012; Vernazza, 2013).

<sup>123</sup> The Law 17.823 of 2004 establishes obligations, rights and guarantees for individuals under 18 years of age and revokes the Law 9.342 of 1934 (called 'Código del Niño'). To implement the law, the INAU was created in 2005 replacing the prior National Institute of Children or 'Instituto Nacional del Menor' (INAME). However, rights-based progress was weakened by later changes on criminal proceedings. Law 18.777 of 2012 created criminal records for adolescents who committed serious crimes, it postponed the deadline to issue a ruling in some situations, it created the criminal offence of attempted theft and it increased (from 60 to 90 days) the period for the application of precautionary measures in cases of detention pending trial.



the leading institution on this issue. Further, regarding domestic violence, the law called 'Ley sobre Prohibición del Castigo Físico y Respeto de la Integridad de Niños, Niñas y Adolescentes' was passed in 2007 making illegal for parents to use corporal punishment with their children.

The institutional framework to provide for youth offenders or adolescents in conflict with criminal law has undergone changes in recent years. The Institute of Juvenile Rehabilitation called Instituto Tecnico de Rehabilitacion Juvenil (INTERJ) was created in 1995. In 2009 it was succeeded by the System of Implementation of Youth Crimes called Sistema de Ejecucion de Medidas sobre Jovenes con Infracciones (SEMEJI) and in 2011 by the current SIRPA. Law 18.771 created SIRPA as a specific, decentralised body to manage measures regarding adolescents in conflict with the law under the sphere of influence of INAU.

Beyond successive institutional reforms, youth violence prevention policies show heterogeneity both in their theoretical scope (regarding risk factors, citizen security, conflict management, rights, etc.) and in their institutional framework. Additionally, weaknesses in systems of information and characteristics of existing studies on youth crime make it difficult to design policies based on empirical evidence, as well as their subsequent evaluation. Thus, most crime prevention policies have not focused on tackling key risk factors and causal mechanisms emphasized by criminological studies. Particularly, rational evaluation of costs and benefits, moral values, perception of legitimacy of authorities or self control have not explicitly been taken into consideration by policy makers in Uruguay. A usual way to classify initiatives refers to the type of population they seek to address. 'Universal' or primary prevention refers to general population, 'selective' or secondary prevention refers to particularly vulnerable groups with risk of involving in crime and deviance, and 'indicated' or tertiary prevention refers to individuals and groups who have strong involvement with antisocial behaviour and violence, be it as victims or as actual perpetrators. While universal and selective prevention

programmes seek to reduce initial involvement in criminal behaviour, tertiary prevention seeks to prevent recidivism.

Among programmes for Universal and Selective prevention of youth violence, the following are the most prominent ones that have been developed recently in Uruguay:<sup>124</sup>

- ‘Ni ahí con la violencia’ (‘Stop Violence’) was launched in 2011 by the government of the city of Canelones to raise awareness through various forms of communication (posters, videos, songs) and serve as an incentive for young people aged 12-17 who attends secondary education to get information and think about domestic violence.
- ‘Pelota al medio a la esperanza’ (‘Hope and sport’) was launched in 2010 by the Ministry of Interior targeting a population of youths aged 12-18 from poor socio-economic neighbourhoods and who attend the second stage in secondary school education. The programme involved using sporting events and talks from well-known sports people to: raise awareness, decrease secondary school drop-out rates, prevent violence in sport and promote the values of healthy competition, respect and friendship.
- ‘Knock Out a las Drogas’ (‘Knock Out to drugs’) were launched in 2005 and 2011 by the Ministry of Tourism and Sport to promote sports (boxing and tennis) as a tool for youngsters aged 10-20 in deprived areas to develop healthy lifestyles and stay away from drug use and risky behaviours.

---

<sup>124</sup> The list of programmes was obtained from information published by the Social Observatory called Observatorio Social from the Ministry of Social Development (MIDES), the website Hecho para jóvenes, and various reports published by public institutions involved in youth violence prevention. Beyond initiatives that focus explicitly on the prevention of youth violence, there are others that might contribute indirectly to such ends by promoting the exercise of rights, helping in situations of social vulnerability, helping in the integration of adolescents to the educative system and the job market. In this sense, the Instituto Nacional de la Juventud recently launched the Plan de Accion de las Juventudes 2015-2025, which formulates public policy on various relevant issues.

- ‘Plan 7 zonas: Programa de territorialización de la estrategia por la vida y la convivencia’ (‘Plan of for the defense of life and social inclusion’) was launched by the Ministry of Social Development, Ministry of Interior and other public institutions in 2012 to develop prevention strategies in seven neighbourhoods of high vulnerability in Montevideo and Canelones. This Plan combines community policing with the several ongoing social projects in the neighbourhoods which comprise: programmes aimed at youth population; training and development in work-related skills for youths and women, coupled with a childcare system for their children; a housing programme; the promotion of a safe and democratic use of public spaces; and investment in infrastructure and equipment for public spaces.

When it comes to indicated prevention, the most relevant programmes that are the following:

- ‘Estudio, Ingreso y Derivación’ (‘Education and referral’) was launched in 2012 by SIRPA-INAU to organise the initial diagnosis of all adolescents that enter the youth criminal justice system in a precautionary situation, in order to organise and define the referrals to the various existing programmes and projects.
- ‘Medidas Socioeducativas de Base Comunitaria’ (‘Socio educative measures in the community’) was created in 2002 by INAU (currently managed by SIRPA) to promote adolescent responsibility and reinforce adolescents’ respect for human rights and the rights of others. It is guided by the integral protection principle and is a way to control adolescents with a definitive sentence issued by the youth penal court. The goal is to promote family involvement to reduce youths’ risky behaviours through professional help.

- ‘Medidas Privativas de Libertad y de Semi-libertad’ (‘Custodial and non custodial penal sanctions’) was originally developed in 1994 by INAU (currently managed by SIRPA) to implement and manage the enforcement of detention, precautionary, socio-educational measures established by the relevant penal courts for youths who violate criminal law. The goal is to prepare adolescents for their release by training them for their re-entry in the educative system and the job market.
- ‘Medidas Curativas’ (‘Curative Measures’) was launched in 2012 by SIRPA-INAU to contribute, through actions in the fields of health (medical, nutritional and odontological services, mental health assistance, prevention and treatment for psycho-active substance abuse, etc.) to the development and improvement of the biopsychosocial abilities of adolescents offenders.
- ‘Inserción Social y Comunitaria’ (‘Social integration and community’) was initiated by SIRPA-INAU in 2011 and seeks the social re-integration of adolescents in conflict with criminal law through professional help, training, internships, work experience and access to housing.
- ‘Proyectos culturales y tutorías para jóvenes privados de libertad’ (‘Cultural projects and supervision of youth offenders’) was launched in 2000 by INAU to contribute with socio-educational proposals involving artistic, sporting and cultural activities within detention centres of youth offenders managed by SIRPA.
- ‘Medidas alternativas a la privación de libertad’ (‘Alternative penal sanctions’) was launched by INAU in 1998 to provide adolescents under the supervision of the juvenile criminal justice system tools that contribute to their social integration and prevent criminal recidivism. The main goal is the application of socio-educational measures prescribed by the judge (e.g. unpaid tasks in

public services, mediation/reparations for the victim, etc.) and avoid less punitive detention measures in juvenile centres.

- ‘Sistema Integral de Protección a la Infancia y a la Adolescencia contra la *Violencia*’ (‘System of Protection of Children and Adolescents’) was launched by INAU in 2007 to build a national system to deal with the problem of violence and abuse of children and adolescents using an inter-institutional approach.
- ‘Centro de atención a niños y niñas víctimas de maltrato, violencia infantil y abuso sexual’ (‘Center for the assistance of children victim of domestic violence and sexual abuse’) was launched by INAU in 2005 to provide specialised care with an integral scope to improve the quality of life of children and adolescents and their families who are victims of domestic violence, abuse or sexual abuse.
- ‘Centro de Asistencia a Víctimas del Delito y la Violencia’ (‘Center for the intervention of victims of crime’) was launched by the Ministry of Interior in 2005 to provide advice for victims of crime and violence. This centre is mainly focused in managing coordination and referrals for victims to a psycho-social support and treatment network to reduce the effects of primary and secondary victimisation; and developing awareness-raising campaigns on the consequences of violence and crime
- ‘Programa de albergues para niños, niñas y sus referentes adultos víctimas de violencia’ (‘Program of centers for children victims of violence’) was launched by the Ministry of Social Development in 2007 to provide a fostering space with accommodation, food, clothing, health, education, safety and recreation, for mothers and/or female caretakers above the age of 18 and their children who are involved in problems of domestic violence.

Regarding the rules that regulate social integration and minimisation of conflict in the context of secondary education, the Regulation of the Student ('Estatuto del Estudiante') went into force in 2005, to replace the prior Code of Behavior of Students ('Reglamento del Comportamiento del Alumno'). The change meant switching from a punitive approach to one that focuses more on the student's rights and responsibilities. Specifically regarding the regulation of students' behaviour, this new statute defines responsibilities (regarding peers, teachers, school authorities, public property and symbols, etc.), describes disciplinary proceedings and lists sanctions to be prescribed in case of violations (ANEP-CODICEN, 2005).

With regards to violence prevention policies in an educative context, Uruguay developed experiences like '*Convivencia Saludable*' (Prosocial Coexistence), '*Programa + Centro: Centros Educativos Abiertos*' ('Open Educative Centers') and other one-off initiatives to promote inclusion in schools.<sup>125</sup> '*Convivencia Saludable*' (ANEP) was launched in 2010 to strengthen social integration in educational institutions and within the community. This programme replaced an approach that focused on violence with another that focused on processes based on participation and democratic coexistence. '*Programa + Centro: Centros Educativos Abiertos*' was launched by MIDES, ANEP, MEC and UNICEF and started in 2011 with the goal of promoting environments that foster education, improve social integration and relationships between the students, the educative institution and the community. Additionally, it is worth highlighting projects such as Educative Camps ('Campamentos Educativos') launched by the Ministry of Education which involve interventions that tackle factors that generate institutional problems and violent situations in urban schools across the country (UNICEF, 2013).

---

<sup>125</sup> For more information on policies that were implemented in Uruguay in the late 1990s and early 2000s, see Viscardi (2003).

One of the most serious problems in the prevention of youth violence in Uruguay is that most if not all the aforementioned programs lack adequate systems of information that allow a proper impact evaluation of its efficacy and cost effectiveness. Additionally, as mentioned before none of these programs have focused resources on changing youths' moral judgements about how wrong is to harm others, or their perception regarding how fair and trustworthy is the police. Impulsivity, volatile temper, risk seeking and other characteristics of youths low self control are also outside the crime prevention agenda. With regards to rationality, at least a few programs have aimed at increasing the youths' work and educative skills which increases the opportunity costs of involvement in crime.

Moreover, a significant event from youth criminal justice policies regarding rationality happened in recent times in Uruguay. A constitutional reform proposal to lower the age for adult criminal responsibility from 18 to 16 years of age was not supported by the population in October of 2014.<sup>126</sup> However, there is still strong social and political controversy in Uruguay regarding this topic. While the right-wing political opposition together with important portions of public opinion still demand the increase of the severity of penal sanctions for youth offenders, the left coalition government with the support of NGOs and most academics strongly reject this type of criminal justice solution. It is argued that: increasing severity of penalties is a strategy that failed to deter crime and violence in the past in Uruguay, notably with the Laws of Public Safety (called *Leyes de Seguridad Ciudadana*) from 1995 and 2000;<sup>127</sup> adolescent crimes are not characterised by rational decision making; and finally that available sources of information point to a marginal participation of adolescents as perpetrators in the total volume of

---

<sup>126</sup> The constitutional change proposed that 'People above the age of sixteen and below eighteen will be held responsible according to criminal law and will be punished in accordance with the dispositions of the Criminal Code (Law 9.155 of 4 December, 1933 and its amendments) for the intentional perpetration of the crimes of homicide, aggravated homicide, seriously aggravated homicide, serious bodily harm, very serious bodily harm, robbery, robbery with unlawful detention, extortion, kidnapping and rape, as well as any other crimes stipulated by the law'.

<sup>127</sup> According to official statistics in Uruguay crimes and violence rates increased steadily in the aforementioned period.

crime in Uruguay (Arroyo, De Armas, Retamoso, & Vernazza, 2012; Lopez & Palummo, 2013; Paternain, 2012).

This line of argumentation is very questionable on various grounds. First, it is undeniable that, during and after the implementation of Laws of Public Safety, crime and violent crime rates continue to rise in Uruguay. However, it is not clear what exactly has been the deterrent role of these policies during this period since we do not really know what would have happened in the counterfactual. Maybe if these laws had not taken place, crime and violence would have increased substantially more. In any case, Uruguay lacks adequate quasi-experimental design studies that can help to evaluate more accurately if these legal changes had any impact on crime. Although international literature seems to show that increasing severity of penalties is a poor deterrent of crime (see Chapter II), some recent research in Uruguay casts doubt on this issue (Gandelman & Munyo, 2016). Second, the rationality or irrationality of adolescents' crime decisions has not yet been empirically examined in Uruguay. Thus, at present there is no empirical evidence to support the idea that adolescents do not involve in rational calculations of costs and crimes when having to decide whether to get involved in crime and antisocial behaviours.<sup>128</sup> Finally, it is questionable that youth has such a marginal role in crime and violence in Uruguay. International empirical evidence suggests that crime and violence are concentrated early in life, particularly in adolescence (Farrington, 1986; Hirschi & Gottfredson, 1983) and that most of the desistance takes place in the early twenties (Loeber & Farrington, 2012). Uruguay lacks the adequate longitudinal studies with official data sources and self-reported information in order to have a more precise estimation about the weight of youth crime on total levels of crime. Ultimately, what is clear is that more high quality quantitative research with micro-level data is needed in Uruguay in order to evaluate whether youths' involvement in crime

---

<sup>128</sup> The idea that young offenders are rational decision makers can derive into multiple types of policy suggestions. Increasing the severity of penal sanctions is only one among many.



has a rational basis or not, and how these results can inform the development of empirically based crime prevention policies.

### III.f. Summary

The goal of this chapter was to provide an overview of youth crime and deviant behaviour in Uruguay in terms of the statistics and data sources, the available studies, and the prevention policies implemented in recent years.

I first showed the problems associated with data on crime and specifically on youth crime. Although great efforts have been made in recent years to improve information systems, there are still several problems: many of the data sets lack quality, they are not consistent with each other and they are not reported in a systematic way and in appropriate formats. Additionally, there are no continuous victimisation and self-reporting surveys. These information problems complicate the task of estimating the weight of juvenile crime relative to the total volume of crime and particularly what are its main risk factors. Next I reviewed the few available surveys that have provided self-reported data that offers the first estimates of youth crime and violence perpetration and victimisation, school violence and drug use.

Next, I described the most relevant problems of academic studies in youth violence and antisocial behaviour. The aforementioned lack of valid, reliable and systematic data is a hurdle for the development of sophisticated quantitative research on youth crime and violence in Uruguay. Almost all studies found were qualitative or had descriptive goals, and almost no studies were found that tested criminological causal mechanisms. Interestingly there were a few macro-level studies using strict rationality models and two studies that included self-control, morality and legitimacy. However, these studies showed several limitations and at present in Uruguay there are no studies of youth crime that use micro-level perceptual data and multivariate models to test rational and non-rational causal

mechanisms in the explanation of youth crime. I also analysed the few recent quantitative studies on school violence that have included more valid measurements of bullying which adapted and validated international scales to assess adolescents' involvement in bullying dynamics.

Finally, I reviewed the youth criminal justice system and the main youth crime prevention policies. Uruguay has a specific criminal responsibility system for individuals aged 13-17, based on a conception of adolescents as subjects with rights. The institutional prison framework for youth offenders is the SIRPA-INAU, a specific and decentralised institution which is intended to manage and implement socio-educational measures for the reintegration of youth offenders in society. In Uruguay, several universal, selective and indicated policies have been developed by the government to prevent youth violence. However, it is hard to know if any of these programmes have been effective due to the weaknesses in information systems and the lack of impact evaluations. I finished the chapter reviewing the strong political and social controversy regarding whether youth offenders are actually rational decision-makers, and whether it would be effective to increase the severity of criminal punishments.

Now that I have provided a background of Uruguay (the setting of this PhD) in terms of youth violence and crime statistics, studies and prevention policies, the need for high-quality quantitative study of youth crime and violence that integrates rational and non-rational causal mechanisms is more evident. Thus, I can move further to the next chapter to discuss how this goal should be accomplished. This looks at what the methodology of this study is.

## Chapter IV. Methodology

In Chapter III I described youth crime in Uruguay in terms of crime sources of data, statistics, studies and prevention policies. Now that the reader has a better understanding of the context where PhD study has been conducted, it is time to go over the methodological design. In order to do this, I will first describe the target population, the sampling procedure, and ethical and data protection issues. Then I will explain how the fieldwork was organised, the process of data collection and the rates of participation. Afterwards I will report the representativeness of the sample and the process of data management and coding. Then I will comment on the development and adaptation of the questionnaire to the Uruguayan context. I will include a section that describes the main methodological designs to measure rationality in criminology. Subsequently, the empirical distribution and reliability of the different independent and dependent variables and scales will be described. Later I will explain the analytical strategy employed, and how I tackled two important issues: the clustered nature of data and missing values. Finally, I will justify the use of count models as a useful tool to estimate models with dependent variables which are very skewed, and show how these models will be interpreted in this dissertation.<sup>129</sup>

### IV.a. Target population, sampling and sample size

The data used in this study is from the project 'Towards a more effective violence prevention policy in Uruguay' funded by Optimus Foundation, which involved the application of a paper and pencil survey on 9<sup>th</sup> grade youths from private and public<sup>130</sup> high schools in 2013 in Montevideo, Uruguay.<sup>131</sup> Self-report

---

<sup>129</sup> Modified versions of sections IV.a, IV.b, IV.c, IV.d, IV.e and IV.f of this chapter were used in Chapter II of Trajtenberg & Eisner (2014).

<sup>130</sup> The term public school refers to state-funded school.

studies of delinquency often choose pupils in the 9<sup>th</sup> grade as the target population, partly because serious delinquency and violence tend to peak at ages 14-18, partly for the pragmatic reason that in many societies grade nine is the final year of compulsory schooling.<sup>132</sup>

The aim was to obtain a realised sample of approximately 2,000 adolescents randomly selected from the target population using a cluster-randomised approach with classes as the randomisation units. Randomisation was conducted within three strata, which reflect the main school types in Montevideo. Stratification by school types was chosen primarily because class sizes differ between school types and because the socio-economic background of the pupils in each school type differs considerably. The three strata were: i) private high schools licensed by the State; ii) public high schools that included a daily shift;<sup>133</sup> iii) and technological schools that include a basic education cycle (Escuelas Técnicas del Consejo de Educación Técnico Profesional-CETP). The sampling fraction for each stratum was proportional to the number of students in the respective school type in the total population (proportional allocation).

The sampling frame included all classes in Montevideo, sorted by school, within each respective type of school. A systematic sampling procedure was defined in each stratum. First, a sampling fraction was defined, which represented the proportion of classes needed to achieve the targeted number of

---

<sup>131</sup> Montevideo concentrates 40% of the population of Uruguay (2012 Population Census, National Institute of Statistics) and 38% of the total of high school students in Uruguay (ANEP, 2009).

<sup>132</sup> In the educative system of Uruguay boys and girls start their studies in the primary education stage at the age of three. Then, they go to six years of primary education and three years of a 'Ciclo Básico Único' (CBU) of secondary education. In this stage there is an option between doing courses in high schools dependent on the Secondary Education Council, or in the technological schools (Escuelas Técnicas del Consejo de Educación Técnico Profesional – CETP), which depend on the 'Consejo Técnico Profesional'. The three final years of secondary education that allow entrance to university studies are not mandatory and can also be done either in high schools or in the CETP centres depending on the students' interest (Baridon, 2010:58).

<sup>133</sup> Three type of schools were excluded from the sample: i) night public high schools because they are composed of over-age students; ii) non-authorized private high schools because their educative programmes have not been authorized by ANEP; iii) private technological schools (e.g. 'Talleres Don Bosco', 'Don Bosco Workshops') because their educative programmes have also not been authorised by ANEP.

students within the stratum. The sampling fraction determines the sampling interval  $k$ , which defines the number of steps down the list until the next unit is selected for the sample. Next, a random number was chosen between 1 and the sampling interval  $k$ . Starting with this number for the first class, every  $k^{\text{th}}$  class was selected across the ordered list of schools and classes until the targeted ‘ $n$ ’ of classes was obtained in each stratum.

Table 1 shows the number of schools and students, as well as the estimated target sample size in the three types of schools in Montevideo for the year 2011.<sup>134</sup> The goal was to achieve an effective sample of approximately 2,000 students, equal to about one out of every eight students in Montevideo. In order to take into account various forms of attrition (school rejections, parent rejection, youth rejection, absence to class due to truancy or sickness, etc.) I aimed at a raw target sample of approximately 2,500 students. As private high schools, public high schools and CETP institutes represent 32%, 63% and 0.04% respectively of the total number of students ( $n = 16,000$ ), the estimated sample by strata should keep this relative distribution (column II of of Table 1).

*Table 1. Sampling frame and scenarios for the definition of the sample size*

	<b>Educative centres (I)</b>	<b>Total 9<sup>th</sup> grade students (II)</b>	<b>Percentage of students (III)</b>	<b>Estimated total simple size by strata (IV)</b>
<b>Private high schools</b>	99	5.225	32.7	816
<b>Public high schools</b>	53	10.117	63.2	1.580
<b>CETP</b>	7	658	0.04	102
<b>Total</b>	<b>159</b>	<b>16.000</b>	<b>1</b>	<b>2.500</b>

Source: ANEP statistics

According to ANEP statistics, a total of 5,225 students in 99 schools and 211 9<sup>th</sup> grade classes attended private high schools in 2013.<sup>135</sup> To achieve a sample of private school students that represents 32% of the total sample of 9<sup>th</sup>

<sup>134</sup> The sampling frame used is based on ANEP’s most recent records and the National Institute of Statistics’ Households Survey (‘Encuesta Continua de Hogares’).

<sup>135</sup> Six private high school were excluded because they did not include 9<sup>th</sup> grade groups.

grade youths ( $n = 2,500$ ) I therefore had to select 816 students. Given that there was on average approximately 25 students per class, a sample of 32 classes was required. To select the sample of classes the following procedure was conducted. First, I built a data set of private schools where every row represented a 9<sup>th</sup> grade class so that every school has as many rows as 9<sup>th</sup> grade classes are included. Then I created a variable that numbered all classes consecutively. In order to achieve the desired number of classes, using the sampling fraction, I selected one class every 6 rows generating a selection of 33 classes from 32 different schools (see Table 2).

*Table 2. Definition of sample of groups in private high schools*

	<b>Framework</b>	<b>Sample</b>
Number of students	5,225	816
Number of groups	211	32
Number of educative centres	99	
Average of students by group	24.8	
Sampling fraction (N/n)		6.4

The total of public high school students was 10,117. They attended 324 9<sup>th</sup> grade classes in 53 schools. To obtain a sample of public school students that represents 63% of the total sample I therefore needed to select 1,580 students. Since on average there were approximately 31 students by class I needed a sample of 50 classes. The selection of the sample followed the same procedure described for private high schools leading to generate a selection of 50 classes from 46 different public schools (see Table 3).

*Table 3. Definition of sample of groups in public high schools*

	<b>Framework</b>	<b>Sample</b>
Number of students	10,117	1580
Number of groups	324	50
Number of educative centres	53	
Average of students by group	31.2	
Sampling fraction (N/n)		6.4

Finally, the total of CETP students, centres, and 9<sup>th</sup> grade groups are respectively 658, 7 and 22. To obtain a sample of CETP students that represents a 4% of the total sample I needed to select 102 students. As on average there were approximately 30 students by group, a total of seven 9<sup>th</sup> grade groups were chosen.<sup>136</sup> Again, the selection of the sample followed the same procedure described for private and public high schools leading to generate a selection of seven groups from seven different educative centres (see Table 4).

*Table 4. Definition of sample of groups in CETP centres*

	<b>Framework</b>	<b>Sample</b>
Number of students	658	102
Number of groups	22	7
Number of educative centres	7	
Average of students by group	30	
Sampling fraction		6.4

#### **IV.b. Ethics**

In Uruguay studies of populations under full age (less than 18 years old) conducted in high schools require the approval of the authorities of the ANEP and the informed consent of youths involved. Both aspects were fully respected in this study. Additionally, I obtained approval from the authorities of AUDEC (Association of Private Catholic High Schools) and from AIDEC (Association of Private Secular High Schools).<sup>137</sup> Furthermore, parental passive consent was obtained. A letter to parents was delivered to students some weeks before the survey. The letter informed parents about the nature of the study and asked for

<sup>136</sup> According to a qualified informant from ANEP, lists of students in CETP are always oversized due to economic incentives (governmental funding obtained by the CETP is partially associated with the number of enrolled students). Therefore I was recommended to increase the number of groups to seven in order to achieve the sample target (102 students).

<sup>137</sup> This was the protocol followed by the Program for International Student Assessment (PISA) in previous waves in Uruguay (2003, 2006, 2009, 2012 and 2014).

their permission for conducting the survey. Finally, I obtained ethical approval by the Ethics Committee of the Institute of Criminology, University of Cambridge.

Data protection guidance was followed by ensuring the anonymity of questionnaires completed by students. I eliminated any trace of individual identification in the questionnaires, which can only be identified at the class level. To ensure confidentiality the survey was arranged as an exam situation not allowing students to talk to each other or to see other's responses. Teachers and other authorities of the school were not given access to the completed questionnaires. The results are presented so that no conclusions can be drawn about specific classes or schools, let alone individual students.

Data protection laws in Uruguay cover this research study.<sup>138</sup> Therefore, all the information provided by students and teachers is included under these laws. All the people involved in the study (researchers, survey field manager, surveyors, data entry administrators, etc.) signed a privacy agreement where they expressed their compliance with the requirements of the data protection laws.

#### **IV.c. Data collection, participation rates**

I adopted a three-step approach to contact the schools. First, I sent a letter on behalf of ANEP and the University of Cambridge to every selected school. Afterwards, I made a telephone contact to introduce the project. Finally, a personal meeting with the director of the educative centre and the teacher responsible for the group was arranged, where the goals of the survey and the study protocol were explained and a date for the fieldwork was arranged.

---

<sup>138</sup> Specifically there are two laws in Uruguay: Law 16,616 of statistic secrecy (*'Ley de secreto estadístico'*) and Law 18,331 of protection of personal information (*'Ley de resguardo de información personal'*).



A field leader and fourteen undergraduate students from the School of Social Sciences (Udelar University) were hired to help with the initial contact of schools, the pre-test and the conduct of the survey. Prior to the fieldwork they were trained at a two-day seminar in which they were prepared to implement the survey and were given a detailed protocol document. This document included: general information about the study; a description of the questionnaire; privacy policy issues; rules for telephone and personal interviews with directors; rules for explaining the survey to students; rules to follow during the application of the survey; a set of template letters; and finally the confidentiality agreement to be signed by surveyors. Weekly meetings with the interviewers assured that there was a constant feedback on the collection of data and any emerging problems.

The survey was carried out in the classroom and always involved the presence of two fieldworkers per class. Teachers were not present in the classroom during the implementation of the survey. Fieldworkers first introduced the project and explained the questionnaire. Special attention was given to more difficult sections in order to minimise error. The voluntary character of participation was emphasised. Additionally students were explicitly told that they must not leave any personal trace in the questionnaire. They were also informed that all the information they were providing was anonymous and was not going to be communicated to anyone, particularly their parents and teachers. Finally, students were advised that they could refuse to respond to a question at any time, if they felt uncomfortable answering it. After this introduction the field workers distributed the questionnaire, and were available for help in case there were questions during the completion. Once the students completed their survey questionnaire, the field workers checked that there were no personal traces (as well as no noticeable missing data in any section) before the student placed it in the 'survey ballot box'. In the following week 35% of the surveyed schools were supervised via telephone.

Three issues related to the fieldwork are worth mentioning. First, school authorities demanded that students should not leave the class until the whole group had finished the survey. Therefore, field workers had to manage students that had finished earlier. However, no serious discipline problems were reported along the fieldwork. Second, in low socio-economic background schools some students experienced comprehension difficulties with some items. In such cases, the field workers were available to help by clarifying item wordings. Finally, the initial plan was to conduct the survey between 15<sup>th</sup> July and 22<sup>nd</sup> August of 2013. However, an extended teacher strike in public schools during parts of the period meant that several scheduled visits had to be re-scheduled. As a result, the data collection took 8 weeks from 15<sup>th</sup> July until 17<sup>th</sup> September 2013.<sup>139</sup>

The total target sample was 90 classes in 85 schools. Three private schools refused to participate (4%).<sup>140</sup> The survey was hence administered in 87 classrooms in 82 schools. According to the school records, 2,690 individuals were registered in these classrooms. No parents expressed that they did not want their sons/daughters to be part of the survey and there was no refusal by adolescents to take part in the survey. Questionnaires were obtained from 2,204 students in 87 classes. Quality checks after the data entry revealed that 20 questionnaires (1%) had 20% or more missing values and were considered as problematic in terms of data quality. These questionnaires were not included in the final analysis. The final total sample therefore was 2,184 students, equal to 82.6% of the targeted sample.<sup>141</sup>

---

<sup>139</sup> An additional unexpected event that also delayed the time schedule was that four school directors lead as to survey a different group from the one that was originally sampled. As we did not know if this was an unintentional or intentional mistake, when we notice the mistake, we went back to survey the originally sampled groups.

<sup>140</sup> The educative institutions that did not accept to participate in the survey were St. Patrick, Colegio Sagrado Corazon (Seminario), and San Juan Bautista.

<sup>141</sup> It is important to notice that this attrition level is probably overestimated, since includes a non negligible portion of students that had abandoned school in the first part of the year, and therefore, when the survey was being conducted were not part of the universe of this study: *9<sup>th</sup> grade students from schools of Montevideo who are attending school by the time the survey was being conducted.*

A comparison between the schools' pupil lists and the pupils present at the day of the survey revealed that 486 pupils (17.4% of the target sample) did not attend class on the day of the survey. The school non-attendance rate was lower in private schools (12.1%) than in public high schools (19.2%) and CETPs (24%). Unfortunately there was no data on the reasons for the absence, in particular whether the absence was authorised (e.g. for medical reasons) or unauthorised. The rate of pupils not in school on a given day is higher than that typically found in similar surveys in Europe or the US. It may be that classroom lists were not always up to date and that some fraction of the absent students had effectively ended regular schooling or had moved elsewhere. However, the rate of about 17% of students not being in school is similar to findings from other studies in Uruguay, which have estimated school drop-out amongst 15-year-old youths to be around 25% in 2003 (Ravela, 2004), 20% in 2006 (Fernández, 2007) and 19.1% in 2009 (ANEP, 2010). This subgroup of absent students is relevant because adolescents who play truant on a specific day or who permanently don't attend school are likely to differ systematically from those who attend school regularly. In particular, they probably are less motivated to attend school, have had more problems at school, are academically weaker than others, come from disadvantaged social backgrounds and more difficult family situations, and have more behaviour difficulties (see Henry & Huizinga, 2007; Henry, 2007; Reid, 2005). All these characteristics are associated with an increased risk for delinquency and violence. It is hence important to note that the present study could not include a substantial minority of adolescents amongst whom there is likely to be an over-proportionate number of young people with high levels of antisocial and criminal behaviour.

#### **IV.d. Representativeness of the sample**

The realised sample slightly over-represents public high schools and CETP, and slightly underestimates private schools. The distribution across school types in the target population was 32.7% in private schools, 63.2% in public high

schools and 4.1% in CETPs. The corresponding figures in the sample were 34.3%, 58.4% and 7.2% respectively. When it comes to sex distribution by type of school the sample slightly overestimated the proportion of males in public high schools (49.9%) and underestimated the proportion of males in CETPs (57.4%) in comparison to the population proportions (43% and 62.2% respectively) (see Table 5).

In response to the slight deviations of the sample from the underlying population, I created weights to rebalance the data by sex and school type. However, given the small size of deviations all analyses were conducted without applying post-hoc weightings.<sup>142</sup>

*Table 5. Distribution across school types in target population and sample (in brackets)*

	<b>Males</b>	<b>Females</b>	<b>Total</b>
<b>Private high schools</b>	46.2% (46.3%)	53.8% (53.7%)	32.6% (34.4%)
<b>Public high schools</b>	43% (49.9%)	57% (50.1%)	63.2% (58.4%)
<b>CETPs</b>	62.2% (57.4%)	37.8% (42.6%)	4.1% (7.2%)

#### IV.e. Data management and coding

After the survey was completed, four field-workers were hired to code the questionnaires and enter the data. In order to minimise the level of mistakes and make the data entry process more efficient, an input mask was designed in the programme 'Data Entry'. One researcher with experience in data cleaning was hired for a month to help with the process of detecting and correcting misspellings, redundant information, missing or incorrect data, and inconsistencies between relevant predefined variables across the questionnaire. Afterwards the cleaned data set was tested several times both by this researcher

<sup>142</sup> Nevertheless I carried out some occasional checks that included these weight factors. No relevant differences were observed in relation to the analysis reported in this study.

and by the author of this PhD dissertation. As mentioned before, data cleaning showed that 20 cases were significantly incomplete to the point where analysis was almost impossible. Those 20 cases were excluded, making the final sample of 2,184 students.

All items and variables were coded in the direction of the theoretically expected relationship by the four causal mechanisms. For rationality measures, the higher the perception of benefits or utility of crime, the higher the levels of criminal behaviour, property offending, and violent offending. Therefore, individuals that thought that crime and deviance was a 'good deal' were more involved in crimes. For morality, variables were coded such that the higher the scores in the scale of morality, the lower the levels of the three types of dependent variables. Thus, individuals with low beliefs in morality and the wrongfulness of deviance were more compelled to deviate. Similarly, the lower the scores in the legitimacy scale, the higher the levels of criminal involvement. Individuals that did not trust police and thought of them as illegitimate were more involved in crime. Finally, for self-control, variables were coded so that the higher the levels of impulsivity, egocentrism, risk seeking, etc., the higher the levels of criminal behaviour.

#### **IV.f. Questionnaire translation and adaptation**

This survey is based on the questionnaire used in wave 6 of the Zurich Project on the Social Development of Children Study (from now on z-proso) in 2013, a questionnaire designed to measure violent perpetration and victimisation amongst adolescents as well as core risk factors associated with violent behaviour.

Translation constitutes one of the most complex and sensitive challenges in cross-cultural research (Harkness, 2003; Harkness, Pennell, & Schoua-Glusberg, 2004; Smith, 2004). In criminology as well, the problem of conceptual cross-

cultural equivalence must be taken into consideration. I needed to be particularly careful in the construction of instruments in order to assure that they are measuring and capturing the same concept across different societies and cultures (Eisner & Ribeaud, 2007; Eisner & Parmar, 2007). Many conceptual nuances can be lost in translation, affecting the adequate measurement of constructs and the psychometric properties of scales. At the same time, items cannot be simply translated without consideration of, and adaptation to, specific cultural contexts or else there is the risk that some reactivities might function in unexpected ways, undermining the construct validity of items and scales.

In order to minimise these types of problems, the following procedure was used. The original German questionnaire was sent to a qualified native Spanish-speaking translator who had experience in translations for social science projects. Before the translation began, the translator was introduced to the main goals that informed the scales of the questionnaire. In situations where the German questionnaire relied on scales that had originally been developed in English, the English version was also consulted to maintain equivalence to the original instruments. Furthermore, the final draft of the translated questionnaire was sent to another translator for consistency checks. Comments by the second translator were sent back to the initial translator for validation.<sup>143</sup> Finally, two native German-speaking members of the z-proso research team examined the Spanish version against the German original.<sup>144</sup>

I took additional precautions in order to assure that the different scales and items were clear and understandable for speakers of Uruguay's Spanish<sup>145</sup> and to estimate the time needed to complete the questionnaire. First, a preliminary version of the questionnaire was discussed with three qualified informants (two

---

<sup>143</sup> The second translator only suggested very minor changes.

<sup>144</sup> Those two researchers (Manuel Eisner and Denis Ribeaud) were originally involved in the construction of the original z-proso questionnaire and both are German native speakers with reading Spanish skills.

<sup>145</sup> The language spoken in Uruguay is Castilian and more specifically the dialectical variant of 'Rioplatense' Spanish, which is also spoken in Argentina, south of Brazil, Bolivia and Chile. However, there are some words that are specifically Uruguayan.

directors and one teacher from schools of Montevideo). In addition, the first draft and the final version of the questionnaire were sent for critical review to two sociologists in Uruguay who had experience in youth crime research and design of surveys. Two small initial pre-tests (with 3 and 8 adolescents) were primarily conducted to estimate the time needed to complete the questionnaire and to identify possible problems with the overall design. The final draft was tested in a larger pre-test conducted in a school setting with 121 boys and girls (58 belonging to two 9<sup>th</sup> grade groups of a private school and 63 belonging to two groups of a public school).

The pre-test suggested that the length of the survey should not be more than 80-90 minutes for the slowest adolescents. Some scales of the z-proso questionnaire were therefore removed completely or shortened. In addition, a limited number of new items or scales were introduced. For example, the morality scale in the Montevideo Survey (from now on m-proso) questionnaire includes 14 items rather than the five items used in Zurich. The police legitimacy scale in the m-proso questionnaire included 12 items rather than three used in the z-proso survey. Also, the Montevideo survey included a new scale designed to measure school legitimacy. Overall, however, the majority of instruments administered in Montevideo are identical to the instruments used in Zurich, allowing a range of cross-cultural comparisons. The final version of the questionnaire had 380 items. The main domains covered by the questionnaire are shown in Table 6.

*Table 6. Main thematic domains covered by the m-proso questionnaire*

<b>Thematic domains</b>	<b>Description</b>
1. Demographic and socio-economic characteristics	Age, number of siblings, adults living in household of target person, occupation of father/mother, employment situation of father/mother
2. Parenting and family dynamics	Parental involvement, supervision, authoritarianism, inconsequential parenting and physical punishment, conflict between parents

Table 6 (continued)

Thematic domains	Description
3. Morality	Moral beliefs about wrongfulness of delinquent acts, moral neutralisation of violence
4. Pro-social behaviour	Helping others, empathy, compassion
5. Attention deficit hyperactivity disorder	Concentration problems, nervousness, anxiousness
6. Self-perception of physical appearance and body	Perception of strength, stature, and capacity to fight
4. Bullying	Bullying victimisation, bullying perpetration
5. Violent victimisation	Victimisation last year, number of victimisations reported to the police, situational characteristics of last victimisation
6. Substance use	Alcohol, cannabis, tobacco, and six other substances; frequency of consumption last year
7. Legitimacy of state institutions	Legitimacy of the police, legal cynicism
8. Self-control	Impulsivity, risk seeking, volatile temper, temper, egocentrism, physical orientation
9. Conflict resolution	Control of anger, taking others' perspective, listening to others, threaten to beat others
10. School relationship	Relationship with students and teachers, school commitment, perception of school legitimacy
11. Leisure time activities	Media consumption; indoor/outdoor activities, pocket money
12. Delinquent peers	Membership in delinquent gang/peer group, delinquency of best friends
13. Self-reported delinquency	Last year prevalence and incidence of 20 different behaviours, contact with the police, situational characteristics of last assault
14. Aggressive and delinquent decision-making	Two scenarios with a situational trigger; measurement of perceived advantages/disadvantages of aggressive and delinquent actions, salience of deviant ideations, and anticipated reactions by others



#### IV.g. Methodological designs used to measure rationality in criminology studies

There are two main ways in which rationality has been measured in the explanation of crime: micro- and macro-level studies. I have already argued why is important to use the micro level-approach (see Chapter II) so here I will focus on four different methodological designs that have been used in the literature of micro-level or perceptual studies of crime to measure rationality.

The first wave of perceptual studies were cross-sectional surveys that included measures that asked respondents about their current estimations of main costs of crime, that is, the certainty and severity of formal and informal costs: how likely is for average people to be detected by the police and significant others (e.g. parents, peers, or teachers) if they committed a specific crime, and how big a problem it would be if they were caught (e.g. Silberman, 1976; Grasmick & Green, 1980; Grasmick & Green, 1981). Initially items asked about the general population's estimations or the 'estimation for people like you' (e.g. Silberman, 1976) but later they were reformulated and asked directly to respondents to estimate their own risks of being arrested and punished (Grasmick & Green, 1981). These studies confirmed that there was a deterrent effect, particularly of certainty of punishment, and of informal sanctions. However, one main problem of this approach is the direction of causality. Past criminal behaviour (i.e. last 12 months) and present perception of punishments are associated assuming implicitly and without evidence that perceptions of costs remain unchanged (Saltzman, Paternoster, Waldo, & Chiricos, 1982; Paternoster et al., 1983).<sup>146</sup>

There is a second wave of research that tried to tackle this limitation through longitudinal studies. These studies explored the association between perception of costs and crime by providing lagged measures of perception (e.g.

---

<sup>146</sup> In fact, the association between both constructs might be showing an inverse experiential effect from behaviour to perception: individuals that committed a crime and were not punished adjusted their estimations and think they were less likely to be punished (Saltzman et al., 1982).

Lochner, 2007; Matsueda, Kreager, & Huizinga, 2006; Paternoster, 1985; Paternoster et al., 1983; Piliavin, Gartner, Thornton, & Matsueda, 1986). This research confirmed the inverse association between perception of sanctions and involvement in crime but effect sizes were significantly smaller than those found in cross-sectional studies (Anwar & Loughran, 2011; Nagin, 1998; Paternoster, 2010; Pratt, Cullen, Blevins, Daigle, & Madensen, 2006). Panel studies confirmed that informal sanctions were effectively more relevant than formal sanctions in the explanation of crime (Paternoster, 2010). Additionally, crime rewards, one of the main unexplored issues, was included by some panel studies. Notably, Matsueda and colleagues (2006) showed not only that benefits had a significant effect on crime but also with similar effect size than the costs of crime. Despite its advantages over cross-sectional research, panel studies have also been questioned because they are not well suited to evaluate short-term mechanisms (Eisner & Malti, 2015). Ironically, the problem is that they are also assuming implicitly the stability of perceptions and therefore that they can be used legitimately to predict crime between wave  $n$  (when perceptions are measured) and wave  $n+1$  (when crime takes place) (Piliavin et al., 1986; Williams & Hawkins, 1986; Grasmick & Bursik Jr., 1990). However, there is no firm empirical evidence for this assumption.<sup>147</sup> What is more, 'a rational decision making model assumes that deterrent effects, if they exist, are instantaneous rather than lagged' (Grasmick & Bursik Jr., 1990:841). Therefore, estimates of rationality predictors are biased since 'longitudinal studies do not easily permit researchers to capture participants' perception of punishments at the moment they engage in the decision making process' (Exum & Bouffard, 2010:582).

Scenario studies represent a third alternative developed in the last 20 years. This alternative has included four versions: hypothetical questions design, hypothetical scenarios with research-generated-consequences (RGC),

---

<sup>147</sup> In fact the same panel studies have shown the opposite, i.e., that perceptions of risk are unstable even in short periods of time (e.g. Saltzman et al., 1982).

hypothetical scenarios with subject-generated-consequences (SGC),<sup>148</sup> and hybrid variants that combine hypothetical scenarios with past criminal behaviour.

In order to solve the problem of temporal order and to explore the immediate effect of risk of sanctions on decision-making, some studies included dependent variable hypothetical questions regarding crime (e.g. Would you intentionally...do crime X?) (e.g. Grasmick & Bursik Jr., 1990; Cochran, Aleksa, & Sanders, 2008; Tittle, Botchkovar, & Antonaccio, 2011; Tittle, Antonaccio, Botchkovar, & Kranidioti, 2010). However, hypothetical questions without description of vignettes lose one of the main advantages of hypothetical scenario techniques: the increase of reliability of responses through the detailed specification of circumstances of offending which minimises divergent interpretations of respondents (Klepper & Nagin, 1989).

The line of RGC studies precisely seeks to solve this issue by presenting subjects with hypothetical vignette situations that describe in detail and realistically the commission of a crime and its circumstances. Then, participants are asked about how likely it is that they would do the crime described in the vignette in the near future.<sup>149</sup> Then, they are asked about their perceptions regarding the severity, certainty and celerity<sup>150</sup> of different formal and informal sanctions, which are then used as predictors of participants intentions/projections of future crimes (Exum & Bouffard, 2010; Matsueda, 2013; Nagin & Paternoster, 1993). By using as dependent variables intentions to commit crimes (instead of past or actual crimes), the problem of temporal order is solved (Wikström, 2007).<sup>151</sup> An additional advantage of this technique is the random assignment of

---

<sup>148</sup> This terminology is from Bouffard and colleagues (Bouffard, 2007; Exum & Bouffard, 2010).

<sup>149</sup> A crucial issue is that the temporal frame of potential crime is located in a very proximate future (e.g. next days, next week, next month) in order to capture reliably instant decisions. However, it is not always clearly reported what the temporal frame is that is used in some of these hypothetical scenario studies (e.g. Bouffard, 2007; Bouffard et al., 2008).

<sup>150</sup> In fact, celerity is rarely studied in rationality studies. One of the few notable exceptions is Nagin & Paternoster (1993).

<sup>151</sup> The use of intentions or projected behaviours in criminology is based on Ajzen's (2011) theory of planned behaviour where future intentions of rational actors in hypothetical scenarios predict

different scenario characteristics (e.g. size of monetary returns, presence of bystanders, time of day) which permits estimating the impact of these characteristics on crime through experimental factorial design (Matsueda, 2013).

This line of research has confirmed previous findings in the deterrence literature: the projection to commit crime was found to be significantly associated with formal and informal sanctions (e.g. Bachman, Paternoster, & Ward, 1992; Higgins, Wilson, & Fell, 2005; Nagin & Paternoster, 1994; Paternoster & Simpson, 1996). While certainty shows a large effect on intentions to commit crime, severity has a more modest effect (Matsueda, 2013). Additionally crime rewards have been explored more systematically (e.g. Carmichael & Piquero, 2004; Paternoster & Simpson, 1996; Nagin & Paternoster, 1994). However, RGC designs have also been criticised. One of the main limitations is that subjects are presented with a fixed set of consequences which do not represent accurately those considered in the decision-making process and might generate biased estimates of perception of costs and benefits of crime (Exum & Bouffard, 2010).

There has been a development of a new generation of hypothetical scenarios allowing subjects to generate their own set of consequences of crime (SGC) (e.g. Bouffard, 2002; Bouffard, 2007; Bouffard, Exum, & Collins, 2010; Piquero et al., 2016). This line of research has shown: a set of new costs and benefits previously unknown (e.g. fear of sexually transmitted diseases in sexual aggression scenarios); that some consequences are more likely to be perceived as relevant or certain when presented by researchers than when they are generated by participants (e.g. the deterrent effect of issues of morality usually included in the literature is rarely mentioned by participants in these designs); and finally, that RGC studies tend to underestimate the value of the certainty of sanctions and benefits from crime in relation to SGC studies (Bouffard, Exum, & Collins, 2010; Exum & Bouffard, 2010).

---

accurately future behaviours in the real world provided there are no significant changes the context of the decision.

There is an additional hybrid variant that can be found in recent studies that includes hypothetical scenarios but combined with past criminal behaviour (i.e. in the last 12 months) instead of using projection of future crimes (e.g. Cochran et al., 2008; Gallupe & Baron, 2010; Pauwels, Weerman, Bruinsma, & Bernasco, 2011; Svensson, 2015; Wikström et al., 2011). One main reason to use this type of dependent variable is that there are still doubts over the validity and reliability of projection/future crimes. Due to social desirability or to 'trash talk', individuals might underestimate or overestimate respectively their future involvement in crime when facing hypothetical questions about the future (Wright, Caspi, Moffitt, & Paternoster, 2004; Exum & Bouffard, 2010). Those few recent studies that contrast projections with actual behaviour seem to show that intention to commit future crimes is an unreliable construct that predicts more accurately abstention from crime than involvement in crime. While respondents that show weak intention to be involved in crime correspondingly has less actual criminal behaviour (low level of false negatives), those respondents that expressed strong intentions to commit future crimes were also not highly involved in offending behaviour in the real world (high level of false positives) (Exum, Turner, & Hartman, 2012; Exum, Bailey, & Wright, 2014; Higgins, Wolfe, & Ricketts, 2008). In addition, the inclusion of past criminal behaviour allows the inclusion of more ample set of criminal behaviours and helps to overcome the recurrent problem in the literature of models that are focused on trivial and non-serious crimes.<sup>152</sup> An additional argument for the use of past behaviour dependent variables is that some studies have tested both type of dependent variables (past behaviours and future projections) in their explanatory models of crime and have found no significant differences (Tittle, Antonaccio, Botchkovar, & Kranidioti 2010).<sup>153</sup>

---

<sup>152</sup> However, there are some exceptions. For example, Loewenstein and colleagues' (1997) study included a hypothetical scenario about a rape in dating situation.

<sup>153</sup> An additional thing to consider in projected crime designs is the following. Initially, these studies are used to provide empirical evidence that individuals rationally evaluate costs and benefits when committing crimes. Yet, we are also told that using the projection of behaviour (instead of actual behaviours) is not problematic because the underlying model assumes a rational subject that will finally do what he or she envisioned unless significant changes take place

Finally, and partially as a way of avoiding all these issues regarding the construct validity of the projection to commit crime, a fourth line of rationality studies are actual experiments (e.g. Nagin & Pogarsky, 2003; Tittle & Rowe, 1973; Ward, Stafford, Gray, & Menke, 1994). Most of these studies have focused on experiments that tested college students willingness to cheat in university exams, manipulating different levels of certainty and severity of punishment which include cash rewards and university disciplinary sanctions (Nagin & Pogarsky, 2003). The trivial nature of the dependent variable casts doubts on how valid these results are to understand more serious crimes and offenders. However, Block & Gerety (1995) is a notable exception where the severity and certainty of punishment are tested with laboratory financial games played by groups of students and prisoners. Experiments are increasingly used in criminology and are considered by many as the gold standard for scientific evidence (Sherman et al., 1998). They seem a very attractive option both to solve the problem of how to design what has proven to be a tricky and elusive dependent behavioural variable, and the problem of biased estimates due to unmeasured cofounders and factors that simultaneously affect rationality predictors and crime (Nagin & Pogarsky, 2003; see more generally Sherman, 2009). However, there are concerns about the external validity of these experimental rationality studies to inform the explanation of crime in real life due to: the type of artificial and simplistic setting that involves; the type of 'crime' that is being tested; or even the type of target population (but see Block & Gerety, 1995). Furthermore, the advantage of experiments over observational studies in terms of causal inference seems to have been exaggerated in criminology. This advantage is only such if experiments are based on random samples or at least there is precise knowledge about the selection mechanism, two things that hardly ever are fulfilled in criminology (Sampson, 2010).<sup>154</sup>

---

in the environment that affect his decision (Ajzen, 2011). I can't help thinking there might be something of an implicit begging the question fallacy involved in these designs.

<sup>154</sup> Sampson (2010) mentions two other difficulties that make matters even worse for criminological studies: uncertainty that the treatment effect is homogenous across all the individuals; and low levels of compliance from selected subjects.

The m-proso data set used in this dissertation allows for conducting the hybrid variant that combines hypothetical scenarios with past criminal behaviour. This design involves some limitations, particularly regarding the direction of causality.<sup>155</sup> However, all in all, it is a powerful and accepted methodological design in the literature of rationality and is particularly fit to explore the role of rationality in the explanation of a wide set of non-serious and serious criminal behaviours.

#### **IV.h. Measurement of variables**

##### **IV.h.i. Control variables**

Eight indicators of the demographic, socio-economic and family background of the study participants were included as control variables that might predate the explanatory variables (see Table 7). The mean age of students is 15.15 (s.d. = .91). In terms of sex, the sample includes 49.2% males and 51.8% females. Almost 60% of the students lived in a family with their two biological parents. 8.6% of the students in Montevideo had three or more siblings. The relatively small proportion of adolescents living in 'large' families reflects the comparatively low overall birth rate in Uruguay, which had already fallen considerably in the first half of the 20<sup>th</sup> century. About 7% of the respondents reported that their mother was a teenager when they were born. The indicator for the education background of the adolescents' family was constructed by combining the information from both parents. The data suggests that slightly more than 31% of adolescents in Montevideo live in households where at least one parent has a university degree. On the other hand, around 10.5% of students live in households where neither of the parents has completed more than primary

---

<sup>155</sup> Therefore, it is important to be cautious in the interpretation of the results of this study. Given the cross-sectional nature of the data, results cannot be interpreted as showing causal relationships. I will discuss more thoroughly these limitations (and other limitation of this study) in Chapter VII.

school as the highest education level.<sup>156</sup> Finally, two variables associated with the schools were included: ‘type of educative institution’ and ‘school retention’. Two thirds of the sample is composed of students in public high schools (public and CETP). School retention was defined as any student in the 9th grade who was born before the 1<sup>st</sup> May 1997, and hence older than expected on the basis of the regular of entry into primary school. Almost 40% of the sample of students was coded as ‘retained’.

*Table 7. Distribution of control variables*

<b>Criterion</b>	<b>Range</b>	<b>Mean</b>	<b>SD</b>	<b>N</b>
Gender	0 (male) – 1 (female)	.49	.50	2,182
Age	14 – 18	15.15	.91	2,146
Biological parents	0 (one or none biological parents) – 1 (both biological parents)	.58	.49	2,180
Large families (> 3 siblings)	0 (no) – 1 (yes)	.09	.29	2,082
Teenage mother	0 (no) – 1 (yes)	.07	.26	2,055
Parents’ maxim level of education	1 (primary studies) – 2 (secondary studies) – 3 (universitary studies)	2.20	.61	2155

<sup>156</sup> The study also included measures of socioeconomic status using the fourfold EGP4 (Erikson-Goldthorpe-Portocarero) class categorisation scheme (Goldthorpe, 1997) based on youths’ answers about their parents occupation and job tasks. This class categorisation distinguishes the service class (e.g. professional, managers), the intermediate class (e.g. service and sales workers, administration, etc.), the skilled workers class (e.g. carpenters, bakers), and the working class (e.g. mining and construction labourers, manufacturing labourers). 16.6% of the students came from a higher social class background, 35.6% belonged to the intermediate class, 21.3% to the skilled worker class and 26.5% to the working class.

Neighborhood disadvantage was also measured. Participants were asked to indicate in which of the 62 neighbourhoods of Montevideo they lived. Neighbourhoods were classified using a system developed by the United Nations Development Programme, which divides neighborhoods in four groups according to their levels of Human Development Index (Rodriguez, 2014). Both variables proved to be non-significantly associated with the three dependent variables (results not shown).



Table 7 (continued)

Criterion	Range	Mean	SD	N
School type	1 (public and CETP), 2 (private)	.66	.47	2184
School retention	0 (normative) – 1 (retained)	.39	.49	2149

#### IV.h.ii. Independent variables I: rationality

The measurement of rationality was based on the hypothetical scenario methodology (Exum & Bouffard, 2010). In both scenarios, adolescents were asked to imagine themselves in two different realistic scenarios related to their daily life. I used one ‘reactive aggressive’ scenario adapted from the z-proso study (wave 6) developed by the z-proso Project Team on the basis of Huizinga’s Denver Youth Survey, and added an adaptation of the ‘shoplifting’ scenario created by Bouffard et al. (2008).<sup>157</sup> These two scenarios were chosen because they have been used in previous studies and because they involve realistic forms of delinquent/deviant behaviour related to the daily life of adolescents. Respondents were asked to read each scenario, imagine that it has actually happened and respond to different items to assess their perception and feelings associated with potential reactions of himself/herself, their peers, their parents and the police.

In the first scenario (reactive-aggression) the respondent had to read the following vignette: ‘*Imagine that another student from your school (man if you are*

<sup>157</sup> Two of the three hypothetical scenarios originally included in z-proso questionnaire were excluded for a number of reasons. First, due to time constraints the amount of items in the survey had to be limited (students in Montevideo had approximately 60% of time to complete the survey relative to students in Zurich). Second, the pre-test showed that students had a hard time detecting relevant differences between the reactive aggressive scenario and the proactive aggressive scenario. Third, the original shoplifting scenario was the less realistic and generated skewed scales in the original z-proso data set in Zurich (Ribeaud personal communication). Since we were interested in using rationality measures to explain both violent and non-violent crime we decided to keep the reactive aggressive scenario and include an adaptation of Bouffard et al., (2008) shoplifting scenario.

*a man, and woman if you are a woman) approaches you and yells so that everybody can hear him: 'get out of here asshole'. You cannot put up with it so you hit him with your fist in his/her face. He/she falls, his/her clothes are torn and his/her nose starts bleeding heavily. Nothing happens to you. Nobody intervenes in the situation'.*

In the second scenario (shoplifting) the respondent has to read the following vignette: *'Imagine that is late at night and you have gone to a small convenience store to buy some batteries. Once there, you realise the store is about to close and you do not have enough money to pay for the batteries. The batteries are small enough to hide on you without anyone noticing. You have enough money to buy some gum so no one will be suspicious of you not buying anything. You notice that you are out of sight of the only clerk working in the store and that he is reading the paper behind the counter. So you put the batteries in your pocket, buy the gum and leave the store'.*<sup>158</sup>

Respondents are asked to imagine that the scenario situation actually happened and to answer several questions that explore their judgement and decision-making. One first key issue that respondents have to answer is regarding their feelings about doing the crime: 'Would you feel bad about it? (Very bad [1], Pretty bad [2], Pretty good [3], Very good [4]).

The scenarios included questions regarding the evaluation of wrongness of the crime by the respondent ('Do you think it would be wrong to do something like that?') and by their friends and parents ('Would your friends/parents think

---

<sup>158</sup> The original scenario did not include the final part of actually doing the shoplifting because Bouffard et al., (2008) focus on prediction of future intentions of committing a crime. Since my goal is to assess some causal mechanisms involved in rational decision-making such as perception of informal costs, perception of certainty of having problems with police, etc., we added the final behavioural component and the same questions that are made in the original z-proso hypothetical scenarios. Finally, an additional difference is that the item that was originally bought in the scenario (a soda) was changed for a battery in order to make it more realistic since battery has a much lower price and is easier to hide.

what you have done would be wrong?') (Not wrong at all [1], a little wrong [2], wrong [3], very wrong [4]).

There were a series of items focused on measuring adolescents' evaluation of the risks/certainty of suffering formal or informal sanctions. Therefore, respondent was asked 'How likely is it that the other student would hit you back?'<sup>159</sup>. Adolescents were also asked what are the risks that friends, parents and police will find out that he/she committed this crime:<sup>160</sup> ('How likely is it that your friends/parents/the police would know that you did something like this?') (Very unlikely [1], Unlikely [2], Likely [3], Very likely [4]).

Additionally, the scenarios included a measure of adolescents' estimations of severity of formal and informal sanctions through the following set of items. First, respondents were asked about the seriousness of the consequences of committing this crime for himself/herself ('How serious would it be for you if the other student hit you back?'<sup>161</sup>), and for his/her friends and parents ('If your friends/parents/the police knew about it, would it have serious consequences for you?') (Not serious consequences [1], Not very serious consequences [2], Serious consequences [3], Very serious consequences [4]).

There are also some questions regarding respondents' estimation of whether committing a crime would generate admiration both in friends and parents ('Would your friends/parents admire you for doing something like this?'), and if the respondent would feel shame in front of his friends and parents ('Would

---

<sup>159</sup> In the case of the shoplifting scenario this item had the following form: 'How likely is it that the clerk or the owner would realise what happened and go after you?'

<sup>160</sup> The fact that a significant other knows that the adolescent committed a crime not necessarily constitute a component of a measure of informal sanctions. It crucially depends on their evaluation of how wrong it is to commit a crime and how they react towards the adolescent. In the following pages I will describe how I took this into consideration when constructing the independent variables.

<sup>161</sup> In the case of the shoplifting scenario, this item had the following form: 'How serious would it be for you if the clerk or the owner of the shop would went after you?'

you be ashamed in front of your best friends/parents?') (Not at all [1], A little [2], Somewhat [3], Pretty much [4]).

The complete wording of all these items and the distribution of responses are included in Table 8, Table 9, Table 10, Table 11 and Table 12.

*Table 8. Distribution of scenario items: feelings about committing a crime*

Items		Very bad (1)	Pretty bad (2)	Pretty good (3)	Very good (4)
Would <i>you</i> feel bad about it?	Violent scenario	23.9	47.9	23.2	5
	Shoplifting scenario	49.1	36.5	12.3	2.1

*Table 9. Distribution of scenario items: feelings about the wrongfulness of crime*

Items		Not wrong at all (1)	A little wrong (2)	Wrong (3)	Very wrong (4)
Do <i>you</i> think it would be wrong to do something like that?	Violent scenario	7.5	37.8	36.2	18.6
	Shoplifting scenario	13	31.3	26.5	29.2
Would your <i>friends</i> think it would be wrong to do what you have done?	Violent scenario	21.8	39.4	25.1	13.7
	Shoplifting scenario	20.6	32	25.8	21.6
Would your <i>parents</i> think it would be wrong what you have done?	Violent scenario	3.6	13.7	26.8	55.9
	Shoplifting scenario	5.6	10.8	20.5	63

Table 10. Distribution of scenario Items: certainty of sanctions

Items		Very unlikely (1)	Unlikely (2)	Likely (3)	Very likely (4)
How likely is that the other student would hit you back? / How likely is that the clerk would notice you steal the battery and went after you?	Violent scenario	13.6	18.1	45.3	22.9
	Shoplifting scenario	33.8	35	20.2	10.9
How likely is that your friends would know that you did something like this?	Violent scenario	11.8	6.4	19.8	62
	Shoplifting scenario	22.7	19.5	31.9	25.9
How likely is that your parents would know that you did something like this?	Violent scenario	13.4	13.9	34.3	38.4
	Shoplifting scenario	24.7	23.8	25.5	26
How likely is that the police would know that you did something like this?	Violent scenario	58.2	28.7	9.6	3.6
	Shoplifting scenario	46.1	27.3	16.3	10.3

Table 11. Distribution of scenario items: severity of sanctions I

Items		Not serious at all (1)	A little serious (2)	Serious (3)	Very serious (4)
How serious would it be for you if the other student hit you back? / How serious would it be for you if the clerk noticed you steal the battery and went after you?	Violent scenario	12.5	38.2	36.7	12.6
	Shoplifting scenario	11.9	18.4	33	36.7
If your friends know about it, would it have serious consequences for you?	Violent scenario	66.3	22.9	8.5	2.3
	Shoplifting scenario	43.7	29.5	15.7	11.2
If your parents know about it, would it have serious consequences for you?	Violent scenario	18.8	31.2	28.6	21.5
	Shoplifting scenario	9.4	18.5	29.4	42.7
If the police know you did this, would it have serious consequences for you ?	Violent scenario	33	30.2	20.5	16.3
	Shoplifting scenario	21.1	24.3	26.2	28.4

Table 12. Distribution of scenario items: severity of sanctions II

Items		Not at all (1)	A little (2)	Somewhat (3)	Pretty much (4)
Would your friends admire you for doing something like this?	Violent scenario	49.3	32.5	13.4	4.8
	Shoplifting scenario	64.3	26	7	2.6
Would you be ashamed in front of your best friends?	Violent scenario	53.4	25.5	13.3	7.9
	Shoplifting scenario	34.8	24.8	21.5	19
Would your parents admire you for doing something like this?	Violent scenario	87.7	8.6	2.1	1.6
	Shoplifting scenario	90.3	6.1	1.9	1.8
Would you be ashamed in front of your parents?	Violent scenario	29.5	27	19	24.5
	Shoplifting scenario	12.5	18.7	23.3	45.5

A final set of items indirectly associated to rationality and judgement are three items referred to an adolescent's physical appearance, strength and ability to fight in comparison to his or her peers. Respondents are specifically asked: 'from 100 students of my age, I am taller/stronger/would win a physical fight...(from 0 to 100)'.<sup>162</sup> In Table 13 I present the complete wording of the three items and the distribution of responses.

Table 13. Distribution of items of perception of stature, strength and capacity to fight

Items	Range	Mean	Median	Variance	SD
'From 100 students of my age, I am taller than...'	0 – 100	49.79	50	597.25	24.44
'From 100 students of my age, I am stronger than...'	0 – 100	45.58	50	629.86	25.1
'From 100 students of my age, in a fight I would win...'	0 – 100	43.96	50	847.33	29.11

I used the aforementioned items to design several scales of rationality and its sub-dimensions but always treating scenarios as separated measures.

<sup>162</sup> The heading of these items remind boys that they should compare themselves only with other boys and the same goes for girls (they should only compare themselves with girls). Additionally, it is also stated how to interpret the numbers and an example is given: 100 when the respondent considers themselves to be the tallest, 0 when he/she considers to be the shortest, and 50 when he/she considers he/she has an average height.

Although some of these indexes from each scenario showed strong association <sup>163</sup>, exploratory and confirmatory factor analysis showed that constructing measures that combined items of both scenarios was not feasible.<sup>164</sup> This should not be a surprising fact considering that almost 30 years ago, Clarke and Cornish (1986) alerted that using a generic model to explain every type of crime was problematic due to the large variance in the decision-making processes and motivations across the different types of crimes and deviant behaviours. If this is the case, it is misguided to seek for an underlying global dimension of rationality mixing one scenario focused on violence and another one focused on theft. Psychological research in cognition and information processing has also emphasised the relevance of distinguishing subtypes of models of youth antisocial behaviour. Aggressive behaviour studies have shown the empirical validity for the 'structural', 'functional' and 'phenomenological' differences between more reactive, emotionally aroused, impulsive forms of violence that basically take place in response to external social stimuli, and those more instrumental, proactive, deliberated and non-emotional, which are motivated by internal desires and targets (Fontaine, 2008). As mentioned in Chapter II, this instrumental model has also proven to be useful to be extended to other forms of antisocial behavior such as stealing (Fontaine, 2007), which is the deviant behaviour included in the non-violent hypothetical scenario. Thus, I constructed the following nine pairs of scales of rationality for the reactive aggressive and theft scenarios respectively.<sup>165</sup>

First, two scales were constructed (one for each scenario) for perception of self-costs that tapped on how bad the respondent feel about doing the crime, and how serious would it be to do something like that (two items). The overall

---

<sup>163</sup> For example, the global rationality index from the theft scenario and the global index of the violence scenario showed high association ( $r = .487, p < .001$ ).

<sup>164</sup> Researchers that use the rationality scenarios in the z-proso data set had faced the same problem (personal communication with Manuel Eisner).

<sup>165</sup> Since I was also interested in doing additional specific analysis comparing the relative explanatory role of crime costs and benefits, and informal costs moderating role (see hypothesis in Chapter II), I generated three additional pairs of scales using some of the items used in the rationality scales.

reliability (Cronbach's  $\alpha$ ) of these scales was .65 for the violence scenario and .57 for the shoplifting scenario.<sup>166</sup>

*Table 14. Distribution of perception of self-costs scales*

Criterion	Gender	Range	Mean	SD	N	
<b>Self-costs</b>	Violent scenario	Males	1 – 4	2.39	.69	1045
		Females	1 – 4	2.04	.72	1086
		Total	1 – 4	2.22	.72	2131
	Shoplifting scenario	Males	1 – 4	2.07	.77	1043
		Females	1 – 4	1.89	.74	1095
		Total	1 – 4	1.98	.76	2138

Second, two scales were constructed (one for each scenario) of formidability or perception of adolescents' strengths and resources to get involved in deviance (five items). These scales include on the one hand items associated with adolescents' perception of his/her physical appearance, strength and ability to fight; and on the other hand, these scales also include adolescents' perceptions of how likely they are to have problems due to the crime committed, and how serious those consequences might be. For the violence scenario, inter-item correlations vary from .44 to .81, item-to-scale correlations vary from .15 to .61, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .63. For the shoplifting scenario, inter-item correlations vary from .45 to .76, item-to-scale correlations vary from .16 to .55, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .59.

<sup>166</sup> Some of the constructed scales used in this PhD dissertation, particularly those composed of few items, have scores of internal consistency that are below what is considered acceptable by accepted rules of thumbs in the literature ( $\alpha > .7$ ) (see Kline, 2000).



Table 15. Distribution of perception of formidability scales

Criterion	Gender	Range	Mean	SD	N	
<b>Formidability</b>	Violent scenario	Males	11.4 – 97.8	55.97	15.57	1067
		Females	10 – 99.4	47.12	14.79	1101
		Total	10 – 99.4	51.47	15.81	2168
	Shoplifting scenario	Males	10 – 100	57.46	15.81	1060
		Females	10 – 99.4	48.07	14.65	1098
		Total	10 – 100	52.68	15.94	2158

Third, two scales (one for each scenario) were constructed for the perception of peer reactions to respondent's involvement in crime. These scales include items regarding feelings of admiration and shame from his/her friends, how wrong would they consider it is to commit such a crime, and how serious would it be for the respondent that their friends knew about it (four items). For the violence scenario, inter-item correlations vary from .61 to .82, item-to-scale correlations vary from .33 to .62, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .72. For the shoplifting scenario, inter-item correlations vary from .51 to .84, item-to-scale correlations vary from .29 to .74, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .78.

Table 16. Distribution of perception of peer costs and benefits scales

Criterion	Gender	Range	Mean	SD	N	
<b>Peer costs and benefits</b>	Violent scenario	Males	1 – 4	2.97	.57	1067
		Females	1 – 4	2.64	.69	1107
		Total	1 – 4	2.80	.66	2174
	Shoplifting scenario	Males	1 – 4	2.6	.74	1059
		Females	1 – 4	2.31	.77	1101
		Total	1 – 4	2.45	.77	2160

Fourth, two scales (one for each scenario) were created for the perception of parents' reactions to respondent's involvement in crime that tapped into the same issues (admiration, shame, wrongfulness, and seriousness) (four items). For the violence scenario, inter-item correlations vary from .43 to .83, item-to-

scale correlations vary from .25 to .62, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .72. For the shoplifting scenario, inter-item correlations vary from .34 to .86, item-to-scale correlations vary from .15 to .7, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .75.

*Table 17. Distribution of perception of parents costs and benefits scales*

Criterion	Gender	Range	Mean	SD	N	
<b>Parents costs &amp; benefits</b>	Violent scenario	Males	1 – 4	2.13	.66	1071
		Females	1 – 3.75	1.83	.65	1108
		Total	1 – 4	1.98	.68	2179
	Shoplifting scenario	Males	1 – 4	1.72	.70	1063
		Females	1 – 3.75	1.62	.64	1105
		Total	1 – 4	1.67	.67	2168

Fifth, two scales (one for each scenario) were created for the perception of police reactions were constructed multiplying the certainty of being caught by police when respondent gets involved in crime (certainty) by the seriousness of being caught by police (severity).<sup>167</sup>

*Table 18. Distribution of perception of police costs scales*

Criterion	Gender	Range	Mean	SD	N	
<b>Police costs</b>	Violent scenario	Males	.2 – 3.2	.82	.47	1065
		Females	.2 – 3.2	.86	.47	1098
		Total	.2 – 3.2	.84	.47	2163
	Shoplifting scenario	Males	.2 – 3.2	.79	.44	1058
		Females	.2 – 3.2	.82	.44	1105
		Total	.2 – 3.2	.81	.44	2163

Sixth, two scales (one for each scenario) were constructed for the global measure of rationality that is an average score of standardised versions ( $z$  –

<sup>167</sup> All the scales of the independent variables reported in this study were constructed calculating the average mean of items included in the scale excluding every case that has 1/3 or more missing values in the items composing the scale. The only exceptions are the perception of police reactions scales that are constructed multiplying the likelihood of being caught by the police by the seriousness of consequences of being caught by police.

score) of the aforementioned five rationality scales: self-costs, formidability, peer costs and benefits, parent costs and benefits, and police costs.

*Table 19: Distribution of perception of rationality global index scales*

Criterion	Gender	Range	Mean	SD	N	
<b>Rationality global index</b>	Violent scenario	Males	-1.76 – 2.59	.2	.6	1071
		Females	-1.75 – 2.1	-.19	.66	1105
		Total	-1.76 – 2.59	.002	.65	2176
	Shoplifting scenario	Males	-1.37 – 2.52	.13	.65	1059
		Females	-1.48 – 1.92	-.13	.64	1102
		Total	-1.48 – 2.52	.001	.66	2161

Seventh, two scales (one for each scenario) were devised for crime benefits. These scales included three items regarding feelings that referred to psychic benefits associated with the self (feeling good about doing the criminal/deviant behaviour) and with perception of admiration from peers and parents. For the violence scenario, inter-item correlations vary from .56 to .80, item-to-scale correlations vary from .26 to .38, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .49. For the shoplifting scenario, inter-item correlations vary from .54 to .79, item-to-scale correlations vary from .18 to .4, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .45.

*Table 20. Distribution of perception of crime benefit scales*

Criterion	Gender	Range	Mean	SD	N	
<b>Crime benefits</b>	Violent scenario	Males	1 – 4	1.8	.53	1036
		Females	1 – 4	1.54	.49	1083
		Total	1 – 4	1.67	.53	2119
	Shoplifting scenario	Males	1 – 4	1.51	.51	1046
		Females	1 – 4	1.35	.42	1094
		Total	1 – 4	1.43	.47	2140

Eighth, two measures (one for each scenario) were created for crime costs composed of eleven items which included the psychic costs associated with the self, peers, parents and the police focusing on three issues: if the event would be

thought to be something serious, if the respondent would feel ashamed about it, and if it would be probable that it would bring serious consequences. For the violence scenario, inter-item correlations vary from .32 to .77, item-to-scale correlations vary from .2 to .67, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .81. For the shoplifting scenario, inter-item correlations vary from .54 to .76, item-to-scale correlations vary from .44 to .7, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .88.<sup>168</sup>

*Table 21. Distribution of perception of perception of crime costs scales*

Criterion	Gender	Range	Mean	SD	N	
<b>Crime costs</b>	Violent scenario	Males	1 - 4	2.19	.5	1072
		Females	1 - 4	2.44	.57	1109
		Total	1 - 4	2.32	.55	2181
	Shoplifting scenario	Males	1 - 4	2.5	.7	1062
		Females	1 - 4	2.66	.69	1104
		Total	1 - 4	2.58	.7	2166

Finally, two additional measures were created for informal costs and benefits. These scales contained all costs and benefits except for self-costs and costs associated with the police. For the violence scenario, inter-item correlations vary from .34 to .8, item-to-scale correlations vary from .23 to .68, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .8. For the shoplifting scenario, inter-item correlations vary from .23 to .82, item-to-scale correlations vary from .13 to .72, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .83.

<sup>168</sup> Although each scenario included three items associated with the certainty of being caught doing the deviant behaviour, I only included the certainty item associated with the police in the measure of costs since in the other cases (parents and peers) certainty might be associated either with costs or benefits. However, all results obtained in further analysis that included costs and benefits were controlled with an additional general measure of costs that included the excluded certainty items and there were no significant differences.

Table 22. Distribution of perception of crime informal costs and benefits scales

Criterion	Gender	Range	Mean	SD	N	
<b>Crime informal costs &amp; benefits</b>	Violent scenario	Males	1 - 4	2.55	.53	1070
		Females	1 - 3.75	2.23	.6	1107
		Total	1 - 4	2.39	.59	2177
	Shoplifting scenario	Males	1 - 4	2.16	.63	1064
		Females	1 - 3.75	1.97	.64	1105
		Total	1 - 4	2.06	.64	2169

Additionally, I used two additional measures to capture Opportunities for crime. First, a measure of unsupervised outside leisure time was measured using a reduced version of z-proso project team's adaptation of an instrument developed by the *Kriminologisches Forschungsinstitut Niedersachsen* (KFN). An overall measure composed of ten items was designed where the respondents had to answer how frequently had they 'Meet with peers in a house where there are no adults', 'Go with your friends to a bar or disco at night', among others. This scale involved a 6-level Likert scale with the following options: never (1), twice a year (2), once a month (3), once a week (4), 2/3 times a week (5), almost every day (6).<sup>169</sup> Table 23 shows the complete wording of items and the distribution of responses.

Table 23. Distribution of unsupervised activities items

Items	Never (1)	Pair of times a year (2)	Once a month (3)	Once a week (4)	2/3 times a week (5)	Almost every day (6)
Meet with peers at night to do something	21.5	24.7	18.0	17.7	10.4	7.8
Play outside with other teenagers	18.2	18.7	17.2	16.2	15.0	14.7
Meet with peers in a house where there are no adults	41.3	24.6	15.7	9.3	4.6	4.5

<sup>169</sup> Four items originally included in the z-proso leisure out going activities scale were excluded to avoid problems of tautology: 'Meet with friends to fight with other adolescents', 'Meet with friends and do something forbidden just for fun', 'Meet with friends to smoke tobacco/marijuana or drink alcohol', and 'Meet with friends and steal something from a store'.

Table 23 (continued)

Items	Never (1)	Pair of times a year (2)	Once a month (3)	Once a week (4)	2/3 times a week (5)	Almost every day (6)
Go to a party in the afternoon	16.7	27.9	30.2	14.7	6.5	4.1
Go to a party with your peers at night	18.4	23.8	26.8	17.8	8.1	5.1
Have a date	39.3	24.1	16.4	10.9	5.1	4.3
Meet with your friends in a café or restaurant	19.1	22.1	31.5	16.0	7.1	4.2
Go with your friends to a bar or disco at night	53.3	15.6	15.1	9.5	3.7	2.8
Have fun with your friends in a park or shopping centre in the afternoon	9.6	21.0	32.9	20.5	9.9	6.2
Have fun with your friends in a park or shopping centre at night	27.9	23.3	21.6	15.8	6.7	4.8

Inter-item correlations vary from .53 to .79, item-to-scale correlations vary from .35 to .74, and the overall reliability of the unsupervised activities scale (Cronbach's  $\alpha$ ) is .88.

Table 24. Distribution of unsupervised activities scale

Criterion	Gender	Range	Mean	SD	N
Unsupervised activities	Males	1 – 6	2.68	.97	1065
	Females	1 – 6	2.40	.84	1104
	Total	1 – 6	2.54	.92	2169

A second and more indirect measure of opportunities for deviance (or lack of opportunities due to strong supervision) was constructed using an index of parental monitoring based on the z-proso project team adaptation of the Alabama Parenting Questionnaire (Shelton et al., 1996) and the Parenting Scale from the Kriminologisches Forschungsinstitut Niedersachsen (KFN). This parental supervision scale is composed of four items where respondent had to answer how frequent it was that 'You have to tell your parents with whom you meet in your free time' and the like. A 4-level Likert scale was used in all with four response options: never (1), rarely (2), sometimes (3) frequently/always (4). Table 25 shows the complete wording of items and the distribution of responses.

Table 25. Distribution of parent monitoring items

Items	Never (1)	Rarely (2)	Sometimes (3)	Frequently – always (4)
You have to tell your parents with whom you meet in your free time	13.8	21.4	27.1	37.8
When you go out your parents tell you at what time you have to come back	8.6	19.2	32.6	39.6
Your parents ask you what do you do in your free time	13.3	25.9	35.1	25.8
When you go out in your free time, your parents ask where you go	2.5	6.0	19.4	72.2

Inter-item correlations vary from .68 to .78, the item-to-scale correlations vary from .4 to .52, and the overall reliability (Cronbach's  $\alpha$ ) of the scale was .67.

Table 26. Distribution of parent monitoring scale

Criterion	Gender	Range	Mean	SD	N
Parent Monitoring	Males	1 – 4	3.21	.61	1108
	Females	1 – 4	2.91	.69	1070
	Total	1 – 4	2.54	.92	2169

The m-proso survey did not explicitly measure opportunity costs, that is, legitimate opportunities and benefits lost due to involvement in crime. However, following the literature in social bonds (Hirschi, 2004) and rational choice (Matsueda et al., 2006; Wright et al., 2004)<sup>170</sup>, an indirect measure was obtained by constructing an index composed of nine items that includes three dimensions: school commitment (e.g. 'I like going to the school'); school performance (e.g. 'I frequently have low grades'); and beliefs about the usefulness of school for the future (e.g. 'I work hard in school in order to get a good job in the future').<sup>171</sup> I

<sup>170</sup> According to Matsueda and colleagues 'for adolescents and young adults, structural opportunity costs include schooling and work... *Youth who are performing well in school and who see schooling as an avenue to future status and pecuniary returns* will be less likely to risk committing crime... We use two measures of opportunity costs of crime: grades (measured by self-reported grade point average) and employment (measured by a dummy variable indicating whether or not the youth is employed). We include a dummy variable for being out of school (and thus, missing values on grades)' (2006:101) (Italics are mine).

<sup>171</sup> These items were originally designed by the z-proso team to measure child's attachment to school and problems at school.

used a 4-level Likert scale in all the items with four response options: strongly disagree (1), disagree (2), agree (3) and strongly agree (4). Table 27 shows the complete wording of the opportunity costs items and its distribution.

*Table 27. Distribution of opportunity costs items*

Items	Strongly disagree (1)	Disagree (2)	Agree (3)	Strongly agree (4)
I like going to the school	17.2	28.2	44.2	10.4
I like doing homework	28.7	43.5	22.2	5.6
I think that studying is useless	57.1	32.3	7.2	3.5
I make a lot of mistakes when I do homework	13.6	56.8	24.9	4.7
I frequently have low grades	17.6	40.1	34.5	7.8
I frequently have problems in following the lessons	15.3	43.3	34.1	7.2
I would like to get an interesting job in the future and now I try to do whatever I can in order to get it	4.2	13	46.3	36.5
I work hard in school in order to get a good job in the future	4.7	15.8	48.7	30.7
It is very important for me to that I do well in school	3	8.7	46.2	42.1

Inter-item correlations varied from .35 to .63, the item-to-scale correlations varied from .17 to .49, and the overall reliability (Cronbach's  $\alpha$ ) of the scale was .68.

*Table 28. Distribution of opportunity costs scale*

Criterion	Gender	Range	Mean	SD	N
Opportunity costs	Males	1 – 4	2.66	.4	1067
	Females	1 – 4	2.74	.34	1107
	Total	1 – 4	2.7	.37	2174

#### IV.h.iii. Independent variables II: Morality

Although morality (or more precisely the perception of correctness or wrongfulness of certain behaviours) is a recent development in criminology theory, existent evidence suggests that it 'should be taken seriously' (Antonaccio



& Tittle, 2008:479; see also Tittle, Antonaccio, Botchkovar, & Kranidioti, 2010). In this dissertation it is measured using an adaptation of Rolf Loeber’s construct from the Pittsburgh Youth Study done by Wikström’s and colleagues (Wikström et al., 2012; Wikström & Svensson, 2010).<sup>172</sup> The morality scale is composed of fourteen Likert items and four implicit sub-dimensions: defiance of authority and/or adults (e.g. ‘Lie to adults such as parents and teachers’); violence or aggression (e.g. ‘Attack someone with a weapon with the idea of seriously hurting that person’); property theft (e.g. ‘Steal something worth less than 200 pesos’); and illegal drugs (e.g. ‘Use hard drugs such as heroin’). I applied the same scale used in the z-proso study: a 7-level Likert scale with response options that ranged from not serious/wrong at all (1) to very serious/wrong (7).<sup>173</sup> The complete wording of these items and its distribution is presented in Table 29.

*Table 29. Distribution of morality items*

Items	Not serious at all (1)	(2)	(3)	(4)	(5)	(6)	Very serious (7)
Lie to adults such as parents and teachers <sup>174</sup>	8.3	11.1	20.6	23.5	14.9	8.8	12.8
Skip school without an excuse	6.1	7.6	10.4	14.1	16.3	16.2	29.4
Return home later than agreed <sup>175</sup>	9.9	12	17	18.7	15.5	11.4	15.5
Hit someone because he/she was insulted	5.3	5	9.6	12.6	16.8	18.1	32.7
Steal something worth less than 200 pesos	3	2.2	3.8	7.1	11.8	16.8	55.3
Steal something worth 1,000 pesos <sup>176</sup>	2.2	1.3	1.9	3.4	6.5	12.8	72

<sup>172</sup> The original z-proso questionnaire included only five items.

<sup>173</sup> The original scale and its adaptations have used a four-level Likert scale: Very wrong (i), Wrong (ii), A little wrong (iii) and Not wrong at all (iv).

<sup>174</sup> In Loeber’s and Wikström’s scales this item also involves disobeying and talking back to adults. However, we used the reduced version to be comparable with the z-proso study.

<sup>175</sup> This item was not present in previous scales and was added to have three items in the sub-dimension defiance of adults/authority.

<sup>176</sup> To estimate the amount of money in items v and vi, I used the Big Mac Index. See <http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-3>.

At the moment of the survey the prize of a Big Mac was 2.69 pounds in UK, 105 pesos in Uruguay, and Wikström and colleagues’ original two items referred to stealing something that was worth 5 pounds and 25 pounds respectively (there was a third 100-pound item which was not included in this scale).

Table 29 (continued)

Items	Not serious at all (1)	(2)	(3)	(4)	(5)	(6)	Very serious (7)
Purposely damage or destroy property that does not belong to you	3.0	2.1	3.8	8.3	13.4	22.1	47.2
Attack someone with a weapon with the idea of seriously hurting that person	1.5	.5	.8	.9	2	4	90.3
Use a weapon or force to get money or things from other people	1.7	.4	.6	1.3	2	4.7	89.5
Sell drugs such as cannabis	6.2	1.9	2.5	5.7	8	15	60.8
Sell hard drugs such as heroin	2.9	1.2	1.5	2.6	4.8	8.6	78.5
Use drugs such as cannabis	9.6	4.8	4.9	7.2	10.1	16.2	47.2
Use hard drugs such as heroin <sup>177</sup>	2.9	1.6	2.1	3.1	4.6	10.2	75.4
Offend and insult other adolescents that he/she does not like	6.7	6.1	9.5	15.8	18.3	20.5	23.2

Following Wikström and colleagues, I constructed an overall measure of morality based on fourteen items which showed that inter-item correlations vary from .56 to .74, item to scale correlation varies from .49 to .67, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .89.

Table 30. Distribution of morality scale

Criterion	Gender	Range	Mean	SD	N
Morality	Males	1 – 7	5.53	1.09	1063
	Females	1 – 7	5.74	.94	1107
	Total	1 – 7	5.64	1.02	2170

#### IV.h.iii. Independent variables IV: legitimacy

Police legitimacy was measured using an adapted version of Tyler and colleagues' legitimacy scales (Tankebe, 2013; Tyler, 1990; Sunshine & Tyler,

<sup>177</sup> Loeber's and Wikström's scales only include one item referred to selling drugs. However, since Uruguay is about to experience a major change in the legal regulation of cannabis, we decided to include two separate items, one for selling hard drugs and an additional one referred to selling exclusively cannabis.

2003; Fagan & Tyler, 2005; Fagan & Piquero, 2007).<sup>178</sup> Twelve Likert items were used to measure three sub-dimensions, namely: i) procedural and distributive fairness (e.g. ‘The police enforce the law fairly’), ii) lawfulness (e.g. ‘The police are generally honest’), iii) effectiveness (e.g. ‘One can trust in police work’). Adolescents had to respond if they strongly disagree (1), disagree (2), agree (3) or strongly agree (4) with the legitimacy items included in this survey. The complete wording of legitimacy items and its distribution is presented below in Table 31.<sup>179</sup>

*Table 31. Distribution of legitimacy items*

Items	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
The police treat people with dignity and respect	28.9	45.0	22.5	3.6
The police can be trusted of doing a good job	29.8	47.1	20.1	3.0
The police enforce the law fairly	34.7	45.3	17.0	2.9
The police act in a fair and just way when they make decisions about who to stop, question and arrest	29.3	40.7	26.0	3.9
The police are kind and try to help people with their problems	26.0	43.6	27.5	2.9
You should do what the police tell you, even if you disagree	12.7	25.7	52.9	8.7

<sup>178</sup> The z-proso questionnaire included only the first three policy legitimacy items. Following Tankebe (2013), procedural and distributive justice items were considered as part of the definition and operationalisation of legitimacy.

The additional items incorporated are taken from Tankebee studies (2009a; 2013) except for the last two items. These items were developed for this study with the purpose of measuring efficiency of police work associated with the specific characteristics of the neighborhood of respondents.

<sup>179</sup> The m-proso questionnaire also included a legal cynicism scale from the z-proso study (wave 6), which is an adaptation of Sampson & Bartusch's (1998) scale. Exploratory analysis showed that legal cynicism showed tendencies in the connection with crime, violence, and property crime similar to those observed with police legitimacy. However, this measure was excluded because legal cynicism seems to have less construct validity than legitimacy in that it seems to partially capture the perception of legitimacy of institutions and partially capture personality traits associated with self-control. At least four out of eight items ('It's okay to do anything you want as long as you don't hurt anyone'; 'It is a good feeling when you bypass rules and don't get caught'; 'Sometimes it is just necessary to violate rules and laws to get what you want'; and 'Nowadays a person has to live pretty much for today and let tomorrow take care of itself') seem to be more about traits such as impulsivity and risk-seeking. Additionally, some research has shown that when self-control is introduced as predictor, while legitimacy continues to be significantly associated with delinquency, legal cynicism ceases to be significant (Fagan & Tyler, 2005).

Table 31 (continued)

Items	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
You should do what the police tell you, even if you don't like the way they treat you	15.6	32.3	46.3	5.8
Disobeying the police is seldom justified	12.3	38.2	43.7	5.8
The police are generally honest	25.9	46.1	25.5	2.4
The police is effective at keeping law and order	26.7	43.4	27.0	2.9
In my neighbourhood those that get involved in crime usually get away with it and are seldom arrested	13.7	24.4	38.2	23.8
In my neighbourhood if you have a problem, the police are not very useful and usually you have to solve problems by yourself	12.4	29.9	35.3	22.4

The overall measure based on the twelve items showed that inter-item correlations vary from .23 to .75, item to scale correlation varies from .1 to .68, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .82.

Table 32. Distribution of legitimacy scale

Criterion	Gender	Range	Mean	SD	N
Police legitimacy	Males	1 – 3.75	2.16	.48	1068
	Females	1 – 4	2.19	.48	1105
	Total	1 – 4	2.18	.48	2173

#### IV.h.iv. Independent variables IV: self-control

The construct of self-control was measured with the well-established and validated Grasmick et al. (1993) original scale.<sup>180</sup> Although there is a live methodological debate about which are the more reliable and valid measures of self-control, all in all cognitive measures are considered superior to behavioural measures since they avoid problems of tautology (Akers & Sellers, 2012; Akers,

<sup>180</sup> The original z-proso questionnaire included only nine items of the self-control scale. In this questionnaire, the complete Grasmick et al. (1993) scale was applied.

1991; Meier, 1995; Tittle, Ward, & Grasmick, 2003).<sup>181</sup> <sup>182</sup> This instrument used in m-proso survey comprises 24 items which assess six dimensions of self-control: risk seeking (e.g. 'I take risks just for the fun of it'); impulsivity (e.g. 'I don't devote time and effort to prepare for the future'); volatile temper (e.g. 'When I am really angry, other people better stay away from me'); physical activity (e.g. 'If I have a choice, I will do something physical, rather than something mental'); simple tasks (e.g. 'When things get complicated, I quit or withdraw'); and self-centeredness (e.g. 'I don't care if the things I do upset other people'). I used a 4-level Likert scale in all the items with four response options: strongly disagree (1), disagree (2), agree (3) and strongly agree (4).<sup>183</sup> The complete wording of items and the distribution of responses is presented in Table 33.

---

<sup>181</sup> Additionally, there is some research that shows that cognitive and behavioural measures of self-control yield similar results (Tittle et al., 2003).

<sup>182</sup> Hirschi and Gottfredson argue that there are i) theoretical and ii) empirical or measurement tautologies. Among the latter, one form to overcome the tautology criticism is to 'remove the overlapping items or to show that the observed correlations are not dependent on them' (2000:57). Some authors have followed this advice constructing behavioural measures of self-control that avoid including criminal and analogous behaviours. For example, Ward, Gibson, Boman, & Leite (2010) adapted Marcus' (2003) Retrospective Behavioral Self-Control Scale (RBS) eliminating all the items that involved criminal, delinquent acts and even analogous behaviours such as loitering, gambling, road accident involvement, drug use, animal cruelty, etc. Nevertheless, two problems persist. First, excluding criminal acts and even some analogous behaviour from the independent variable is not enough due to the amplitude of self-control theory's *explanandum*: crime, deviance and analogous behaviour. Analogous or imprudent behaviours are theoretical and psychological equivalent to crime. They involve little planning or skills, immediate gratification of pleasure or visceral impulses, disregard for long term costs; but also they tend to be associated with a diversity of problems or negative consequences for the individuals (Gottfredson & Hirschi, 1990; Hirschi & Gottfredson, 1993). Therefore it becomes very problematic to identify behaviours that can be used as casual factors without falling into measurement tautology unless self-control theory reduces its ambitions and focuses only on explaining crime. Additionally, even assuming a restricted version of self-control theory focused on crime, using a behavioural measure does not solve the problem of lack of an explanatory mechanism. Even if behavioural measures show strong correlation with crimes, there is still the need to make explicit which processes generate crime in some individuals and not in others. Doing otherwise involves confusing explanations with mere association or prediction (Hedström, 2005; Wikström, 2006; Elster, 2007). Even Hirschi has acknowledged this problem of behavioural measures and has argued that 'the theory requires an explanatory mechanism that retains elements of cognizance and rational choice...' (Hirschi, 2004:543).

<sup>183</sup> One relevant change in the instrument is that the translation to Spanish required reversing some of the items semantically.

Table 33. Distribution of self-control items

Items	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
<i>Impulsivity</i>				
I don't devote time and effort to prepare for the future	26.0	44.1	23.6	6.4
I act on the spur of the moment without stopping to think	15.9	48.7	29.9	5.6
I do things that bring me pleasure here and now, even at the cost of some future goal	29.1	49.1	17.6	4.3
I base my decisions on what will benefit me in the short run, rather than in the long run	29.4	54.2	14.0	2.4
<i>Physical activity</i>				
If I have a choice, I will do something physical, rather than something mental	10.8	21.7	43.9	23.5
I feel better when I am on the move, than when I am sitting and thinking	12.6	20.8	40.8	25.7
I would rather get out and do things than read or contemplate ideas	10.8	21.7	43.9	23.5
Compared to other people of my age, I have a greater need for physical activity	10.9	39.0	34.9	15.1
<i>Risk-seeking</i>				
I test myself by doing things that are a little risky	29.6	43.4	21.5	5.5
I take risks just for the fun of it	25.9	47.7	22.2	4.2
Sometimes I enjoy doing things that can get me into trouble	30.0	39.9	26.3	3.8
Excitement and adventure are more important to me than security	19.0	50.1	24.1	6.9
<i>Self-centeredness</i>				
I look out for myself first, even if it means making things difficult for other people	29.4	54.2	14.0	2.4
I am not very concerned about other people when they are having problems	27.3	47.6	21.7	3.4
I don't care if the things I do upset other people	22.3	50.8	21.5	5.5
I try to get things I want, even when I know it's causing problems for other people	32.4	53.6	11.7	2.4

Table 33 (continued)

Items	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
<i>Simple task</i>				
I try to avoid projects that I know will be difficult	18.6	44.2	30.6	6.6
When things get complicated, I quit or withdraw	29.2	48.7	18.4	3.7
The things in life that are the easiest to do bring me the most pleasure	16.2	40.2	30.8	12.9
I avoid difficult tasks that stretch my abilities to the limit	23.2	41.8	27.4	7.5
<i>Volatile temper</i>				
I lose my temper easily	28.4	45.8	20.9	4.9
When I am angry at people, I feel more like hurting them than talking to them about why I am angry	34.2	45.3	15.2	5.3
When I am really angry, other people better stay away from me	16.4	43.3	28.6	11.6
When I have a serious disagreement with someone it's usually hard for me to talk calmly about it without getting upset	13.4	35.0	41.0	10.6

Following several studies that have consistently reported an underlying dimension that measures self-control (Longshore, Turner, & Stein, 1996; Grasmick et al., 1993; Nagin & Paternoster, 1993; Piquero & Rosay, 1998; Ribeaud & Eisner, 2006)<sup>184</sup>, I used an overall measure based on the 24 items. Inter-item correlations of the self-control scale vary from .35 to .64, the item-to-scale correlations vary from .27 to .58, and the overall reliability of the scale (Cronbach's  $\alpha$ ) is .86.

Table 34. Distribution of self-control scale

Criterion	Gender	Range	Mean	SD	N
Self-control	Males	1 – 4	2.20	.43	1068
	Females	1 – 3.52	2.17	.41	1105
	Total	1 – 3.96	2.19	.42	2173

<sup>184</sup> However, some authors have argued for the multidimensionality of self-control (see for example Delisi, Hochstetler, & Murphy, 2003, and Flora, Finkel, & Foshee, 2003).

#### IV.d.iii. Dependent variables

Three variety-index dependent variables were constructed in this study.<sup>185</sup> First, a sum index of criminal and deviant behaviour based on the last 12 months' prevalence<sup>186</sup> of 18 different forms of norm-breaking behaviours that included items such as truancy, stealing at home, vehicle theft, robbery, and assault.<sup>187</sup> Below in Table 35 I present the complete list of behaviours included in this scale and its distribution.

A well-known problem with crime items in self-reported surveys is respondents' lack of disposition to acknowledge crimes or to provide incorrect information due to social desirability (Hindelang et al., 1979). In order to reduce this problem, I guarantee anonymity to the respondents through eliminating interviewers, avoiding questions that could identify respondents, and using a survey ballot box where students could put their completed questionnaire.<sup>188</sup> Table 35 shows item non-response was very low in most of the crime behaviours of the questionnaire and never exceeded 2.1%.<sup>189</sup>

*Table 35. Distribution of crime and deviance items*

Criminal and deviant behaviours	Frequency	mean	N
i) School truancy	908	.42	2174
ii) Cheat in school tests	1,527	.71	2160
iii) Steal something at school	115	.05	2136

<sup>185</sup> The three dependent variables were constructed as sum of the composing items excluding every case that has less than at least 1/3 of missing values.

<sup>186</sup> Prevalence measures were preferred over incidence measures for a number of reasons. The latter have shown: lower reliability and construct validity; a more skewed distribution; and they tend to give less weight to more serious and infrequent deviant behaviours.

<sup>187</sup> The questionnaire also included items referred to the use of legal and illegal drugs or sexual abuse but they were excluded since they did not seem to be consistent with the two rationality scenarios used in this PhD dissertation.

<sup>188</sup> The survey ballot box is an alternative to the 'sealed-envelop technique' where youths answer the questionnaire and hand it in a sealed envelope to the interviewer (see the *German General Population Survey ALLBUS*, Mehlkop & Graeff, 2010).

<sup>189</sup> The m-proso questionnaire included one social desirability item ('I never lie'). Only 3.5% of the respondents of the sample answered that they never lie.



Table 35 (continued)

Criminal and deviant behaviours	Frequency	mean	N
iv) Steal something at home	68	.03	2146
v) Steal something in a shop worth less than 800 Uruguayan pesos	171	.08	2170
vi) Steal something in a shop worth more than 800 Uruguayan pesos <sup>190</sup>	31	.01	2162
vii) Steal a bike or another vehicle	34	.02	2165
viii) Drive a vehicle without driver licence	843	.39	2170
ix) Illegal download data on the web	1046	.49	2156
x) Break into a house/vehicle to steal something	27	.01	2162
xi) Sell drugs	58	.03	2161
xii) Use public transport without a ticket	508	.24	2159
xiii) Spray graffiti or damage public property	595	.28	2160
xiv) Damage public property	197	.09	2165
xv) Carry a weapon or a dangerous object for protection or to attack somebody	194	.09	2169
xvi) Threaten someone to resort to violence to get his/her money or things	26	.01	2172
xvii) Steal money from someone using violence	33	.02	2166
xviii) Hit, kicked or cut someone purposely causing him/her injuries	207	.1	2172

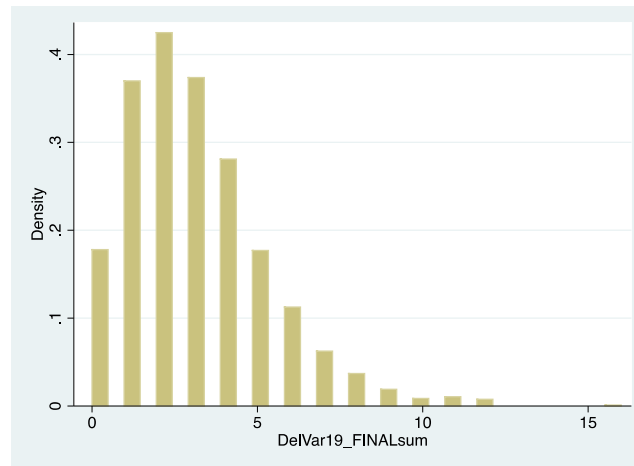
Inter-item correlations vary from .21 to .55, item to scale correlation varies from .15 to .41. The overall reliability of the scale is Cronbach's alpha .67. Therefore, computing this sum index seems empirically legitimate (see the distribution of crime and deviance scale below in Table 36 and Figure 16).

Table 36: Distribution of crime and deviance scale

Criterion	Gender	Range	Mean	SD	N
Crime and deviance	Males	0 – 16	3.43	2.42	1071
	Females	0 – 12	2.63	1.88	1109
	Total	0 – 16	3.02	2.2	2180

<sup>190</sup> Again I used the Big Mac Index to estimate the amount of money of items vi and vii. At the moment of the survey, the price of a Big Mac was 6.50 Swiss Francs in Switzerland, 105 pesos in Uruguay, and the z-proso original item referred to stealing something that was worth more (and less) than 50 Swiss Francs.

Figure 16: Distribution of crime and deviance scale



It has been argued in the literature that the evaluation of punishment might not operate homogeneously across different types of offences (Matsueda et al., 2006; Wikström, 2007), and particularly that property offenders might be more sensitive to sanctions than violent offenders (Pauwels et al., 2011). Therefore, since, causal mechanisms associated with rationality, morality, legitimacy and self-control might differ depending on the type of deviant behaviour; and since I had one rationality scenario designed for violence and another one for theft, the analysis also differentiated between those two types of offending: a *property offending* scale that included six theft behaviours (iii, iv, v, vi, vii, x); and a violence offending scale that included four violent behaviours (xv, xvi, xvii, xviii).

Table 37: Distribution of property offending scale

Criterion	Gender	Range	Mean	SD	N
Property offending	Males	0 – 5	.27	.67	1071
	Females	0 – 4	.14	.45	1109
	Total	0 – 5	.21	.57	2180

Figure 17: Distribution of property offending scale

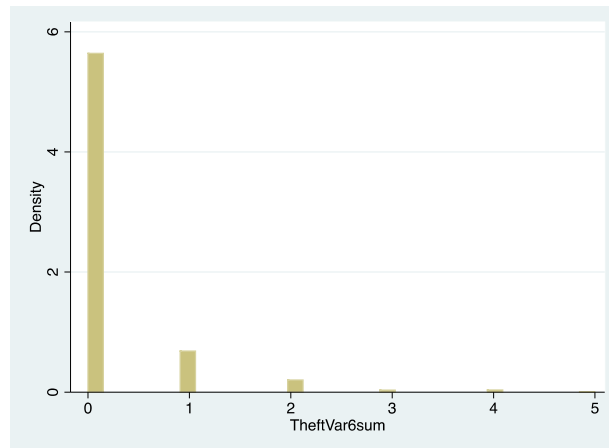
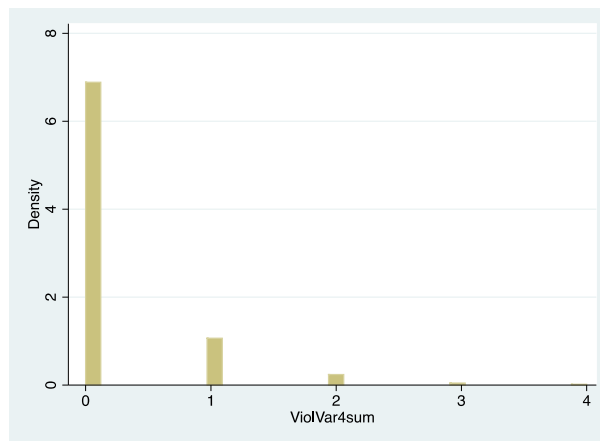


Table 38: Distribution of violent offending scale

Criterion	Gender	Range	Mean	SD	N
Violent offending	Males	1 – 4	.32	.65	1070
	Females	1 – 4	.11	.36	1109
	Total	1 – 4	.21	.53	2179

Figure 18: Distribution of violent offending scale



#### IV.e. Analytical strategy

I used different descriptive statistics (frequencies, percentages, means, standard deviations, Cronbach's  $\alpha$ ) to report basic information on the characteristics of the respondents and the main items and scales. Simple and multiple correlations were also used to explore the level of association between independent and dependent variables. Due to the skewed distribution of the dependent variables a series of count models (Poisson and negative binomial) analysis<sup>191</sup> were conducted. Additionally, in order to test the different hypothesis, principal effect and interaction effect models were used.

I estimated principal effect models using a hierarchical or blockwise entry method (Field, Miles, & Field, 2012). First, I regressed the relationship between control variables and the three dependent variables (general crime and deviance, property offending, and violent behaviour). Then the rationality variable was entered into the model to evaluate its explanatory power and how much the goodness of fit of the model is improved. Finally, to better understand the relative explanatory power of rational and non-rational predictors (and avoid over estimating the power of rationality) morality, legitimacy and self-control were entered in the regression model.

The same procedure was followed to examine the relative explanatory power of the scales of the different sub-dimensions of rationality (self-costs, formidability, peer costs and benefits, parent costs and benefits, police costs): first a regression model with control variables; then the five rationality sub-dimensions were entered; finally the three non-rational components were included in the model. The same procedure was used for both: evaluating the relative power of variables for informal controls over adolescents' leisure time, parent monitoring and unsupervised activities; and for understanding the relative explanatory power of benefits and costs of crime.

---

<sup>191</sup> I will discuss this issue with more detail in section IV.h.

Since I was also interested in the evaluation of how the three non-rational components moderated the relationship between rationality and crime, several interaction effect models were estimated. In each case, I estimated a model that included the four main effects that included rationality, the three non-rational predictors (morality, legitimacy, self-control), and a term that consisted in the multiplication of rationality and the selected non-rational predictor. I repeated the same procedure to estimate interaction models with the different sub-dimensions of rationality.

Finally, I estimated some additional interaction models focused on: how informal costs and benefits moderate the relationship between police costs and crime; and how criminal peers moderate the relationship between informal costs and benefits and crime. In these cases, models included only the two main effects and the multiplicative term.

#### **IV.f. Clustered data**

The sample used in this study was randomly selected using a cluster-randomised approach with classes from 85 schools of Montevideo as randomisation units. Due to the clustered nature of the data set there is a chance that observations of students in the same schools are not independent of each other. In multilevel terminology, students' observations are 'clustered within schools', or in other words, there is a two-level data structure: students are the lower level, and schools are the higher level. If this is the case, observations of students within each school are correlated, errors are not independent, variance of students can be significantly different across the different clusters, and therefore using standard statistical tools might generate biased estimates (Snijders & Bosker, 2012).

In order to evaluate the potential dependency of observations within schools, I run the empty model or variance component model. This model is estimated only with the outcome and no independent variables to evaluate how much variation can be explained by the higher level. When the chi-square test is statistically significant ( $p\text{-value} < .05$ ) and the variance partitioning coefficient (VPC) is large enough<sup>192</sup> then it is safe to interpret that there is strong correlation between students within schools and multilevel technique tools should be applied. The variance component model was statistically significant for the three dependent variables, but the VPC was always very low and never superior to 4%. Since the distribution of the dependent variables was highly skewed I dichotomised the three variables and also ran the logistic multilevel variance component model. The VPC continued to be very low and never superior to 10%. Given these results, it is safe to exclude the use of multilevel tools in this dissertation. However, as an additional precaution, all the count models were estimated using robust standard errors in order to avoid bias in the models' parameters.

#### **IV.g. Missing values**

As mentioned before, the final sample of 2,184 students was obtained after excluding 20 cases (almost 1%) that had a very high level of missing values in relevant variables.

The level of non-response and missing values in significant items in this survey was not high. In the two rationality scenarios, non-response across all items was never greater than 1.69%. Items referring to unsupervised activities, parent monitoring, and opportunities never exceeded 3.57%. In the Morality scale, the highest level of non-response observed in an item was 3.3%. Similarly, non-response in legitimacy items was never higher than 3.43%. Self-control items

---

<sup>192</sup> A usual rule of thumb used by researchers is to use multilevel models when the VPC is equal or superior to 30%.

showed a somewhat slightly lower level of non-response (never superior to 2.84%). Finally, non-response in crime and deviant behaviour items used for dependent variables was also small and never greater than 2.2%.

The scales used in this study also showed relatively low level of missing values.<sup>193</sup> The maximum level of missing data across all the rationality scales (global rationality, self-costs, formidability, peer costs and benefits, parent costs and benefits, and police costs) was 2.31%. Among the scales of unsupervised activities, parent monitoring and opportunities, none of them exceeded 0.07% of missing values. Morality, legitimacy and self-control scales showed similar levels of missing data (.06%, .05% and .05% respectively). Finally the three dependent variables showed even lower levels of missing values (.002%).

I conducted Poisson and negative binomial analysis with pairwise deletion or analysis-by-analysis bases. The analysis of principal effects models without control variables showed relatively low levels of missing data: models including rationality, morality, legitimacy and self-control ranged from 2% to 2.7%; models that included rationality sub-dimensions and the three non-rational constructs ranged from 4.6% to 5.4%, and those that additionally included proxies of opportunities (levels of supervision and unsupervised activities) also showed not very high levels of missing data (from 4.9% to 6.1%); models that included benefits, costs, opportunity costs and non-rational constructs ranged from 3.8% to 4.8%. Levels of missing data increased substantially when control variables were included in all these models ranging from 13.7% to 14.7%; from 15.8% to 16.3%; from 16.2% to 17%; and from 14.2% to 15.9% respectively. Finally, levels of missing cases in interaction analysis did not present high levels of missing values fluctuating from 1.9% to 4%.

---

<sup>193</sup> As mentioned in footnotes 160 and 178, the scales of independent and dependent variables were constructed including all cases that included less 1/3 of items with missing values.

#### IV.h. Skewed nature of the dependent variable: use of count models

Criminal behaviour is a hard challenge for the estimation of statistical models in criminology. Crime distributes as unusual event counts, resulting in a highly skewed distribution to the right with many cases with small values (zero tends to be the mode value) and few cases with large values. This type of distribution is very problematic for the standard statistical techniques used by criminologists: ordinary least squares (OLS) methods. One of the main assumptions of OLS is that the dependent variable is continuous and normally distributed. When this is not the case, regression estimates tend to be biased and inconsistent (Field, Miles, & Field, 2012; Osgood, Finken, & McMorris, 2002).<sup>194</sup>

Two alternatives are usually explored. One possibility is to dichotomise the variable to represent absence of crime (value = 0) and presence of crime (value = 1) and apply logit or probit models. However, this practice has been criticised since involves a loss of information and power, and increases the risk of missing significant predictors (Type II error) (Cohen, 1983; Streiner, 2002). Another alternative is the transformation of the dependent variable using either exponential model (log of  $y$ ), quadratic model (square root of  $y$ ), reciprocal model ( $1/y$ ) or raising to a power (usually cube or square) among others (Field et al., 2012). However, these transformations also involve censoring important portions of the variance of the dependent variable and therefore also increase the risk of having biased regression estimates (Wooldridge, 2003). Additionally, researchers that follow this practice frequently interpret the results as if the dependent variable has not been altered. This could be seen as a toned down version of the problem of social science fiction models in macro-level studies (Elster, 2009b) referred to in Chapter IV. 'Massaging the data' and changing significantly the key explanatory variable involves a strong departure from reality and should not go

---

<sup>194</sup> However, MacDonald & Lattimore (2010) remind us that variables with skewed distribution do not necessarily require the use of Count models. The real problem for OLS models is when the number of counts is low (i.e. average less than 20). If this is not the case, the best tool is to use lineal models such as OLS. 'You cannot improve on perfection' (Angrist 2006 quoted by MacDonald & Lattimore, 2010:684).



unquestioned just because a convenient distribution is obtained.<sup>195</sup> Researchers should demonstrate that this is a last resource and there are no better analytical strategies at hand to avoid this heavy manipulation of data. Furthermore, discussion of results should explicitly explain how this change in the dependent variable affects the interpretation of the causal model's results compared with the model without altering the dependent variable.

For these reasons, count models have become popular in criminology in the last 15 years (e.g. Osgood & Chambers, 2000; Paternoster, Brame, Bachman, & Sherman, 1997; Sampson & Laub, 1996; Sweeten, Bushway, & Paternoster, 2009). Count models are a variant of regression models that rely on a more adequate distribution that is unimodal and skewed to the right. This distribution fits quite well the non-normal distribution of crime variables. In the Poisson model, this distribution is represented by a single parameter ( $\lambda > 0$ ), so that the conditional mean and conditional variance of the distribution are alike ( $E(Y) = \text{Var}(Y) = \lambda$ ).<sup>196</sup> However, dependent variables used by criminologists rarely meet this assumption: either the variance is larger than the mean (*over dispersion*), or smaller than the mean (*under dispersion*). A less parsimonious but more useful solution for these cases of over and under dispersion is the negative binomial model. This model includes the Poisson model as a special case since they do not embrace this restrictive assumption (mean and variance are equal), and they adjust the regression equation by introducing a variance parameter with a gamma distribution ( $\text{var } \lambda = m^2/k$ ) (MacDonald & Lattimore, 2010; Paternoster et al., 1997; see also Hilbe, 2007).<sup>197</sup>

---

<sup>195</sup> As Ronald Coase (1994) once said 'If you torture the data long enough, it will confess'.

<sup>196</sup> 'The basic formulation for the Poisson distribution is  $\Pr(Y/\lambda) = \frac{e^{-\lambda} \lambda^Y}{Y!}$  For  $Y = 0, 1, 2,$

3...This model can also be expressed as the logarithm of the expected count outcome:  $\log(E(m/\lambda)) = a + x'b$  (MacDonald & Lattimore, 2010:685-686).

<sup>197</sup> Additional alternatives to explore cases of over dispersions are zero inflated Poisson and zero inflated negative binomial models. However, according to Paul Allison, all in all negative binomial seem to be the best option. With respect to zero inflated Poisson, Allison examined several data sets, and invariably negative binomial fitted better the data. Additionally, although he admits that

The three dependent variables used in this dissertation are a discrete count of the measure of delinquent and deviant behaviours committed by adolescents ('variety index'), are highly skewed to the right, and their mean is less than 20,<sup>198</sup> so count models seemed an appropriate option.<sup>199</sup> In most of the cases the likelihood-ratio tests and BIC scores rejected the more parsimonious Poisson model in favour of the more complex negative binomial model.<sup>200</sup>

The effect of the independent variables in count models can be interpreted using regression coefficients and incidence risk ratio (IRR). I will use Table 39 and Table 40 as an example to show how I will interpret the results presented in Chapter V. In Table 39 I present the results from regressing the natural log of the number of crimes on rationality, morality, legitimacy and self-control using a negative binomial regression. Since the formula for count models involves the natural log of incident counts, rationality's coefficient in Table 39 means that for every unit of increase of rationality, the log counts of involvement in crime is expected to increase by .147. The statistical significance is displayed with the three stars next to the coefficient which means that rationality is significantly associated with crime below the standard threshold of .05 (in this case p value < .001). Morality's coefficient, instead, reveals that for every unit of increase in morality, the log counts of crime will decrease in .124. However, researchers using count models also report results using IRR because the nature of the association between independent and dependent variable is more easily communicable in terms of percentage change. The incidence risk ratio is calculated by exponentiation of the regression coefficients. In this example, rationality's IRR ( $e^{.147}=1.158$ ) means that crime counts are increased by

---

zero inflated negative binomial might fit better the models, the difference is normally marginal (Allison, 2012).

<sup>198</sup> Specifically, the mean of the three dependent variables was: 3.02 (general crime); .20 (property offending); and .21 (violent offending).

<sup>199</sup> Estimation of count models with dependent variables that have a small range (6 for the property offending and 4 for violent offending) are acceptable (personal communication between Shawn Bushway and Manuel Eisner).

<sup>200</sup> Particularly, Poisson models were estimated for the following models: 22, 23, 24, 28, 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 42, 46, 47, 48, 52, 53, 54, 62, 86 and 110 (see chapter V and appendixes).

approximately 16% with every unit of increase in rationality. However, morality's IRR (.883) shows that crime counts are expected to decrease by approximately 12% with every unit of increase in morality.<sup>201</sup> Thus, results of principal effects models are presented in Chapter V using the IRR due to its aforementioned simplicity.<sup>202</sup>

*Table 39: Effects of rationality, morality, legitimacy and self-control on crime, (without control variables)*

<i>Independent variables</i>	<i>Variety of self-reported offences (aggression scenario)</i>	
	<i>Coef.</i>	<i>IRR</i>
<b>Rationality</b>	.147***	1.158
<b>Morality</b>	-.124***	.883
<b>Legitimacy</b>	-.243***	.785
<b>Self-control</b>	.459***	1.582
<i>R<sup>2</sup> (Cragg &amp; Uhler)</i>		<b>.263</b>
<i>N</i>		<b>2140</b>

NOTE: Cells report coefficients (Coef.) and incidence rate ratios (IRR) in negative binomial models.

\*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 . p < 0.1 (two-tailed tests)

This study was focused not only on the direct effects of rational and non-rational predictors on crime, but also on the interaction effects, that is: how non-rational predictors might moderate the association between rationality and crime. This is exemplified in Table 40, where I give an example of such modelling strategy testing whether morality modifies the association between rationality and crime. In Chapter V, the presentation of results will include two ways of displaying the interaction effects.<sup>203</sup> First, I present results of the coefficients for the main effects and the interaction effect on the log of crime. Table 40 shows that not only

<sup>201</sup> Monson suggests the following thresholds to interpret the magnitude of associations: null or in-existent (1.0 – 2); weak (1.2 – 1.5); moderate (1.5 – 3.0); and strong (> 3.0). For inverse associations epidemiologists suggest to estimate the reciprocal or use the following thresholds: null or in-existent (0.9 – 1.0); weak (0.7 – 0.9); moderate (0.4 – 0.7); and strong (0.1 – 0.4) (Monson, 1990).

<sup>202</sup> Additionally, the description of results in Chapter V will include Cragg & Uhler's pseudo R-squared to compare the overall fit of different models.

<sup>203</sup> In all the interaction models, the component variables were centered to avoid multicollinearity problems.

are rationality and morality coefficients statistically significant (p value < .001), but also the multiplicative term (p value < .01). I can observe that effect of rationality over the logs of crime is affected by morality: fixing the value of rationality to 1, and increasing morality from 1 to 3, while keeping constant legitimacy and self-control results in an overall decrease of the effect of rationality on the logs of crime (see simulations in Table 41).

*Table 40: Interaction effects of morality over rationality*

<i>Independent Variables</i>	<i>Coefficients</i>
<b>Rationality</b>	.156***
<b>Morality</b>	-.142***
<b>Legitimacy</b>	-.242***
<b>Self-control</b>	.457***
<b>Rationality X Morality</b>	.042**
<i>R<sup>2</sup> (Cragg &amp; Uhler)</i>	.265
<i>N</i>	2140

NOTE: Cells report coefficients in negative binomial models.  
 \*\*\*, p < 0.001; \*\*, p < 0.01; \*, p < 0.05; ., p < 0.1 (two-tailed tests)

*Table 41: Simulation of scenarios*

<i>Rationality (x1)</i>	<i>Morality (x2)</i>	<i>Log of crime (Y)</i>
1	1	1.105
1	2	1.005
1	3	.905

Second, to visualise the moderation effect of morality on the association of rationality and crime on a lineal scale, the following procedure was implemented. Given that morality was modelled as a continuous variable, plotting log crimes against rationality stratified by morality would lead to infinite curves due to the infinite levels of morality. To allow visualisation and quantification of the effect modification by means of the IRR, I compared the number of crimes committed by individuals with the lowest or highest level of rationality, stratifying by the lowest or highest levels of morality. In practice, the method was implemented as follows: to identify individuals with the highest and lowest rationality, I partitioned the sample by the rationality median (rationality 'low' and rationality 'high'

groups). Then, for the rationality ‘low’ group, I took the first quartile of rationality and for the “high” group the third quartile. The choice of quartiles was based on keeping a good balance between sample size and a small percentile in order to visualise the extremes of the rationality distribution. The same procedure was used with morality (see Table 42).

*Table 42: First and third quartiles of medians of rationality and morality*

	<i>Rationality</i>	<i>Morality</i>
First quartile of ‘low group’	-.786	-1.067
Third quartile of ‘high group’	.745	.933

Then I substituted each pair of values in the simplified regression equation (2, 3, 4 and 5) that includes only the rationality (x), morality (y) and interaction parameter and calculated the logs of crime which I plotted in Figure 19.

$$(1) Y = .156 (x) - .142(z) - .242(t) + .457(u) + .042(x)(z) + 1.049$$

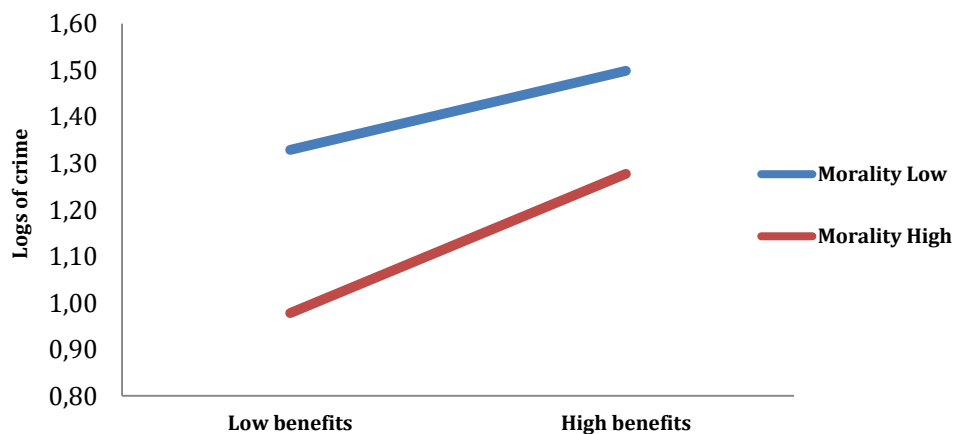
$$(2) Y = .156 (-.786) - .142(-1.067) + .042(-.786)(-1.067) = .978$$

$$(3) Y = .156 (-.786) - .142(.933) + .042(-.786)(.933) = 1.329$$

$$(4) Y = .156 (.745) - .142(-1.067) + .042(.745)(-1.067) = 1.499$$

$$(5) Y = .156 (.745) - .142(.933) + .042(.745)(.933) = 1.227$$

*Figure 19: Interaction effects of morality over rationality (expected utility) for general crime and deviance*



The graph shows that high morality has a greater impact on the association between rationality and crime. Thus, morality affects more strongly the relationship between rationality and crime, among those individuals that perceive less utility from crime ('Low benefits'). As individuals perceive more benefits from crime ('High benefits'), the 'Effect modification' (or interaction effect) imparted by morality tends to decrease. Thus the higher the perceived benefits of crime, the lower the impact of morality on the relationship between rationality and crime. At the same time, this graph also shows that individuals with high morality are much more elastic or sensitive to changes in their involvement in offences and deviance when crime is seen as reporting more utility or benefits.

#### IV.i. Summary

The main goal of this chapter was to provide a description of the methodological design of this PhD dissertation.

The first section focused on the target population, sampling procedures and ethical issues. The study involved the application of a paper-and-pencil survey of 9<sup>th</sup> grade youths from private and public high schools in 2013 in Montevideo. The sample of students was obtained through a cluster-randomized approach with classes as randomisation units and type of school as strata. The study fulfilled several ethical requirements including the approval of ANEP authorities, adolescents' informed consent, parental passive consent, and the ethical approval of the Ethics Committee of the Institute of Criminology, University of Cambridge. Data protection was followed through the elimination of individual identification in the questionnaires to ensure anonymity.

In the following section I went over the organisation of the fieldwork and the process of data collection. A three-step approach was developed to contact all the schools sampled that included letter/email, telephone call and personal

meeting where goals of the study were explained and a date for the fieldwork was arranged. The survey was carried out in the classroom and always involved the presence of two fieldworkers per class who introduced the project, explained the questionnaire to the students. Teachers were not present in the classroom during the implementation of the survey. 35% of the surveyed schools were supervised telephonically. The survey was administered in 87 classrooms in 82 schools due to the rejection of three private schools. Quality checks after the data entry revealed that 20 questionnaires had 20% or more missing values and were considered problematic. The final total sample was 2,184 students, equal to 82.6% of the targeted sample. This rate of about 17% of students absent in school is similar to other studies conducted in Uruguay but higher than typically observed in similar surveys in Europe or the US. This subgroup of absent students is relevant because they are likely to differ systematically from those who attend school regularly, particularly regarding both risk factors of antisocial behaviours, and antisocial and risky behaviours themselves.

The following two sections looked at the representativeness of the sample and the process of data management. The sample slightly over-represents public high schools and CETPs, and slightly underestimates private schools. When it comes to sex distribution by type of school, the sample slightly overestimated the proportion of males in public high schools and underestimated the proportion of males in CETPs. With regards to data management, an input mask was designed and four fieldworkers were hired to code the questionnaires and enter the data. Data cleaning was conducted showing that 20 questionnaires had several problems to the point where analysis was not possible.

Next, I provided a thorough description of the design and adaptation to Uruguay of the items and scales of the questionnaire originally used in wave 6 of the *Zurich Project on the Social Development of Children Study*. In order to minimise the complex problems of cross-cultural equivalence, two translators were involved in the translation of the questionnaire and three different pre-tests

were conducted. As a result, a shorter version of a 380-item questionnaire was developed which, nevertheless, included some additional items in morality and self-control and a new school legitimacy scale.

One important issue tackled in this chapter was the discussion of four different micro-level or perceptual methodological designs that have been applied in criminology to measure rationality. I showed that measurement was initially based on cross-sectional surveys that asked respondents for estimations of risks of arrest and punishment. A second wave of longitudinal studies was developed which were better suited to tackle one of the main limitations of the cross-sectional studies: the correct identification of causal antecedence. However, these studies are not well suited to evaluate rational-choice mechanisms that are characterised by their short-term and instantaneous nature. A third wave of studies more suited to tackle this problem involved the inclusion of hypothetical scenarios. These studies include hypothetical vignette situations that describe realistically the commission of a crime and its circumstances, and questions regarding how likely it is that the respondent would do that crime in the near future. In order to allow a more accurate representation of respondents' sets of benefits and costs, some studies switched from hypothetical scenarios with fixed sets of consequence to hypothetical scenarios that allowed subjects to generate their own set of consequences of crime. I also reviewed hybrid variants that combine hypothetical scenarios with past criminal behaviour instead of using projection of future crimes which seems to show some problems of false positives, less variance of deviant behaviours, and scarce inclusion of serious offences. A fourth line of studies has focused on the study of rational decision-making through experimental designs. Although experiments help to avoid some the aforementioned problems of hypothetical scenario studies, the trivial nature of crimes tested, the artificiality of the settings used, and even the type of target population, cast doubt on the external validity of results obtained. I finished the section identifying and defending the design that was going to be used in this



study: hybrid variants that combine hypothetical scenarios with past criminal behaviour.

The next section focused on providing the reader with a clear description of the empirical distribution and reliability of the different independent and dependent variables and scales. I first described eight indicators of the demographic, socio-economic and family background that were included as control variables. Then I described the independent variables regarding not only the global measure of rationality but also multiple sub-scales also included in the study such as self-costs, formidability, peer costs and benefits, parent costs and benefits, police costs, crime benefits, crime costs, unsupervised activities, parent monitoring, and opportunity costs. I also described the three additional non-rational scales (and its corresponding items) morality, legitimacy and self-control. Next, I discussed the construction of the three dependent variables of this study including deviant and criminal behaviours of the last 12 months: a sum index of criminal and deviant behaviour based on 18 different forms of norm-breaking behaviours; a property offending scale that included six theft behaviours; and a violence offending scale that included four violent behaviours.

In the following section I explained the analytical strategy used with the data set, which consisted of: descriptive statistics; simple, and multiple correlations; and count regression models including principal and interaction effects based on a hierarchical or blockwise entry method.

Two additional methodological problems were discussed in this chapter. First I described how the clustered nature of the data was tackled through analysing the magnitude of the problem through the variance component model and through the use of robust standard errors as a way to avoid bias in the model parameters. Second, I showed that the levels of non-response and missing values in significant items and scales in this survey were not high.

The chapter ends with a discussion regarding the most adequate way of handling dependent variables with right-skewed distributions (i.e., criminal outputs). I argued that count models were the more adequate option than two alternatives usually employed such as dichotomization or transformation of the dependent variable. Finally, I explain briefly what count models are and how I will interpret these models in the next chapter focused on results.

Now that there is a clear idea of the methodological approach, type of items and scales, and type of statistical analysis that I use in this PhD dissertation, it is time to move towards to the results obtained.

## Chapter V. Empirical results

In Chapter IV I provided an overview of the methodological design of this study, covering the type of sample, measures, scales, and analytical strategy I applied to answer my research questions. The central question was: is youths' involvement in deviance and crime a rational behaviour or to what extent do non-rational causal mechanisms like morality, legitimacy or self-control play an explanatory role? Moreover, I was also interested in exploring the association that youth crime and violence has with different sub-dimensions of rationality or cost/benefit analysis associated with police, parents, peers, and the self. Finally, I was also interested not only in the direct effects of rational and non-rational predictors, but also in its more complex and interesting interactive relationships.

In previous chapters I showed that although there has been an interesting recent increase in the criminological research on rationality in Latin America, most studies are macro-level studies and suffer from some relevant problems, mainly: an incomplete and weak test of rationality theory mechanisms; lack of integration of non-rational predictors; and validity and reliability problems associated with official crime data sets from criminal justice and public health institutions. At the same time, micro-level studies are also limited, do not include measures of rationality, and rarely involve validated measures of non-rational predictors such as legitimacy or morality. Thus, it is important to develop research of youth crime in Latin America that combines measures of rational and non-rational predictors. This PhD dissertation is a first step in this proposed line of research, and particularly this chapter provides an overview of the main results of a micro-level study conducted in Uruguay that applies multivariate analysis using count models comparing the explanatory relevance of rationality and non-rational predictors.

In what follows, I will first show some preliminary analysis to reject the possibility of problems of multicollinearity. Then I will present results that use a

multivariate analysis to compare the direct effects of a global measure of rationality, and the three non-rational predictors: morality, legitimacy and self-control.<sup>204</sup> Next, I will show some results that discuss to what extent it is necessary to adapt the design of hypothetical scenarios to the type of crime in the dependent variables in order to avoid biased parameter estimates. The fourth section will focus on assessing the relevance of different components of rationality associated with the self, friends, parents and the police. In the next two sections, I will analyse interaction effects between informal costs and benefits associated with family/parents and formal costs associated with police on the one hand; and between informal costs and benefits, and having criminal peers on the other hand. In the sixth section, I will analyse the explanatory role of opportunities together with other sub-dimensions of rationality. In the seventh section, I will compare the effects on crime of benefits, costs and opportunity costs. The next three sections of this chapter are focused on analysing the interactions between rationality and morality, rationality and legitimacy, and rationality and self-control.

#### V.a. Preliminary analysis of multicollinearity

Before showing the results of the analysis of the study I explored the relationships between the different predictors included in this analysis. One of the main problems that might affect multiple regression models is multicollinearity, that is, when there is a strong correlation among the predictors of the model. When predictors are strongly associated, there is a risk of increasing the standard errors, decreasing the precision of parameter estimates and increasing the risk of finding some predictors as statistically insignificant when they should be significant (type II error) (Field, Miles, & Field, 2012). Examination of bivariate relationships among variables (see Table 54 in appendix) shows that there are no multi-collinearity problems: correlations among independent variables range between .006 and .68, and particularly between the four main theoretical

---

<sup>204</sup> It is worth reiterating that it is necessary to be careful regarding causal interpretations of these results due to the cross-sectional nature of the data.

predictors never exceeds .43. Furthermore, more formal collinearity tests show (see Table 55 in appendix) that no variance inflation factor exceeds 2.02 for all the multivariate models, which is below the usual critical levels of 10. Likewise, tolerance levels are never below .49, far above the rule of thumb of .1 (Allison, 1999; Field et al., 2010).<sup>205</sup>

### **V.b. Main effects of rationality, morality, legitimacy and self-control**

Bivariate analysis shows that both indexes of rationality (the reactive aggressive scenario and the shoplifting scenario) are significantly and positively associated with general deviance, property and violent crime (see Table 54 in appendix). That is, youths that evaluate offending as reporting higher benefits or utility are more likely to get involved in all sorts of crimes.

Table 43 shows the results of blockwise count regression models of control variables, rational and non-rational predictors on three types of dependent variables: general crime and deviance, property crime, and violent offending. I started including the socio-demographic control variables: sex, age, parental education, living with biological parents, living in large family, having a teenage mother, having extra age, and type of school. Then I added the second block regarding rationality, and a third block that included morality, legitimacy and self-control. This procedure allows us to see more clearly the role of rationality in youths' involvement in crime. If rational evaluation of benefits and costs did not matter in the explanation of crime, we should expect that the inclusion of control variables and other non-rational predictors should reduce the association between rationality variables and youth crime below significance. However, count

---

<sup>205</sup> More recently, Allison (2010) has argued for stricter criteria, i.e., a VIF greater than 2.5 might indicate that there is a problem of multicollinearity.

When I included the sub-dimensions of rationality results of bivariate relationships did not change significantly (results not shown). Correlations among predictors remained in the same range (.006 - .68). Between rational and non-rational predictors correlations never exceeds .41, and between rational sub dimensions the highest value is .61. Finally, no variance inflation factor exceeds 2.02 for all the multivariate models.

models in Table 43 show that this is not the case for the three types of dependent variables. The positive weak relationship between both rationality predictors and the global index of crime and deviance is not significantly reduced after including control variables showing statistically significant incidence risk ratios of 1.39 and 1.44 ( $p < .001$ ). The positive and strong relationship between shoplifting scenario rationality and property crime remains with a statistically significant incidence risk ratio of 2.76 ( $p < .001$ ); and the same happens with reactive aggressive scenario rationality and violent crime with a statistically significant incidence risk ratio of 2.62 ( $p < .001$ ). Additionally, adding the rationality indexes significantly increases the goodness-of-fit of all the count models in relation to the baseline models based exclusively on socio-demographic control variables (see Table 43, models 2, 5, 8 and 11).<sup>206</sup>

What happens with rationality if we include the three non-rational predictors associated? Results in models 3, 6, 9 and 12 in Table 43 show that rationality continues to have a significant effect on general crime, property crime and violent crime. However, two important caveats need to be raised: the inclusion of morality, legitimacy and self-control reduces the effect size of rationality parameters, and significantly increases the goodness of fit of all models.

All in all, as was initially predicted, rationality has a significant, direct and independent effect on general deviance, property crime and violent crime (hypothesis 1a). That is, adolescents that perceive that benefits outweigh costs in crime, are more likely to get involved in crime. As expected and consistent with previous research, the three non-rational components also show a significant, direct and independent effect across the four models: individuals that have strong moral values and that strongly believe that the police are a legitimate institution

---

<sup>206</sup> The goodness of fit ( $R^2$ ) for global crime increased from .05 to .13 (with reactive aggressive scenario), and from .05 to .15 (with shoplifting scenario). For property crime the increase was from .02 to .07, and for violent crime the increase was from .05 to .1. In this chapter I will always use the Cragg & Uhler's pseudo  $R^2$  as a measure of goodness of fit for the count regression models.

are less likely to be involved in crime; similarly, individuals with low self-control are more likely to be involved in deviant and delinquent behaviour (hypotheses IIa, IIIa and IVa).

Furthermore, it is interesting to note three additional aspects regarding the explanatory relevance of rationality constructs in these models. First, although rationality parameters diminish after the inclusion of the three non-rational predictors, there is not an overall significant decrease: rationality parameters in the global crime model that include morality, legitimacy and self-control remain weak (between 1.2 and 1.5) as in the initial model, and parameters of rationality in the property crime model and in the violence model remain moderate (greater than 1.5) as in the initial models (results in Models 3, 6, 9 and 12 in Table 43).<sup>207</sup> Second, rationality parameters still play a major explanatory role. Table 44 shows the results of the count models only with the rational and non-rational predictors. In two of the four models the magnitude of rationality parameters is higher than morality and legitimacy parameters and only lower than self-control parameters. Only in the two global crime models does rationality have a lower magnitude than self-control, and legitimacy, but still is higher than the morality parameters (see Table 44).<sup>208</sup> Finally, rationality indexes together with these three non-rational components add considerable explanatory power to the baseline models composed only of socio-demographic variables. The final count models of global crime with shoplifting and reactive aggressive scenarios fits the data much better ( $R^2 = .28$  and  $R^2 = .29$  respectively) in relation to the baseline model ( $R^2 = .052$ ) (Table 43, models 3 and 6). The same is true for the count model for property crimes (final model's  $R^2 = .11$  vs. baseline model's  $R^2 = .02$ ) and for violent crimes (final model's  $R^2 = .15$  vs. baseline model's  $R^2 = .05$ ) (Table 43, models 9 and 12).

---

<sup>207</sup> The exception is the rationality parameter in the global crime model using the shoplifting scenario that decreased from 1.39 below the threshold of 1.2.

<sup>208</sup> When comparing the magnitude of the parameters reciprocals need to be estimated for inverse associations (morality and legitimacy). Thus, in global crime models rationality parameters ( $IRR = 1.16$ ,  $p < .001$ ;  $IRR = 1.23$ ,  $p < .001$ ) are lower than self-control parameters ( $IRR = 1.58$ ,  $p < .001$ ;  $IRR = 1.58$ ,  $p < .001$ ), and legitimacy parameters ( $IRR = 1.27$ ,  $p < .001$ ;  $IRR = 1.28$ ,  $p < .001$ ), but still higher than morality parameters ( $IRR = 1.13$ ,  $p < .001$ ;  $RR = 1.11$ ,  $p < .001$ ).

Table 43: Effects of rationality, moral beliefs, legitimacy and self-control on crime, property crime and violent crime (including control variables)

Independent variables	Variety of self-reported offences (aggression scenario)			Variety of self-reported offences (shoplifting scenario)			Variety of self-reported property offences (shoplifting scenario)			Variety of self-reported violent offences (aggression scenario)		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
<b>Sex</b>	.768***	.854***	.839***	.768***	.839***	.84***	.550***	.698**	.698**	.366***	.466***	0.459***
<b>Age</b>	1.069**	1.041	1.0	1.069**	1.043(.)	1.0	1.257*	1.179	1.040	1.217*	1.131	1.035
<b>Parental education</b>	1.06*	1.071*	1.061*	1.06*	1.063*	1.062*	1.262*	1.257	1.164	.974	.969	0.927
<b>Biological parents</b>	.96	.953	.989	.96	.952	.988	1.084	1.084	1.166	.841	.828	0.875
<b>Large family</b>	1.031	1.028	1.053	1.031	1.052	1.060	1.079	1.201	1.235	1.109	1.114	1.196
<b>Teenage mother</b>	.963	.951	.961	.963	.953	.962	1.049	1.024	1.021	1.130	1.041	1.010
<b>Extra age</b>	1.08(.)	1.071	1.109*	1.08(.)	1.066	1.103*	1.085	1.011	1.109	1.168	1.117	1.199
<b>School type</b>	.957	.896**	.943	.957	.932(.)	.951	.742*	.678**	.676**	1.097	.939	0.984
<b>Rationality I (aggres.)</b>		1.39***	1.118***								2.624***	1.697***
<b>Rationality II (shop.)</b>					1.435***	1.207***		2.755***	1.893***			
<b>Morality</b>			.888***			.91***			.765***			0.802***
<b>Legitimacy</b>			.778***			.775***			.680**			0.548***
<b>Self-control</b>			1.619***			1.604***			2.294***			2.197***
<i>R<sup>2</sup> (Cragg &amp; Uhler)</i>	<i>.052</i>	<i>.126</i>	<i>.279</i>	<i>.052</i>	<i>.152</i>	<i>.294</i>	<i>.021</i>	<i>.072</i>	<i>.109</i>	<i>.052</i>	<i>.100</i>	<i>.150</i>
N	1,909	1,902	1,883	1,909	1,887	1,870	1,909	1,887	1,870	1,908	1,901	1,882

NOTE: Cells report *Incidence Rate Ratios* in count models.  
 \*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 . p < 0.1 (two-tailed tests)



Table 44: Effects of rationality, morality, legitimacy and self-control on crime, property crime and violent crime (without control variables)

<i>Independent variables</i>	<i>Variety of self-reported offenses (aggression scenario) Model 13</i>	<i>Variety of self-reported offences (shoplifting scenario) Model 14</i>	<i>Variety of self-reported property offences (shoplifting scenario) Model 15</i>	<i>Variety of self-reported violent offences (aggression scenario) Model 16</i>
<b>Rationality</b>	1.158***	1.232***	2.032***	1.965***
<b>Morality</b>	.883***	.902***	.758***	.769***
<b>Legitimacy</b>	.785***	.78***	.707**	.640***
<b>Self-control</b>	1.582***	1.577***	2.244***	2.152***
<i>R<sup>2</sup> (Cragg &amp; Uhler)</i>	<b>.263</b>	<b>.277</b>	<b>.105</b>	<b>.128</b>
<i>N</i>	2,140	2,126	2,126	2,139

NOTE: Cells report *Incidence Rate Ratios* in count models.  
 \*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 .’ p < 0.1 (two-tailed tests)

### V.c. The importance of matching scenarios with dependent variables

As described in Chapter IV, this PhD dissertation includes two different hypothetical scenarios to measure rationality: one that asks respondent to imagine themselves stealing a small object from a shop; another one that asks youths to imagine themselves reacting violently and hurting a peer that insulted them. One important issue regarding rationality is methodological: is it sound to differentiate between property and violent crime because presumably the underlying causal mechanisms involving decision-making are different, and therefore should we use different hypothetical scenarios that are sensitive to these differences? For example, is it irrelevant for rationality estimates to use either of the two scenarios for the explanation of violent crime, or should researchers be careful and always use hypothetical scenarios that involve a violent incident? Similarly, if we want to show that rationality is relevant for the explanation of property crime, should we limit ourselves to non-violent crime scenarios?

Table 44 includes two count regression models with consistent measures: while model 15 measures rationality with the shoplifting scenario and includes property crime as dependent variable, model 16 measures rationality with the

aggression scenario and includes violent crime as dependent variable. In order to be able to evaluate the methodological relevance of the hypothetical scenario I created Table 45 with models with inconsistent measures: model 17 measures rationality with the aggression scenario and includes property crime as dependent variable; model 18 measures rationality with the shoplifting scenario and includes violent crime as dependent variable.

Findings of the study show that this is not a trivial issue: when there is a mismatch between the crime used in the vignette of the hypothetical scenario and the crimes we want to explain, the effect size of the rationality parameter diminishes or even ceases to be significant. If we estimate a count model of property crimes that uses a consistent measure of rationality based on the shoplifting scenario the rationality predictor is significantly associated with the dependent variable (IRR = 2.03,  $p < .001$ ). However, if instead we use an inconsistent measure based on the reactive aggressive scenario, the rationality predictor ceases to be significantly associated with property crime (IRR = 1.2,  $p < .1$ ).<sup>209</sup> Regarding violent crimes, when the count model includes an inconsistent measure of rationality based on the shoplifting scenario, although it still shows a statistically significant association with the violent crime (IRR = 1.59,  $p < .001$ ), it nevertheless is considerably weaker than the one observed in the model based on the reactive aggressive scenario (IRR = 1.97,  $p < .001$ ).<sup>210</sup> (Table 44, models 15 and 16, Table 45, models 17 and 18).

---

<sup>209</sup> Additionally the property offences model that includes a rationality index based on the shoplifting scenario has a better goodness of fit ( $R^2 = .105$ ) than the model that uses an unsuited rationality index ( $R^2 = .103$ ).

<sup>210</sup> Again, the violent offences model that uses the adequate rationality based on the aggression scenario has a better goodness of fit ( $R^2 = .128$ ) than the model that uses an unsuited rationality index ( $R^2 = .115$ ).

Table 45: Effects of rationality, morality, legitimacy and self-control on crime, property crime and violent crime (without control variables) using the not suited scenarios

<i>Independent variables</i>	<i>Variety of self-reported property offences (aggression scenario) Model 17</i>	<i>Variety of self-reported violent offences (shoplifting scenario) Model 18</i>
<b>Rationality</b>	1.195	1.587***
<b>Morality</b>	.663***	.756***
<b>Legitimacy</b>	.698***	.604***
<b>Self-control</b>	2.389***	2.320***
<i>R<sup>2</sup> (Cragg &amp; Uhler)</i>	<b>.103</b>	<b>.115</b>
<i>N</i>	2,140	2,125

NOTE: Cells report *Incidence Rate Ratios* in count models.  
 \*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 . p < 0.1 (two-tailed tests)

#### V.d. Relative explanatory role of sub-dimensions of rationality

In the above sections I have already shown that rationality, in the sense of subjective evaluation of costs and benefits, plays a relevant role in the explanation of general crime, property crime and violent crime. This is true even after including other control and non-rational predictors. However, the rationality index is composed of several dimensions, and it is worth analysing their specific explanatory relevance. For example, youths might exhibit a rational assessment of benefits and costs of committing a crime, but maybe as some literature suggests, they care more about potential informal punishments and rewards in their own family or friends, but they are more insensitive to police reactions. Or maybe the possibility of being detected and arrested by police is so relevant that suffering social disapproval from parents might be almost irrelevant for adolescents.

Table 46 provides an overall picture of the different dimensions of rationality that are more relevant to understand youth crime in Uruguay. Again, in this table I follow the same procedure of blockwise count regressions models on the same three dependent variables: general crime and deviance, property crime, and violent offending. I started including a first block of the socio-demographic

control variables. Then I added the second block of rationality sub-dimensions predictors: self-costs, formidability, peer costs and benefits, parent costs and benefits. Finally, I added a third block that included morality, legitimacy and self-control. This procedure allows us to see more clearly the explanatory role of the different sub-dimensions rationality in youths' involvement in crime.

One clear pattern that emerges in this table is that youths that get involved in crime in Uruguay are generally insensitive to whether the police would find out that they have committed a crime, or to what consequences that would involve.<sup>211</sup> This lack of association challenges my initial expectation about the deterrent role of formal costs associated with police (hypothesis H1b). Another measure of rationality that played no role in the explanation of any type of youth crime was respondents' self-perception of their physical appearance and strength, how good they fight, or how likely and serious might be the consequences of committing a crime.<sup>212</sup> This null effect observed in the measure of formidability again questioned my initial expectations (hypothesis H1i). Additional analysis splitting the data set by gender does not reveal significant differences except in the case of the model of violent behaviour. While females' violent behaviour continues to show no significant results, the boys' sample reveals that formidability has a significant but very weak effect (IRR = 1.01,  $p < .05$ ) on their likelihood of getting involved in violent behaviours (results not shown here).

Another dimension of rationality included in this study was the evaluation of self-costs, that is, how bad he/she would feel about doing the crime, and how serious would it be to do something like that. Results in Table 46 confirm that

---

<sup>211</sup> There was only one significant association for police costs across eight tests: the general crime model with shoplifting scenario (IRR = .93,  $p < .05$ ) (Table 46, model 23). However, it should be noted that police costs ceased to be significantly associated with crime once we included morality, legitimacy and self-control in the model (Table 46, model 24).

<sup>212</sup> There were only two significant associations for the formidability index across eight tests: the general crime model with shoplifting scenario (IRR = 1.00,  $p < .01$ ) and (Table 46, Model 23) and the violent crime model (IRR = 1.01,  $p < .01$ ). However, it should be noted again that in both cases, they ceased to be significantly associated with crime once we included morality, legitimacy and self-control (Table 46, model 24) in the model.

these inner costs were significantly associated with general crime using both scenarios (IRR = 1.06,  $p < .05$ ; IRR = 1.19,  $p < .001$ ) and with property crime (IRR = 1.53,  $p < .001$ ), but surprisingly there was no association with violent crime.

One relevant source of pleasure/displeasure is peer and parents' reactions regarding feelings of admiration, shame, and how wrong and serious would friends consider it is to commit a crime. Findings showed that youths were significantly deterred by peer's reactions when considering getting involved in general crime (IRR = 1.09,  $p < .01$ ; IRR = 1.14,  $p < .001$ ) and violent offences (IRR = 1.4,  $p < .001$ ), but not in the case of property offences. When it comes to parents' reactions, they were only deterring youths' decisions to commit a crime when it comes to property crime (IRR = 1.4,  $p < .01$ ). In sum, as expected informal costs and benefits (associated with parents and peers) show a direct effect on crime (hypothesis H1c), but is worth noticing that while involvement in violent behaviour is more sensitive to peer's reactions, involvement in property offences takes more into consideration parents' reactions (Table 46, Model 21, 24, 27 and 30).

Table 46: Effects of the sub-dimensions of rationality on crime, property crime and violent crime

Independent variables	Variety of self-reported offences (aggression scenario)			Variety of self-reported offences (shoplifting scenario)			Variety of self-reported property offences (shoplifting scenario)			Variety of self-reported violent offences (aggression scenario)		
	Model 19	Model 20	Model 21	Model 22	Model 23	Model 24	Model 25	Model 26	Model 27	Model 28	Model 29	Model 30
<b>Sex</b>	.768***	.876***	.846***	.768***	.870***	.856***	.550***	.662**	.634**	.366***	.472***	.452***
<b>Age</b>	1.069**	1.047(.)	1.004	1.069**	1.037	1.002	1.257*	1.167(.)	1.055	1.218*	1.165(.)	1.070
<b>Parental education</b>	1.06*	1.065*	1.060*	1.06(.)	1.038	1.048	1.262*	1.189	1.134	.980	.941	.936
<b>Biological parents</b>	.96	.951	.982	.96	.957	.984	1.084	1.103	1.168	.850	.834	.878
<b>Large family</b>	1.031	1.036	1.057	1.031	1.063	1.069	1.079	1.204	1.218	1.096	1.146	1.167
<b>Teenage mother</b>	.963	.918	.932	.97	.970	.966	1.049	1.006	.964	1.150	1.078	1.024
<b>Extra age</b>	1.08(.)	1.082(.)	1.110*	1.08(.)	1.092*	1.117**	1.085	1.081	1.132	1.184	1.132	1.180
<b>School type</b>	.957	.900**	.943	.958	.958	.970	.742*	.701*	.694*	1.091	1.129	1.128
<b>Self-costs</b>		1.213***	1.059*		1.214***	1.118***		1.834***	1.528***		1.322**	1.078
<b>Formidability</b>		1.002(.)	1.001		1.003**	1.001		.998	0.993(.)		1.010**	1.004
<b>Peer costs &amp; benefits</b>		1.189***	1.089**		1.227***	1.142***		1.315*	1.143		1.582***	1.403**
<b>Parent costs &amp; benefits</b>		1.017	1.002		.985	.979		1.468**	1.403**		.968	.950
<b>Police costs</b>		.967	.981		.930*	.951		.900	.967		1.021	1.050
<b>Morality</b>			.894***			.918***			.772***			.805***
<b>Legitimacy</b>			.784***			.793***			.718*			.540***
<b>Self-control</b>			1.577***			1.549***			2.246***			2.278***
<i>R<sup>2</sup> (Cragg &amp; Uhler)</i>	<i>.052</i>	<i>.152</i>	<i>.282</i>	<i>.079</i>	<i>.267</i>	<i>.384</i>	<i>.021</i>	<i>.091</i>	<i>.120</i>	<i>.066</i>	<i>.113</i>	<i>.168</i>
N	1,909	1,841	1,826	1,909	1,852	1,838	1,909	1,852	1,838	1,908	1,851	1,837

NOTE: Cells report *Incidence Rate Ratios* in count models.  
 \*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 . p < 0.1 (two-tailed tests)

## V.e. Interactions between formal costs associated with the police and informal costs/benefits associated with parents and peers

The literature on rational choice distinguishes between perception of costs associated with criminal justice sanctions or 'formal costs', and perception of costs (and rewards) associated with peers, parents or even the own youths' self-conscience, or 'informal costs'. I have already shown that informal costs associated with peers and parents are associated with crime by youths. I have also shown that formal costs associated with police reactions do not have any significant effect on youth's crime. But, what about the relationship between youth crime and both types of evaluations? Is the deterrent effect of police reactions on youth crime affected by how parents and peers react when youths get involved in crimes? In order to evaluate this issue Table 47 incorporates models with police costs and informal costs and benefits as main effects and the multiplicative term of both main effects. Contrary to what was expected in hypothesis H1d, there is no evidence of an interaction effect. Models 31-34 in Table 47 show that there seems to be no moderating effect of informal costs in the relation between police reactions and youth crime.<sup>213</sup>

---

<sup>213</sup> As was mentioned in footnote 196, in Chapter IV in all the interaction models analysed in this chapter the component variables were centered to avoid problems of multicollinearity.

Table 47: Interaction effects of informal costs and benefits on the relationship between costs associated with police and crime

<i>Independent variables</i>	<i>Variety of self-reported offences (aggression scenario) Model 31</i>	<i>Variety of self-reported offences (shoplifting scenario) Model 32</i>	<i>Variety of self-reported property offences (shoplifting scenario) Model 33</i>	<i>Variety of self-reported violent offences (aggression scenario) Model 34</i>
Police costs	-.305	-.114**	-.052	.135
Informal costs & benefits	.383***	.405***	1.158***	1.165***
Police costs X informal costs & benefits	.085(.)	.068	.126	-.102
<i>R</i> <sup>2</sup> (Cragg & Uhler)	<b>.095</b>	<b>.126</b>	<b>.065</b>	<b>.063</b>
N	2,155	2,158	2,158	2,158

NOTE: Cells report *Incidence Rate Ratios* in count models.  
 \*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 . p < 0.1 (two-tailed tests)

Table 48: Interaction effects of criminal peers on relationship between informal costs and crime

<i>Independent variables</i>	<i>Variety of self-reported offences (aggression scenario) Model 59</i>	<i>Variety of self-reported offences (shoplifting scenario) Model 60</i>	<i>Variety of self-reported property offences (shoplifting scenario) Model 61</i>	<i>Variety of self-reported violent offences (aggression scenario) Model 62</i>
Informal costs & benefits	.357***	.344***	1.036***	1.144***
Criminal peers	.554***	.526***	.748***	1.225***
Informal costs & benefits X criminal peers	-.140	-.121*	.005	-.660**
<i>R</i> <sup>2</sup> (Cragg & Uhler)	<b>.157</b>	<b>.179</b>	<b>.076</b>	<b>.090</b>
N	2,151	2,143	2,143	2,150



## V.f. Interactions between criminal peers and informal costs and benefits

Another interesting question regards the relationship between involvement in crime, having criminal peers and informal costs. Does suffering social disapproval from parents and peers have a constant association with youth crime, or does having criminal peers diminish the effect of punishments/rewards from family and friends on youths' involvement in crime? One possibility is that adolescents that have criminal peers perceive crime as a more generalized and normal response to problems, and thus might be less sensitive to social disapproval from significant others. Table 48 includes count models with informal costs and benefits and having criminal peers as main effects and the multiplicative term of both main effects. Results show that although having criminal peers has a significant direct effect on respondents' involvement in crime and violence<sup>214</sup>, its moderating role is ambiguous.

On the one hand, youths are indeed less deterred by parent/peer disapproval when they have criminal peers both for the general crime model (using shoplifting scenario) ( $\beta = -.12, p < .05$ ) and violent crime ( $\beta = -.66, p < .01$ ) (Table 48, Models 60 and 62). Figure 20 shows that the more youths perceive crime as a highly lucrative activity, the less relevant is the intervening effect of criminal peers. In other words, having criminal peers affects more strongly the relationship between social disapproval and youth crime among those youths that perceive little benefit in crime, and this intervening effect is particularly stronger in youth violent crime.

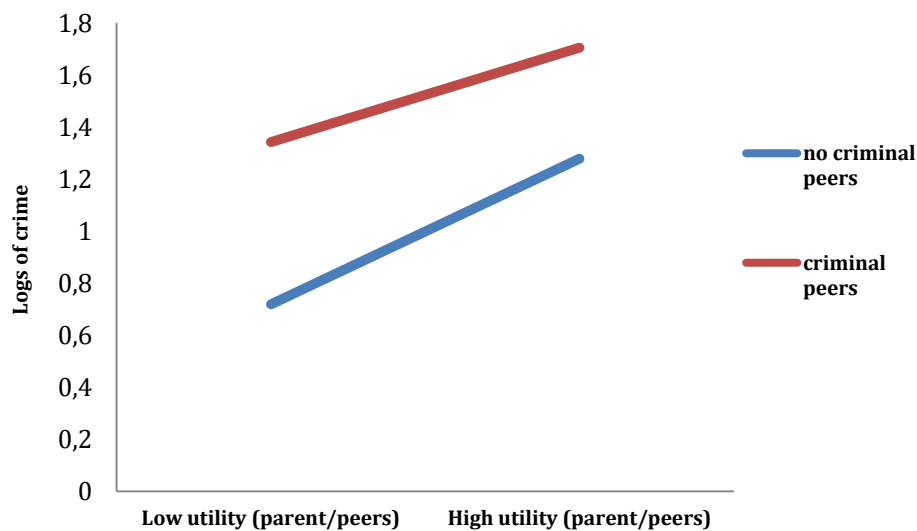
On the other hand, the interaction term turned out to be non-significant when the general crime model is based on the reactive aggressive scenario and for the property crime model (Table 48, Models 59 and 61). Further analysis using two alternative measures of informal costs (one index of reactions focused

---

<sup>214</sup> Table 50 shows the direct effect of criminal peers on general crime ( $\beta = .53, p < .001$ ;  $\beta = 1.23, p < .001$ ), theft ( $\beta = .75, p < .001$ ), and violent behaviour ( $\beta = .53, p < .001$ ).

only on peers' reactions, and another one focused only on parents' reactions) showed further evidence for the interaction effect for violent behaviour but not for an interaction effect for the general crime model (results not shown).<sup>215</sup> All in all, findings provide some interesting evidence but do not confirm the initial hypothesis (H1e) which assumed a more robust moderating effect of criminal peers for all types of youth crimes.

*Figure 20: Interaction effects of criminal peers over informal costs and benefits for general crime and deviance*



### V.g. Opportunities for crime

In previous sections I have shown that youth crime is associated with costs/benefits evaluation, particularly regarding the self, peers, and to a lesser extent, parents. However, another key component of rational decision-making is illicit opportunities. As the popular saying goes (and part of the literature argues) 'opportunity makes the thief' (Felson & Clarke, 1998). Adolescents might be

<sup>215</sup> While for the violent crime model the interaction effect was significant both using peer reactions and parent reactions, in the case of the general crime model with the shoplifting scenario, the interaction effect was not significant for both measures, and for the general crime model with reactive aggressive scenario the interaction effect was only significant with the measure of peer reactions (results not shown).

motivated to commit crimes and perceive they will obtain high benefits. Nevertheless, they also need to perceive and take advantage of available illicit opportunities. In other words, adolescents that circulate in environments where committing crime is easy are more likely to get involved in crime and antisocial behaviours.

Two proxies of opportunities (parental supervision and unsupervised routine activities) were tested in this PhD dissertation. Results offered mixed evidence that partially corroborated hypothesis H1h. On the one hand, the level of parental supervision showed no association with crime across the four final models.<sup>216</sup> On the other hand, the index of unsupervised outside home activities showed a consistent positive association with general crime with reactive aggressive scenario (IRR = 1.19,  $p < .001$ ) and with shoplifting scenario (IRR = 1.18,  $p < .001$ ). There was also a significant association with property crime (IRR = 1.15,  $p < .001$ ) and with violent behaviour (IRR = 1.18,  $p < .001$ ). This significant association holds for all the models even after entering both rationality sub dimension predictors and non-rational predictors (Table 49, models 41, 44, 47, and 50). Hence, youngsters that spent more time in unsupervised settings are more likely to commit crimes and get involved in aggressive behaviours, regardless of parental supervision.

---

<sup>216</sup> Parental supervision predictor showed to be significantly associated with general crime, property crime and violent crime only in the basic models before entering the rest of the rationality sub-dimension variables (results not shown).

Table 49: Effects of parental monitoring and unsupervised activities on crime, property crime and violent crime

Independent variables	Variety of self-reported offences (aggression scenario)			Variety of self-reported offences (shoplifting scenario)			Variety of self-reported property offences (shoplifting scenario)			Variety of self-reported violent offences (aggression scenario)		
	Model 39	Model 40	Model 41	Model 42	Model 43	Model 44	Model 45	Model 46	Model 47	Model 48	Model 49	Model 50
<b>Sex</b>	.768***	.906**	.867***	.768***	.900**	.874***	.550***	.684**	.620***	.366***	.524***	.483***
<b>Age</b>	1.068**	1.010	.988	1.068**	1.008	.988	1.257*	1.109	1.046	1.218*	1.085	1.014
<b>Parental education</b>	1.058(.)	1.042	1.045(.)	1.058(.)	1.025	1.039	1.262*	1.138	1.115	.98	.891	.880
<b>Biological parents</b>	.959	.945	.975	.959	.952(.)	.976	1.084	1.108	1.185	.85	.795*	.849
<b>Large family</b>	1.031	1.052	1.061	1.031	1.064	1.072	1.079	1.203	1.222	1.096	1.184	1.204
<b>Teenage mother</b>	.970	.957	0.961	.970	1.000	.991	1.049	1.015	.975	1.15	1.080	1.047
<b>Extra age</b>	1.081(.)	1.062	1.093	1.081(.)	1.072(.)	1.100*	1.085	1.061	1.133	1.184	1.106	1.208
<b>School type</b>	.958	.933(.)	.962	.958	.983	.989	.742*	.720*	.706*	1.091	.979	.998
<b>Self-costs</b>		1.187***	1.075**		1.181***	1.109***		1.756***	1.503***		1.679***	1.434**
<b>Formidability</b>		1.000	1.000		1.002	1.001		.995	.991(.)		1.009*	1.007(.)
<b>Peer costs &amp; benefits</b>		1.155***	1.081*		1.187***	1.127***		1.253(.)	1.117		1.369*	1.163
<b>Parent costs &amp; benefits</b>		1.009	1.005		.983	.987		1.458**	1.439**		1.065	1.039
<b>Police costs</b>		.974	.984		.952	.965		.905	.937		1.022	1.040
<b>Parental monitoring</b>		1.012	1.041(.)		1.016	1.045*		1.018	1.122		.927	.974
<b>Unsupervised act</b>		1.279***	1.192***		1.253***	1.180***		1.352***	1.152*		1.351***	1.182**
<b>Morality</b>			.914***			.933***			.775***			.843**
<b>Legitimacy</b>			.807***			.811***			.720*			.571***
<b>Self-control</b>			1.448***			1.439***			2.198***			1.932***
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.052	.32	.401	.079	.351	.421	.021	.1	.125	.066	.148	.182
N	1,909	1,824	1,811	1,909	1,844	1,830	1,909	1,844	1,830	1,908	1,824	1,811

NOTE: Cells report *Incidence Rate Ratios* in count models.  
 \*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 . p < 0.1 (two-tailed tests)

## V.h. Benefits, costs and opportunity costs

Rational decision-making involves assessing potential costs and benefits in order to maximise utility. As is to be expected there is a negative association between perceived costs or subjective negative consequences and perceived benefits or subjective positive consequences ( $r = -.487, p < .001$ ;  $r = -.424, p < .001$ ). However, rationality literature in criminology has focused excessively on the costs of crime rather than on the benefits. This research bias is problematic given that benefits might play a key explanatory role, particularly due to the limited and short-term orientation of many offenders and offending decisions. Thus it seems interesting to explore further the role of benefits, and particularly its explanatory relevance in relation to costs and opportunity costs.

Table 50 follows the same procedure of blockwise count regressions models on general crime, property crime and violent crime. First, I include a first block for the socio-demographic control variables. Then I added the second block of three rationality predictors: benefits, costs and opportunity costs. Finally, I added a third block of non-rational predictors (morality, legitimacy and self-control). This procedure allows analysing more clearly the role of benefits, costs and opportunity costs in youth crime. Results show that high costs of crime (which include negative reactions of the self, peers, parents and the police regarding the seriousness of crime, feelings of shame, and how serious consequences might have) deterred youths from getting involved in general crime with both scenarios (IRR = .9,  $p < .01$ ; IRR = .88,  $p < .001$ ), property crime (IRR = .71,  $p < .01$ ), and violent behaviour (IRR = .58,  $p < .001$ ). Unexpectedly, benefits of crime (involving respect and admiration from peers, parents, and own positive feelings about crime) showed a less robust relationship with crime. It was significantly associated only with two of the four models: general crime (but only with the shoplifting scenario) (IRR = 1.18,  $p < .001$ ) and property crime (IRR =

1.87,  $p < .001$ ).<sup>217</sup> These results partially contradict my initial expectations (hypothesis H1f) regarding the greater effect of benefits on crime in relation to costs across all types of crimes. In addition, challenging the initial hypothesis (H1g), opportunity costs, which included school commitment, school performance and beliefs regarding school usefulness, have no association with crime across all models (Table 50, models 53, 56, 59 and 62).

---

<sup>217</sup> In both cases, the association between benefits and crime was stronger than the one observed between costs and crime.

Table 50: Regression coefficients representing the effects of benefits, costs, and opportunity costs on crime, property crime and violent crime

Independent variables	Variety of self-reported offences (aggression scenario)			Variety of self-reported offences (shoplifting scenario)			Variety of self-reported property offences (shoplifting scenario)			Variety of self-reported violent offences (aggression scenario)		
	Model 51	Model 52	Model 53	Model 54	Model 55	Model 56	Model 57	Model 58	Model 59	Model 60	Model 61	Model 62
<b>Sex</b>	.768***	.862***	.836***	.768***	.849***	.843***	.550***	.742*	.720**	.366***	.477***	.453***
<b>Age</b>	1.069**	1.051*	1.	1.068**	1.044(.)	1.001	1.257*	1.164(.)	1.043	1.218*	1.186*	1.062
<b>Parental education</b>	1.06*	1.059*	1.059*	1.058(.)	1.046	1.058*	1.262*	1.201(.)	1.146	.98	.951	.936
<b>Biological parents</b>	.96	.95	.984	.959	.962	.99	1.084	1.108	1.174	.85	.801(.)	.867
<b>Large family</b>	1.031	1.03	1.047	1.031	1.040	1.048	1.079	1.209	1.205	1.096	1.128	1.179
<b>Teenage mother</b>	.963	.934	.956	.970	.950	.965	1.049	.925	.981	1.15	1.061	1.073
<b>Extra age</b>	1.08(.)	1.085(.)	1.119**	1.081(.)	1.084(.)	1.116**	1.085	1.073	1.158	1.184	1.149	1.220
<b>School type</b>	.957	.914*	.948	.958	.959	.965	.742*	.744*	.732*	1.091	1.000	1.016
<b>Benefits</b>		1.167***	1.032		1.350***	1.180***		2.434***	1.865***		1.327*	1.076
<b>Costs</b>		.764***	.897**		.809***	.883***		.589***	.707**		.428***	.581***
<b>Opportunity costs</b>		.826***	.972		.874**	.997		.586**	.756		.684*	.939
<b>Morality</b>			.891***			.919***			.802***			.798***
<b>Legitimacy</b>			.776***			.782***			.709*			.555***
<b>Self-control</b>			1.622***			1.59***			2.199***			2.326***
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.052	.138	.281	.079	.247	.378	.021	.091	.117	.066	.119	.173
N	1,909	1,851	1,873	1,909	1,869	1,852	1,909	1,869	1,852	1,908	1,850	1,836

NOTE: Cells report *Incidence Rate Ratios* in count models.  
 \*\*\*p < 0.001; \*\*p < 0.01 \*p < 0.05 . p < 0.1 (two-tailed tests)

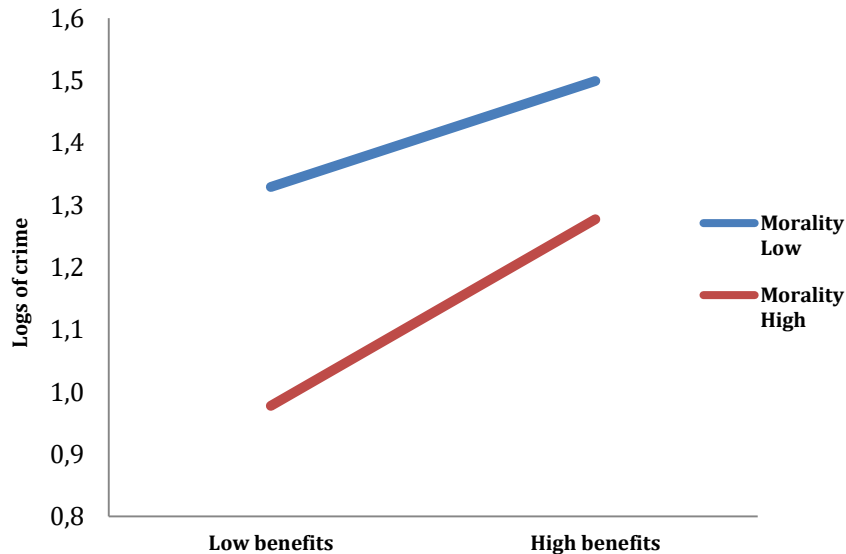
## V.i. Interactions between rationality and morality

I have already shown that rational and non-rational predictors have a direct effect on youth crime. However, what about the interaction effects? In other words, do these non-rational predictors moderate the effect of rationality on crime? To analyse the potential conditional relationship between morality and rationality's effect on youth crime, six multiplicative interaction terms were created: one with the general index of rationality, and five additional terms with each sub-dimension of rationality.

Table 51 shows some evidence of an intervening effect of morality over the association between rationality and crime but with an unexpected connection (hypothesis H2b). The relationship between the overall measure of rationality and crime is less affected (instead of more as initially anticipated) by morality among those individuals that see more utility or benefits from crimes. The lower the perceived benefit of crime, the higher is morality's interaction effect on the association between rationality and crime. Additionally, it is also clear that individuals with low morality are less sensitive to changes in their involvement in crime when crime is seen as reporting more benefits (see for example, Figure 21). This intervening role of morality is relevant for the global index of rationality across for general crime (using both scenarios), for property crime and for violent crime (models 63-66).



Figure 21: Interaction effects of morality over rationality (expected utility) for general crime and deviance

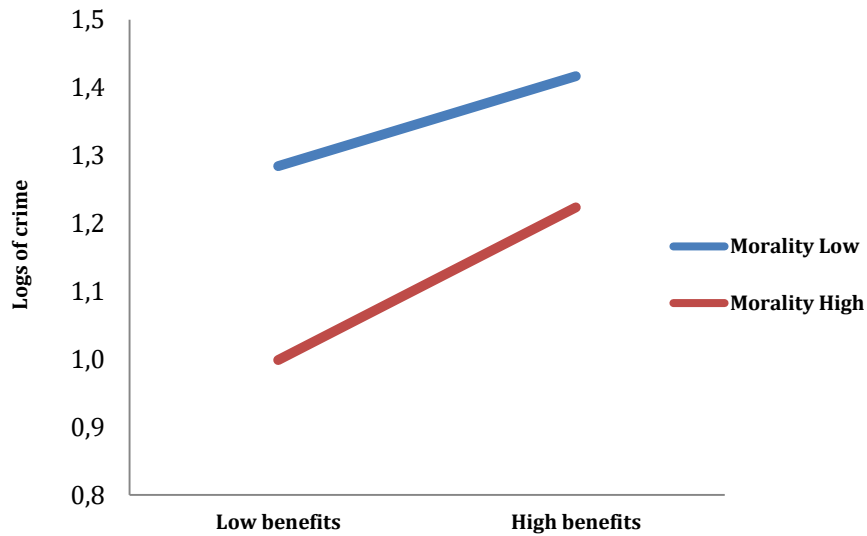


However, when considering all the sub-dimensions of rationality, only around 60% of the tested interactions with morality were significant: fourteen significant interactions out of a total of twenty-four tests. This intervening role of morality is equally relevant for the property crime and violent crime models (four significant interactions for each one), followed by the general model of deviance with shoplifting scenario (three significant interactions) and with reactive aggressive scenario (three significant interactions).

A closer look of Table 51 indicates that moderation is particularly relevant for three sub-dimensions of rationality. Moral beliefs have a stronger 'effect modification', particularly among youths that have lower perception of their own physical appearance, strength, and ability to fight (formidability index) (models 71-74). Likewise, the intervening effect of moral values is stronger when youths believe that committing crimes is a very serious issue, and feel really bad about it (self-costs index) (models 67, 69 and 70). The more adolescents find crime as rewarding and feel good about it, the less relevant is the moderating effect of moral values (see Figure 22). Additionally, when adolescents suffer stronger reactions of disapproval from their parents, morality plays a more intense

intervening role in the association between youths' evaluation of cost and benefits and youths' involvement crime (models 80-82).<sup>218</sup> Finally, there was no evidence of interaction effects of morality for peer reactions (models 75-78) and for police reactions (models 83-86).

*Figure 22: Interaction effects of morality over self-costs (expected utility) for general crime and deviance*



<sup>218</sup> However, while in the case of the formidability index, the interaction term is significant across all models of crime, in the case of self-costs it is not significant in the case of the general model using the shoplifting scenario, and in the case of parent reactions it is not significant for the general crime model using the reactive aggressive scenario.

Table 51: Interaction effects of morality on the association between rationality and crime

Independent variables	Variety of self-reported offences (aggres. scenario)	Variety of self-reported offences (shop. scenario)	Variety of self-reported property offences (shop. scenario)	Variety of self-reported violent offences (aggres. scenario)
	Model 63	Model 64	Model 65	Model 66
Rationality	.156***	.217***	.769***	.787***
Morality	-.142***	-.124***	-.357***	-.370***
Legitimacy	-.242***	-.247***	-.338**	-.434***
Self-control	.457***	.448***	.785***	.758***
Rationality X morality	.042**	.043*	.143*	.187***
R <sup>2</sup> (Cragg & Uhler)	.265	.279	.107	.132
N	2,140	2,126	2,126	2,139
	Model 67	Model 68	Model 69	Model 70
Self-costs	.142***	.179***	.653***	.626***
Morality	-.146***	-.124***	-.402***	-.39***
Legitimacy	-.242***	-.24***	-.278*	-.435***
Self-control	.467***	.439***	.764***	.839***
Self-costs X morality	.0494**	.021	.147*	.182***
R <sup>2</sup> (Cragg & Uhler)	.27	.274	.105	.155
N	2,097	2,102	2,102	2,096
	Model 71	Model 72	Model 73	Model 74
Formidability	.004***	.006***	.010*	.021***
Morality	-.158***	-.151***	-.471***	-.399***
Legitimacy	-.257***	-.251***	-.381**	-.494***
Self-control	.488***	.481***	.886***	.862***
Formid. X morality	.002*	.002**	.007**	.006*
R <sup>2</sup> (Cragg & Uhler)	.257	.265	.086	.119
N	2,133	2,122	2,122	2,132
	Model 75	Model 76	Model 77	Model 78
Peer costs	.146***	.198***	.579***	.592***
Morality	-.138***	-.111***	-.356***	-.362***
Legitimacy	-.247***	-.248***	-.355**	-.486***
Self-control	.452***	.451***	.815***	.792***
Peer costs X morality	.021	.014	.080	.111
R <sup>2</sup> (Cragg & Uhler)	.262	.284	.100	.118
N	2,138	2,123	2,123	2,137
	Model 79	Model 80	Model 81	Model 82
Parent costs	.101***	.128***	.621***	.496***
Morality	-.143***	-.145***	-.368***	-.369***
Legitimacy	-.255***	-.259***	-.374**	-.493***
Self-control	.485***	.483***	.885***	.880***
Parent costs X morality	.026	.048**	.107*	.130*
R <sup>2</sup> (Cragg & Uhler)	.256	.260	.103	.117
N	2,142	2,132	2,132	2,141
	Model 83	Model 84	Model 85	Model 86
Police costs	-.022	-.037	.185	.074
Morality	-.15***	-.155***	-.433***	-.375***
Legitimacy	-.269***	-.266***	-.403**	-.569***
Self-control	.501***	.5***	.927***	.928***
Police costs X morality	-.008	.006	-.008	.016
R <sup>2</sup> (Cragg & Uhler)	.246	.249	.084	.103
N	2,128	2,128	2,128	2,127

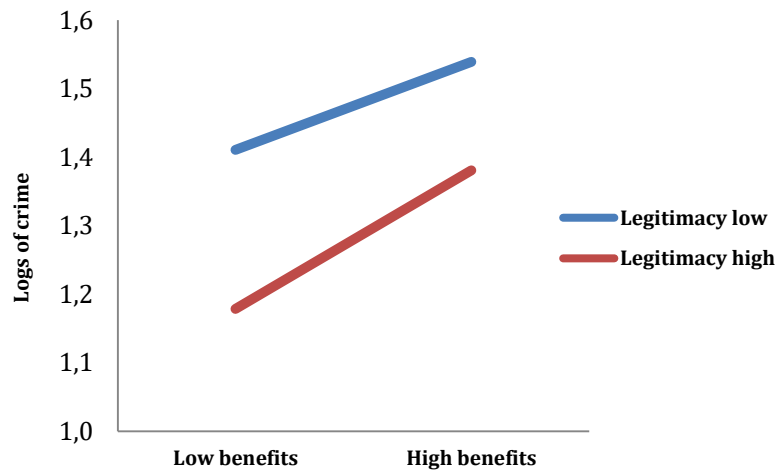
NOTE: Cells report *regression coefficients* in count models.  
 \*\*\*\*p < 0.001; \*\*\*p < 0.01 \*\*p < 0.05 \*p < 0.1 (two-tailed tests)

## V.j. Interactions between rationality and legitimacy

This study has shown that youths' perception of legitimacy is associated with youths' involvement in crime, antisocial behaviour, and violence. However, does legitimacy also have any role moderating the association between the rational evaluation of costs/benefits and crime? In order to analyse this interaction effect of legitimacy I used the same procedure: six multiplicative terms were created including the overall rationality index and the rest of the rationality sub-dimensions indexes: self-costs; formidability; peer costs and benefits; parent costs and benefits; and police costs.

Table 52 shows some evidence of the interaction effect of legitimacy on the relationship between rationality and crime, but again with an unexpected relationship (hypothesis H3b). The deterring effect of rationality on crime is reinforced by the perception of legitimacy of police institutions. However, again, perception of legitimacy is particularly relevant (instead of less relevant as initially anticipated) as an intervening force among those youths that find that crime very costly or with little utility. As youths increasingly perceive crime as an activity that provides higher benefit/cost value, legitimacy's 'effect modification' tends to attenuate. Furthermore, youths with high levels of legitimacy are more elastic to changes in their offending behaviour when crime is seen increasingly as reporting more utility (see Figure 23). Legitimacy is a significant moderator for the global index of rationality for the models of property crime, violent crime, and general crime general but only for the reactive aggressive scenario (models 87-90).

Figure 23: Interaction effects of legitimacy over rationality (expected utility) for general crime and deviance



However, when considering all the sub-dimensions of rationality, approximately only 40% of the twenty-four interactions tested turned out to be statistically significant. Legitimacy plays a more relevant intervening role for the violent crime model (four significant interactions), followed by the property crime model (three significant interactions), the general crime model with reactive aggressive scenario (two significant interactions) and finally the general crime model with shoplifting scenario with only one significant interaction.

Table 52 shows that the intervening effect of legitimacy is not homogeneous across the different sub-dimensions of rationality. Legitimacy has a stronger interaction effect for those youths who suffer more strongly parent reactions across all types of crimes (models 103-106, see also Figure 24).<sup>219</sup> Legitimacy has also a conditioning effect among those youths that suffer stronger feelings of shame and that believe that committing a crime is a very serious issue (self-cost index), but this is only the case for violent crime and for general crime (with reactive aggressive scenario) (models 91 and 94). Moreover, legitimacy also has an interaction effect among adolescents that perceive themselves as

<sup>219</sup> However, the general crime model showed a significant interaction only with the shoplifting scenario but not with the reactive aggressive scenario.

weak and with little chances of winning a fight (formidability index) but only for violent crimes (model 98). The greater adolescents' self-perception of their physical appearance and their fighting abilities, the less relevant becomes the moderating effect of legitimacy. Additionally, how strong youths perceive police as trustworthy and fair has an intervening effect on youth property crime, but particularly among those that believe that it is highly probable they will be detected by police and will get into serious trouble (model 109). Lastly, no empirical evidence was found for the presence of interaction effects of legitimacy for peer reactions (models 99-102).

*Figure 24: Interaction effects of legitimacy over parent cost/benefits (expected utility) for general crime and deviance*

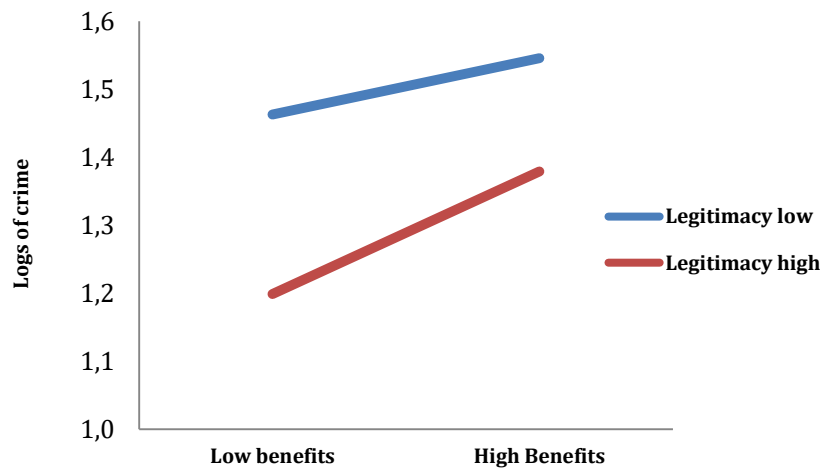


Table 52: Interaction effects of legitimacy on the association between rationality and crime

Independent variables	Variety of self-reported offences (aggres. scenario)	Variety of self-reported offences (Shop. Scenario)	Variety of self-reported property offences (shop. scenario)	Variety of self-reported violent offences (aggres. scenario)
	Model 87	Model 88	Model 89	Model 90
<b>Rationality</b>	.156***	.214***	.754***	.816***
<b>Morality</b>	-.127***	-.105***	-.279***	-.269***
<b>Legitimacy</b>	-.254***	-.258***	-.481**	-.710***
<b>Self-control</b>	.458***	.455***	.812***	.775***
<b>Rationality X legitimacy</b>	.090*	.07	.368*	.680***
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.264	.278	.107	.134
N	2,140	2,126	2,126	2,139
	Model 91	Model 92	Model 93	Model 94
<b>Self-costs</b>	.138***	.177***	.584***	.626***
<b>Morality</b>	-.127***	-.116***	-.334***	-.271***
<b>Legitimacy</b>	-.255***	-.249***	-.312*	-.722***
<b>Self-control</b>	.468***	.441***	.773***	.832***
<b>Self-costs X legitimacy</b>	.077*	.03	.076	.566***
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.268	.274	.103	.155
N	2,097	2,102	2,102	2,096
	Model 95	Model 96	Model 97	Model 98
<b>Formidability</b>	.004***	.006***	.008	.022***
<b>Morality</b>	-.148***	-.136***	-.431***	-.353***
<b>Legitimacy</b>	-.263***	-.257***	-.424**	-.591***
<b>Self-control</b>	.484***	.48***	.885***	.855***
<b>Formidability X legitimacy</b>	.003	.001	.013	.015*
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.255	.261	.085	.119
N	2,133	2,122	2,122	2,132
	Model 99	Model 100	Model 101	Model 102
<b>Peer costs</b>	.148***	.202***	.574***	.611***
<b>Morality</b>	-.132***	-.106***	-.315***	-.320***
<b>Legitimacy</b>	-.251***	-.255***	-.391***	-.607***
<b>Self-control</b>	.451***	.451***	.819***	.784***
<b>Peer costs X legitimacy</b>	.028	.05	.097	.371
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.261	.284	.100	.118
N	2,138	2,123	2,123	2,137
	Model 103	Model 104	Model 105	Model 106
<b>Parent costs</b>	.101***	.123***	.617***	.516***
<b>Morality</b>	-.136***	-.128***	-.308***	-.316***
<b>Legitimacy</b>	-.26***	-.272***	-.511***	-.639***
<b>Self-control</b>	.487***	.489***	.910***	.900***
<b>Parent costs X legitimacy</b>	.053	.118**	.409**	.468**
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.255	.260	.104	.119
N	2,142	2,132	2,132	2,141
	Model 107	Model 108	Model 109	Model 110
<b>Police costs</b>	-.014	-.035	.260	0.097
<b>Morality</b>	-.151***	-.154***	-.436***	-.375***
<b>Legitimacy</b>	-.269***	-.266***	-.421**	-.571***
<b>Self-control</b>	.5***	.5***	.931***	0.926***
<b>Police costs X legitimacy</b>	.055	.036	.548*	0.186
<i>R</i> <sup>2</sup> (Cragg & Uhler)	.246	.249	.086	.103
N	2,128	2,128	2,128	2,127

NOTE: Cells report *regression coefficients* in count models.  
 \*\*\*, p < 0.001; \*\*, p < 0.01 \* p < 0.05 ., p < 0.1 (two-tailed tests)

## V.k. Interactions between rationality and self-control

One final question regards the relevance of youths' self-control interaction effect. In other words, is the association between youth crime and a rational evaluation of costs and benefits affected by youths' impulsivity, insensitiveness, and volatile temperament? The same procedure followed in previous sections with morality and legitimacy was used to test self-control's conditional relationship with rationality.

All in all, Table 53 shows that my initial expectation was incorrect (hypothesis 4b): in contrast to the other non-rational dimensions, self-control has a very weak intervening effect suggesting that rationality's effect on crime is mostly unaltered by self-control. Low self-control is a significant moderator for the global index of rationality but only for the violent crime model (Model 114). Additionally, if we consider the entire rationality sub-dimensions tested, only four interactions were significant out of twenty-four tests. This conditioning role of self-control is relevant only for two property crime models (Models 129 and 133) and two violent crime models (Models 114 and 118), but no significant interaction was found for any of the general crime models. In those few cases where a significant interaction effect was found, self-control seems to play a more relevant role among individuals that find crime reports low levels of utility. As adolescents increasingly find crime as having more benefit-to-cost value, self-control's 'effect modification' tends to decline. Additionally, deterrent effects seem to be particularly weakened among those with lowest self-control. Finally, regarding rationality sub-dimensions, the intervening effect of self-control lacks a clear pattern, and it is only weakly associated with self-costs, parent reactions and police reactions.<sup>220</sup>

---

<sup>220</sup> In the three cases, only one interaction test out of four turned out to be statistically significant.



Table 53: Interaction effects of self-control on the association between rationality and crime

Independent variables	Variety of self-reported offences (aggres. scenario)	Variety of self-reported offences (shop. scenario)	Variety of self-reported property offences (shop. scenario)	Variety of self-reported violent offences (aggres. scenario)
	Model 111	Model 112	Model 113	Model 114
Rationality	.152***	.209***	.742***	.751***
Morality	-.126***	-.103***	-.274***	-.266***
Legitimacy	-.243***	-.249***	-.348**	-.446***
Self-control	.472***	.457***	.915***	.990***
Rationality X self-control	-.073	-.008	-.247	-.491*
R <sup>2</sup> (Cragg & Uhler)	.264	.277	.106	.130
N	2,140	2,126	2,126	2,139
	Model 115	Model 116	Model 117	Model 118
Self-costs	.134***	.169***	.583***	.604***
Morality	-.128***	-.115***	-.334***	-.278***
Legitimacy	-.244***	-.239***	-.280*	-.448***
Self-control	.48***	.435***	.807***	1.125***
Self-costs X self-control	-.085	.045	-.084	-.587**
R <sup>2</sup> (Cragg & Uhler)	.267	.274	.103	.154
N	2,097	2,102	2,102	2,096
	Model 119	Model 120	Model 121	Model 122
Formidability	.004***	.005***	.005	.020***
Morality	-.148***	-.135***	-.427***	-.355***
Legitimacy	-.259***	-.253***	-.378**	-.501***
Self-control	.482***	.474***	.847***	.906***
Formidability X self-control	-.0	.002	.007	-.008
R <sup>2</sup> (Cragg & Uhler)	.254	.261	.084	.117
N	2,133	2,122	2,122	2,132
	Model 123	Model 124	Model 125	Model 126
Peer costs	.148***	.198***	0.567***	.558***
Morality	-.132***	-.105***	-0.315***	-.319***
Legitimacy	-.247***	-.248***	-0.356**	-.488***
Self-control	.452***	.453***	0.835***	.790***
Peer costs X self-control	-.009	-.006	-0.042	-.030
R <sup>2</sup> (Cragg & Uhler)	.261	.2845	.100	.117
N	2,138	2,123	2,123	2,137
	Model 127	Model 128	Model 129	Model 130
Parent costs	.095***	.116***	.625***	.454***
Morality	-.134***	-.127***	-.308***	-.312***
Legitimacy	-.255***	-.263***	-.388**	-.495***
Self-control	.488***	.501***	1.086***	.956***
Parent costs X self-control	-.004	-.054	-.427*	-.189
R <sup>2</sup> (Cragg & Uhler)	.269	.257	.104	.116
N	2,155	2,132	2,132	2,141
	Model 131	Model 132	Model 133	Model 134
Police costs	-.008	-.033	.263	.125
Morality	-.15***	-.153***	-.426***	-.370***
Legitimacy	-.268***	-.266***	-.405**	-.563***
Self-control	.507***	.502***	.975***	.959***
Police costs X self-control	-.099(.)	-.048	-.402*	-.307
R <sup>2</sup> (Cragg & Uhler)	.247	.249	.085	.104
N	2,128	2,128	2,128	2,127

NOTE: Cells report *regression coefficients* in count models.  
 '\*\*\*', p < 0.001; '\*\*', p < 0.01 '\*', p < 0.05 '.', p < 0.1 (two-tailed tests)

## V.I. summary

The main goal of this chapter was to provide a synthesis of results of the PhD dissertation. The chapter started with some initial analysis that showed that the statistical models presented in this chapter were not affected by problems of multicollinearity.

Next, I showed the empirical relevance of rationality's direct effect on the explanation of youth crime. Not only were both indexes of rationality (one for each hypothetical scenario) significantly and positively associated with youth general crime, property crime and violent behaviour; but also both indexes continued to be significantly associated in blockwise count regression models that included eight socio-demographic variables and the three non-rational predictors. Although the inclusion of these variables reduced the effect size of rationality parameters, as was initially expected, rationality holds a significant and direct effect across all types of youth crimes. Results of multivariate analysis also confirmed the expectation regarding the significant association between morality, legitimacy and self-control with the three types of youth crime.

In the following section I provided some empirical evidence that showed that model parameters could be biased if hypothetical scenarios are not adapted to the type of crime in the dependent variable. When models included inconsistent measures (using hypothetical scenarios with property crime and explaining violent crimes, and vice versa) the rationality parameter either ceased to be significantly associated with the dependent variable or its effect size was considerably reduced.

Another section was focused on disentangling the different sub-dimensions of rationality and analysing its association with general crime, property crime and violent crime. Results of blockwise count regression models that included socio-demographic variables and non-rational predictors showed that evaluation of police

costs and perception of own strength and ability to fight were not significantly associated with youth crime. However, other three sub-dimensions such as self-costs, and parent and peer reactions were found to be significant predictor of youth crimes.

I then showed that there was no empirical evidence to support my initial hypothesis that informal costs/benefits played a moderating role in the relationship between evaluation of police costs and youth crime. However, I found some empirical evidence for another initial hypothesis regarding the moderating role of criminal peers on the association between informal costs/benefits and youth crime. This interaction effect was relevant for the youth violent crime model and for the general crime model but only with the shoplifting scenario.

Another relevant issue that was evaluated in this chapter was the role played by illicit opportunities. Results showed mixed evidence. On the one hand, the index of unsupervised outside home activities showed a robust positive association with general crime, property crime and with violent behaviour, even after including other control variables, rationality sub-dimension predictors and non-rational predictors. On the other hand, an indirect index of opportunities such as level of parental supervision showed no statistical association with youth crime across all youth crime models.

Next, I was interested in analysing more deeply the comparison between the effects on crime of benefits, costs and opportunity costs. Unexpectedly, results of blockwise models showed that while costs of crime were significantly associated with general crime, property crime and violent crime, benefits turned out to be a less consistent predictor: they were significantly associated with property crime and with one of the general crime models (with the shoplifting scenario). Against my initial expectations, opportunity costs also turned out to be non-significantly associated with any form of youth crime.

The final three sections of this chapter were devoted to the analysis of the interaction effects of three non-rational mechanisms over the relationship between rationality and crime.

Results showed some evidence of the expected intervening effect of morality over the association between rationality and crime. Particularly, it was observed that the association between the rational evaluation of costs/benefits and involvement in crime was less affected by moral values when individuals perceived more benefits from crime. This intervening role of morality was relevant for the global index of rationality across the four models. However, when considering models of interaction with all the sub-dimensions of rationality, only 60% of the tested interactions with morality were significant. Three sub-dimensions were particularly relevant in this regard: perception of formidability, self-costs, parent costs and benefits.

There was also empirical support for the moderating role of legitimacy but it was weaker than morality. Again, it was found that perception of legitimacy was particularly strong as an intervening mechanism among those youths that do not find much utility or benefit in crime. This modification effect was observed for the overall index of rationality for property crime, violent crime and general crime, but only for the reactive aggressive scenario. However, taking into account all the interaction models with different components of rationality and legitimacy, only 40% were statistically significant. Parent reactions, self-costs, and formidability index were the most relevant sub-dimensions of rationality in the analysis of interactions.

Finally, and unexpectedly, self-control has a very weak intervening effect suggesting that rationality's effect on youth crime was mostly unaltered by self-control. Only four interactions out of 24 possible tests turned out to be statistically significant. In those few cases that self-control played a significant intervening role, it was particularly relevant among those individuals that find that crime is a behavioural response that reports low levels of utility.

## VI. Discussion

### Introduction: summing up

In many ways, rational choice theory is an ideal framework for explaining crime and violence. It provides a simple explanation with explicit testable hypotheses and clear policy implications. It is also a general model that can be applied to all offenders and all type of crimes, in all settings across societies. However, rational choice explanations of crime and deviance are controversial. While some economists and criminologists have extensively defended and applied the rational choice model of crime in the last forty years, it still has a marginal position in criminology (Matsueda, 2013a), particularly in the study of youth crime and deviance (Fontaine, 2006; 2012). In particular, it has been highly criticised as an unrealistic and problematic explanatory model of crime.

It is hard to have a balanced judgment on how rational offenders are, particularly because the discussion involves two different levels of underlying disagreements. On the one hand, in *conceptual* terms, there is little agreement about what rationality really means, what type of costs and benefits should be included, what the role of values and morality is, and how reactions from significant others should be integrated in actors' evaluations. While some defend strict or 'thin' models with few and simple assumptions, others go for more 'thick' or complex models. On the other hand, there is a *methodological* debate regarding whether ecological/macro-level studies based on objectives measures are an adequate and sufficient empirical test of rationality; or, on the contrary, whether it is necessary to use methodological designs based on perceptual measures of subjective utility that allow for the testing of micro-level foundations.

In the initial chapters of this PhD dissertation I showed that several problems affect strict rationality models and its evaluation through

ecological/macro-level studies. The lack of realism of these models' assumptions cannot be defended in instrumental terms, since their levels of predictive success are very poor. This instrumentalism is particularly problematic when prediction is assumed as the dominant epistemological criteria: for the sake of predictive success, we might end up assuming so-called 'social science fiction' models with assumptions completely removed from the real world. Additionally, by assuming explanation and prediction as equivalent, strict rationality models do not explain phenomena in a strict sense. They show the association between phenomena but they do not provide an adequate identification and evaluation of causal mechanisms that identify more precisely how and why things happened (Elster, 2007). Rationality is simply inferred from associations between macro-level variables, instead of actually testing it in micro-level variables. For example, an econometric model can show that higher conviction rates are a robust predictor of lower crime rates. However, they are not actually explaining why this is the case. They do not show empirically the causal mechanism involved: actors perceived the certainty of being sanctioned by criminal justice authorities and estimated it was too high/costly according to their calculation of expected utility, and thus, decided to avoid committing crimes. Moreover, the validity of macro-level indicators as measures of subjectively estimated costs and benefits included in these models have been seriously questioned, given the lack of association between objective probabilities of punishment and subjective measures of perception of these penal costs (Paternoster, 2010). Additionally, these studies have not provided a balanced comparison of rational and non-rational predictors of crime. Since these studies are grounded on official data sets, they are doubly limited. On the one hand, they might under-estimate the effect of rational decision-making since measures of illegitimate rewards, intangible costs and benefits are rarely included. On the other hand, there is also risk of over-estimating rationality's effect given that key non-rational predictors such as morality, legitimacy or self-control are also hardly ever included.

Research of rationality with micro-level studies has greatly advanced in criminology in the last four decades. However, some methodological problems

have limited the evaluation of the explanatory role of rational choice. The use of *small, convenience and biased samples* in most studies seriously truncates the variance both of the dependent and independent variables. Moreover, most of the research includes an incomplete conceptualisation and operationalisation of the rationality construct. Tests of interactions with non-rational mechanisms, particularly with morality and legitimacy, have rarely been done. One final cross-cultural limitation is the little empirical validity of these studies in low and middle-income societies.

The goal of this study was to offer empirical evidence of the relevance of rationality in the explanation of youth crime. In order to tackle all the aforementioned challenges and to contribute to the existent literature this study included: i) a micro-level study that tests rationality statements at the individual level, where decisions are effectively taken; ii) a large representative sample of adolescents; iii) a more comprehensive measurement of rationality that includes an ample variety of subjective costs and benefits; iv) key non-rational mechanisms that may explain delinquency such as morality, legitimacy and self-control; v) analysis of direct and interaction effects between rational and non-rational mechanisms; vi) and finally, a setting that is not located in a high-income society (Uruguay, Latin America).

In what follows, I will discuss results from the previous chapter focusing on some key topics. The first two sections will discuss results relating to the explanatory relevance of rational choice in relation to non-rational mechanisms. In the third section I will discuss results regarding how well the sub-dimensions of rationality explain the different types of youth crime and violence. Then, I will analyse the different magnitude of effects of benefits and costs of crime, as well as discussing the lack of effect of opportunity costs. I will also comment in this section on the explanatory role of illicit opportunities. The fifth and sixth sections will discuss the autonomous role of morality, legitimacy and self-control, its direct effects on youth crime, as well as its interaction effects with rationality. The final

two sections will be focused on discussing more generally problems and challenges in the measurement of morality and rationality in criminology.

## 1. Is rationality relevant?

My first research interest was to examine the importance of the rational evaluation of costs and benefits as an explanation of general youth crime, property crime and violence. In order to do so, I included a comprehensive measure of rationality that combined five different scales that tapped on: i) how bad adolescents would feel about committing a crime; ii) adolescents' perception of their strengths and resources to get involved in a crime; iii) adolescents' perception of peers' reactions if they committed a crime; iv) adolescents' perception of their parents' reactions if they committed a crime; v) and finally, adolescents' perception of whether they would get into trouble with the police if they committed a crime (see chapter IV). Results of this study suggested that rationality played a modest but robust explanatory role that remains even after including socio-demographic variables and three non-rational mechanisms such as moral beliefs, perception of legitimacy of police and self-control.<sup>221</sup> Inclusion of the latter reduced the explanatory strength of rationality and increased the overall explanatory value of the models. However, rationality remained significantly associated with all types of youth crime. Furthermore, analysis of interactions proved that despite the strong and consistent direct effects of these three non-rational predictors, the link between rationality and youth crime remains mostly unaffected by self-control, and moderately conditioned by legitimacy and morality, particularly the latter. These results challenge previous studies that argue that rational decision-making has limited relevance for the explanation of crime, particularly in relation to non-rational predictors (Tittle et al., 2010; Tyler & Fagan, 2008; Wikstrom et al., 2012).

---

<sup>221</sup> For the model of general youth crime using either the shoplifting hypothetical scenario or the aggression one, the Incidence Rate Ratio (IRR) of the rationality parameter was approximately 1.2. That is, crime counts increased by approximately 20% with every one unit of increase of youths' expected utility of crime. For the model of violent behaviour, counts increased around 70% (IRR) and for property crime, counts increased by almost 90%.



Results of this PhD dissertation also provided some empirical support for rational choice theory as a general theory of youth crime. That is, my results showed that rational choice was a useful framework not only to explain instrumental or property crimes, but also expressive ones more characterized by violence. Results also showed that rational decision-making is useful to explain not only instrumental proactive forms of aggression (e.g. threatening third parties with violence to get their belongings; stealing money with violence), but also more reactive and emotionally aroused ones (e.g. carrying weapons to attack third parties; kicking or cutting someone with the intention to hurt him/her).<sup>222</sup> These results are interesting given the scepticism of many criminologists regarding the lack of rationality of non-instrumental crimes (Loughran, Paternoster, Chalfin, & Wilson, 2016; Pogarsky, 2009). According to some studies, rational decision-making is adequate to explain property crimes such as theft or robbery, but inadequate to explain expressive crimes such as vandalism, antisocial and aggressive behaviour (Chambliss, 1967; Hayward, 2007; Trasler, 2004). Some macro-level studies in Latin America have also argued that rational evaluation of costs and benefits measured as the severity of penal sanctions, certainty of arrest or incarceration, or number of police officers, is less useful to explain violent crimes, particularly homicides (Bukstein & Montossi, 2009; Costa, de Faria, & Lachan, 2015; Fajnzylber et al., 1998). However, this distinction between instrumental and expressive crimes has been questioned, showing that expressive crimes and particularly violence can also be understood as an instrument or tool to obtain resources and achieve goals (Eisner, 2009; Fiske & Rai, 2015). Some recent criminological studies have provided evidence that offenders do evaluate costs and benefits when they engage in violent and expressive crimes (Loughran et al., 2016; Matsueda, Kreager, & Huizinga, 2006). These results are consistent with a body of research in behavioural psychology that has also shown the

---

<sup>222</sup> The dependent variable used in this study includes both instrumental and reactive forms of aggression (the four aforementioned aggressive behaviours). However, I run additional exploratory bivariate analysis and logistic regression models using only reactive behaviours and results were not significantly different (results not shown).

relevance of cost-benefit evaluations in the explanation of instrumental and reactive aggression in adolescents (Crick & Dodge, 1996; Fontaine et al., 2009). In short, my results are consistent with this line of research in criminology and psychology that support the idea of rational choice as a general theory of youth crime.

## 2. How relevant is rationality?

My results not only revealed that the subjective evaluation of costs and benefits is significantly associated with instrumental and non-instrumental forms of crime. They also showed that in most models it has a stronger effect size than two of the other three non-rational mechanisms: legitimacy and morality.<sup>223</sup> Additionally, as mentioned above, rationality was scarcely moderated by non-rational predictors. These results are partially inconsistent with some recent studies claiming that rational evaluation of risks is not a main component in the explanation of crime. Tittle and colleagues' study in Greece and Russia suggested that subjective expected utility is not a major underlying explanatory process of crime in relation to morality or self-control (Tittle et al., 2010). Research testing the *Situational Action Theory* in England has also challenged the relevance of rational decision-making in relation to 'crime propensity': individuals with strong internalized moral values will not even think or perceive there are deviant behaviour alternatives to follow, and much less of their associated costs and benefits (Wikström et al., 2012; Wikström, Tseloni, & Karlis, 2011). Studies of the *Model of Frame Selection* theory in Germany also showed that when individuals are strongly bounded by internalised normative attitudes, instrumental rational considerations turn out to be irrelevant in the explanation of crime (Kroneberg, Heintze, & Mehlkop, 2010). Likewise, research in the legitimacy framework in US has shown that compliance with the law is much more associated with the perception of

---

<sup>223</sup> This is true for all models except for the general deviance models (see Chapter V).

legitimacy rather than with instrumental considerations about potential punishments or rewards (Sunshine & Tyler, 2003; Tyler & Fagan, 2008).

Why are my results different from those obtained by the aforementioned studies? This divergence of results, and particularly the weaker role of rationality observed, might be due to two important measurement issues. First, these studies do not use comprehensive measures of rationality that might increase the risk of underestimating its explanatory role. For example, studies by Tyler and colleagues (Tyler & Fagan, 2008) included a measure based only on the perception of certainty of legal punishment in a number of law-breaking behaviours. Wikström and colleagues included in one case the risk of being caught (Wikström et al., 2011) and in another case adult monitoring (Wikström et al., 2012).<sup>224</sup> Tests of the Frame Selection theory (Kroneberg et al., 2010) include a more comprehensive set of measures of rational choice theory that combine risk of being detected/caught with expected benefits, probability of success, and severity of formal penalties. However, inner costs such as shame or embarrassment, informal sanctions or reactions from parents and peers are not included. Finally, Tittle and colleagues' (2010) study uses a measure of expected utility that adds tangible or monetary rewards to certainty and severity of legal punishment but excludes inner costs and reactions from significant others. Second, there is a significant methodological difference between this PhD dissertation and all these studies regarding how respondents were asked to estimate costs and benefits of crime. My study included hypothetical scenarios with a vignette that describes the commission of the crime and its circumstance with great detail. The rest of these studies have used only hypothetical questions without vignettes. Asking respondents to make cost/benefit estimations without including vignettes increases variability of interpretations and misunderstanding of respondents, and decreases the reliability of responses and of

---

<sup>224</sup> The Peterborough Adolescent and Young Adult Development Study (PADS+) study includes proxies of severity (how great the trouble would be if respondents are caught) but they were not included in the analysis in these two studies.

estimated parameters (Klepper & Nagin, 1989) (for more details, see chapter IV).<sup>225</sup>

The results of this study show additional evidence regarding how other measurement problems can increase the risk of underestimating the explanatory relevance of rationality. The questionnaire of this study included two different scenarios with vignettes to help respondents estimate the costs and benefits of crime. One involved a shoplifting scenario and another one involved a reactive aggressive scenario. Exploratory and confirmatory factor analysis showed it was not possible to construct an overall measure of rationality that combined both scenarios. Therefore, we use two different sets of scales of rational decision-making processes associated with each scenario to construct the independent variables. A relevant issue is whether mismatches between independent and dependent variables have any effect. Explaining property crimes using independent variables based on a hypothetical scenario that describes a property crime (e.g., shoplifting) reveals different results if we use instead an independent variable based on a scenario describing a violent crime (e.g. reactive aggression). Likewise, is the explanation of youth violent crime affected if we include either an independent variable based on the reactive aggressive scenario or an independent variable based on the shoplifting scenario? Interestingly, my results indicated that rationality parameters are significantly affected by these mismatches between the type of crimes included in the vignette of the hypothetical scenarios and the type of crimes used in the dependent variable. The rationality parameter turned out to be much smaller and even non-significant when this mismatch took place.

These results bring attention to the need to do more research to evaluate how sound it is to include, as independent variables, global measures that combine

---

<sup>225</sup> Furthermore, differences in the rational and non-rational parameters might also be due to the type of sample used by studies. Except for Wikström and colleagues' SAT study which is also conducted on a sample of adolescents, the rest of the studies use samples of adults. Although m-proso and SAT studies are based on adolescent samples, they differ in an important aspect: while the former is based on a sample of adolescents from private and public schools, the latter is composed of adolescents from the general population.

estimations of risks of different crimes (see for example, Grasmick & Green, 1981; Paternoster et al., 1983; Piliavin et al., 1986; Tittle, et al., 2011). Alternatively, these results also shed light on a more methodological and theoretical issues. Should rationality studies focus on developing more specific and fine-grained measures of risk estimations more linked to particular crimes that are being explained? Long ago, Clarke and Cornish questioned the excessive generality of economic models of crime represented by Becker (1968) or Ehrlich (1977) and argued for more specific explanations based on finer and non-legal distinctions since decision-making, reasons and motivations vary notably among types of crime (Clarke & Cornish, 1986; see also Clarke, 1995; Clarke & Felson, 2004). This is a more general trend that can be found outside the discipline of criminology. More recently, some branches of philosophy of social science (Elster, 2012; Little, 2009; Rosenberg, 2008) and analytical sociology (Gambetta, 1998; Hedstrom & Bearman, 2009) have defended the idea that explanations in social science need to be less abstract and less oriented by the nomothetic physics model, and focus more on the elaboration of specific causal mechanisms. If these results and this interpretation are valid, one potential implication for theory building in criminology is to focus some analytical efforts more on the identification of key causal mechanisms associated with specific types of crimes rather than the elaboration and empirical testing of general theories of crime.

To sum up, if the explanatory power of rational choice theory is going to be challenged by non-rational causal mechanisms, more comprehensive and valid measures of perceived costs and benefits should be included in future research. Fair tests should integrate informal sanctions and discriminate adequately across the key sources of informal and formal sanctions/rewards: self, friends, parents, and formal authorities. Furthermore, particular attention should be given to the use of global estimations of rational evaluations that do not discriminate across different types of crimes, which run the risk of underestimating the effect size of rationality.

### 3. Breaking down rationality (I): what sub-dimensions are more relevant?

Throughout the dissertation I have argued that the framework of rational choice is relevant to understand youths' involvement in youth crime and violence. I have also claimed that it is important to include more comprehensive global measures of youths' evaluations of costs and benefits in order to obtain a more valid and less biased estimation of its effects on youth crime. Additionally, I was also interested in analysing more specifically which of the sub-dimensions of rationality had more relevance in youths' cost/benefit evaluations.

#### *Informal and formal reactions*

Findings of this study showed that Uruguayan youths were more worried about informal costs and benefits associated with parent and peers' reactions than about formal costs associated with police. In fact, our results showed that costs associated with police including both certainty and severity seemed to play almost no role in youths' decision to get involved in all types of crimes.<sup>226</sup> Some of these results are consistent with the criminological literature that has also shown that informal costs and benefits are more relevant than formal ones (Grasmick & Bursik Jr., 1990; Green, 1989; Paternoster, 1985; Paternoster et al., 1983). However, these results also differ with previous research because although most perceptual studies show that the deterrent role of severity is dubious,<sup>227</sup> certainty has shown a robust significant deterrent effect (Lochner, 2007; Matsueda et al., 2006; Nagin &

---

<sup>226</sup> Consistently with these results, data suggested no significant interaction effects between police costs and informal costs, and between police costs and benefits.

<sup>227</sup> However, severity's null effect should be taken with caution. Many of the studies that show no association between the severity of sanctions and crime have been criticised because they are based on aggregated measures that include sanctions with very different levels of seriousness (see Chapter II). This problem also affects measures used in this PhD dissertation.

A recent quasi-experiment macro-level study conducted in Uruguay showed that an increase in the severity of sanctions for four specific violent crimes (e.g. rapes, robberies, homicides, or kidnapping) had a significant deterrent effect (Gandelman & Munyo, 2016). These results have not been corroborated elsewhere in Latin America (see for example Romero (2012) in Colombia for lack of deterrent effects of severity of sanctions), and have not been replicated using perceptual measures in micro-level data. However, they urge caution and demand for a more thorough and specific analysis of severity effects in future perceptual studies in the region.

Paternoster, 1993; Pratt et al., 2006).<sup>228</sup> Why is this the case? One first reason why certainty of having problems with police plays no deterrent role might be the lack of capacity of criminal justice institutions to effectively punish youth offenders. According to recent studies in Uruguay, even if youth offenders are detected and arrested by police, and even if they are found guilty and imprisoned, the probability of escaping from youth correctional facilities is very high (Munyo, 2013; 2015). Therefore, in the end, the certainty of actually suffering the penal sanctions is very weak. A second reason might be the particularly low capacity of criminal justice institutions to detect and punish offenders in the Latin-American region. While in Europe and Asia 85% and 80% of homicides are cleared, only 50% are cleared in Americas (UNODC, 2014). Particularly in Uruguay, according to the observatory from the FUNDAPRO, almost half of the homicides (48%) were not cleared by police in 2014 (Maciel & Ventura, 2015). Developed countries in Asia and Asia exhibit much lower rates: 6% of homicides were not cleared in Germany; 15% in UK; 13% in Switzerland; 5% in Japan; and 13% in Australia (Bänziger & Killias, 2014). Although this study is about youth crime, and although homicide clearance rates have several limitations, they still are considered an acceptable proxy of police overall performance (Addington, 2006; Maguire, King, Johnson, & Katz, 2010). A third explanation for the null effect of deterrence observed in this PhD dissertation is that the dependent variables included many minor offences and antisocial acts. It seems reasonable to assume that youths would take much more into consideration certainty and severity of arrest if they are involved in serious crimes such as murder, rape, or robbery. Instead, if youth crime is mostly composed of less serious antisocial and aggressive behaviours, it is more likely that adolescents will not even think about its negative consequences. Finally, maybe these divergent results can be partially associated with the age of the samples of the studies. While this PhD dissertation is conducted on adolescents, most of the micro-level perceptual studies aforementioned include university

---

<sup>228</sup> This is also the case for some recent studies in Latin America (e.g. Cerqueira, 2014; Cerro & Rodriguez, 2014b; Soares & Naritomi, 2010). However, as mentioned before, since these are macro-level studies, it is not always clear that the underlying causal mechanism is a rational one (deterrence) instead of a non-rational one (incapacitation).

samples. Young adults from university samples, having lived longer than adolescents, have more chances of having been involved in crimes and of having problems with police authorities in their lifetime. Thus, they have more chances of having more conscience and knowledge about its potential costs. Instead, younger respondents with fewer years of lifetime and fewer chances of involvement in crime might have a more distant and vague conscience of formal costs.

However, it is important to notice two additional methodological limitations of m-proso measures that urge caution about this unexpected null effect. First, scales of police costs included only two items, unlike four-item scales associated with the self, peers, and parents. Perceptual studies in the past had more comprehensive measures of formal costs which not only included the evaluation of severity and certainty of several crimes, but also a more specific wording of some of the items which included police, criminal courts, penitentiary institutions, and even the specific type of potential penal sanctions to be suffered. Second, the location of police items in the m-proso questionnaire might affect its validity. Rationality sections in the questionnaire begin by a vignette describing the hypothetical scenario followed by several items regarding perception of benefits and costs in multiple domains. However, the domain of police costs is located at the end of the section, thus, its distance from the vignette/stimulus might affect the validity of respondents' answers. Thus, future perceptual studies should tackle these limitations and explore more adequately if costs associated with criminal justice authorities are a significant predictor of youth crime in Latin America.

### *Family and peer reactions*

Results of this study not only revealed that informal costs/benefits were more relevant than formal ones. They also showed that costs/benefits associated with friends' reactions were more robust and consistent with all types of crimes



than those associated with parents.<sup>229</sup> Although many perceptual studies use global measures that do not discriminate between the domain of family and the domain of friends (e.g. Cochran, Aleksa, & Sanders, 2008; Rebellon, Piquero, Piquero, & Tibbetts, 2010; Tittle et al., 2011) my results are consistent with some early panel research conducted in the 80s and 90s. These studies showed that youth involvement in theft, vandalism and drinking alcohol was significantly associated with peer sanctions but showed almost no relationship with parents' disapproval (Paternoster, 1989a, 1989b; similar results are found in the social learning tradition, see for example Heimer, 1996). This small role played by parents is consistent with other results observed in this PhD dissertation. For example, parental monitoring of their childrens' activities, schedules, or friends, showed no significant effect on youth involvement in any type of crime and deviant behaviours. In addition, parental reactions played no moderating effect on the relationship between the evaluation of costs associated with police and youth involvement in all types of crimes.

Given the age of the respondents of this study ( $M = 15.5$ ;  $SD = .91$ ) these results are not surprising from a life course framework, since adolescence is a period in which youths both distance from their family bonds and their emotional attachments are weakened, and at the same time move closer and develop stronger relationships with peer networks (Allen, 2008). Accordingly, developmental criminology has also showed that although family plays a strong role in youths' initial antisocial behaviours during childhood, peers and school acquire a more influential role in adolescents' involvement in deviance and crime (Sampson & Laub, 1993; Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003). However, since these analyses are based on a cross-sectional data set, a different interpretation about the relevance of peer reactions is plausible: individuals that have been involved in crime and deviance chose to affiliate with deviant peers that support their preferences and would not disapprove of their behaviours. This

---

<sup>229</sup> Although parents' reactions were of little relevance for the explanation of youths' involvement in general crime and violent behaviour, this was not the case for property crime such as such as shoplifting or breaking into a house to steal.

interpretation is consistent with Hirschi's (1969) original explanation of the association between criminal peers and youth offending (*'birds of a feather flock together'*) and later studies have offered evidence of this 'selection effect' or homophily (Flashman & Gambetta, 2014; Thornberry, 1987; Kiesner, Kerr, & Stattin, 2004; Monahan, Steinberg, & Cauffman, 2009).

### *Inner costs*

One additional significant dimension of rationality of this study was inner costs, which involved adolescents feelings of remorse about getting involved in crime.<sup>230</sup> My results revealed that these psychological costs were significant across all models (except for violent behaviours) and showed to have a more robust and stronger relation with all types of youth crime in relation to parents' reactions. However, their inner costs revealed a less strong relationship with youth crime in relation to peers' reactions. These results are partially consistent with some previous research that has found that these inner emotional costs are more relevant than feeling disapproval or embarrassment from significant others (e.g. Grasmick & Bursik Jr., 1990; Grasmick & Kobayashi, 2002; Makkai & Braithwaite, 1994). However, it is difficult to compare since these studies include a more synthetic and limited measure of social censure that involves asking about shame from significant others in general terms and do not discriminate between parent and peers.<sup>231</sup> Two additional methodological differences between this dissertation and previous studies warns about making any firm conclusion. First, there are significant differences in the way the independent variable was measured. While Makkai and Braithwaite used panel data, and Grasmick and colleagues use hypothetical questions regarding crimes, this dissertation used hypothetical

---

<sup>230</sup> I will use the term guilt or remorse to refer to these feelings of self-disapproval even when I refer to authors that use the term shame (e.g. Grasmick & Bursik Jr. (1990) or Nagin & Paternoster, (1993)). See Chapter II.

<sup>231</sup> Grasmick and Bursik's items measuring embarrassment are as follows: 'Would *most people* whose opinions you value lose respect for you if you...', and 'If *most of the people* whose opinions you value did lose respect for you, how big a problem would it create for your life?' (italics are mine).

scenarios. A second important issue is the age of the participants of the sample used in studies. It has been suggested that social disapproval might be more relevant for youths than for adults (Bachman, Paternoster, & Ward, 1992; Grasmick & Bursik Jr., 1990). Indeed, the m-proso sample is composed of adolescents whereas the aforementioned studies where social censure is less relevant than feelings of remorse involved adult samples.

It is somewhat puzzling that inner costs were significantly associated with general crime and with property crime, but not with violent behaviours. Why is this the case? One first issue to take into consideration is that most of the previous research that demonstrated empirically the inhibitory role of these psychological costs has used non-violent forms of crime or deviance as the dependent variable, such as: non-compliance with rules in the workplace (e.g. coming to work late, taking a long lunch break without approval) (Grasmick & Kobayashi, 2002); non-compliance of nursing homes with regulatory standards (Makkai & Braithwaite, 1994); corporate crimes (e.g. price fixing, bribery) (Paternoster & Simpson, 1996); theft (Rebellion et al., 2010); and theft, tax cheating and drink-driving (Grasmick & Bursik Jr., 1990). One of the few exceptions is Nagin and Paternoster's (1993) study that includes not only drink-driving and theft, but also sexual assault. However, sexual assault was the only crime that turned out to be non-significantly associated with guilt. Thus, the association between serious violent behaviours and inner costs is not an established fact in the literature. However, a possible interpretation for these results might be that violence, and particularly expressive violence, is more accepted and naturalised behaviour among these adolescents and therefore its possibility generates less feelings of guilt. In the sample of this study, more than one third of the youths have friends that have physically attacked and badly hurt someone, and almost one fifth of the males of the study are members of a violent gang or group (Trajtenberg & Eisner, 2014). At the same time, while survey respondents express a clear rejection of property crime and consider it a serious problem, they have a more ambiguous perception of how

serious it is to get involved in violent behavior.<sup>232</sup> It is true that the dependent variable of violent behaviour included two expressive behaviors (e.g. carrying a weapon for protection or to attack somebody, purposely causing injuries to a third party) but also instrumental behaviors (e.g. threatening to use violence to obtain money or goods, steal money using violence). However, the expressive aggression items are more prevalent than the instrumental ones among Uruguayan youths.<sup>233</sup> Therefore, this greater tolerance and normalisation of violence might be a potential reason why psychological costs are not significantly associated with violence. This phenomena could be more likely in contexts where a culture of honour predominates, in which reputation and respect are associated with interpersonal or group violent confrontations, and aggressive responses/retaliation to insults (Copes, Hochstetler, & Forsyth, 2013; Nisbett & Cohen, 1996). Some research has shown that one of the regions where this culture of honor is more prominent is Latin America (Neapolitan, 1994; Vandello & Cohen, 2003; Sommer, 2012). While it is interesting to raise this interpretation, it is impossible to come to any definite conclusion for the case of Uruguayan youth violence. This is an issue to be addressed by additional future research.

### *Formidability*

One noteworthy difference between this study and previous research in rationality is the inclusion of youths' perception of their physical strength, fighting abilities and how likely it is they will obtain positive outcomes from a fight with others. Results showed that the formidability scale had no significant effects on

---

<sup>232</sup> Most of the surveyed youths thought it was very serious to steal something worth \$200 (55%) and something worth \$1,000 (72%). However, when it comes to aggressive behaviors, the pattern is not so clear. It is true that most of the youths believe it is very serious to use a gun to try to steal money from a third party (89%). However, only 33% think it is very serious to hit someone because he or she was insulted. Additionally, more than one third of the youths interviewed agree that it is alright to fight physically to defend one's rights, and a similar proportion also agreed that sometimes some people need a severe beating. Thus, one could interpret that there is an important proportion of these youths that express preference for expressive violence particularly if we focus on the males of the sample.

<sup>233</sup> While respondents showed a last year prevalence of approximately 1% in the instrumental aggression items, the numbers rise to approximately 9% for the expressive aggression items.

youths' involvement in crime, property crime and violence in Uruguay. Formidability yielded very small but significant association with violent behaviour but only among males (IRR = 1.01). These results are somewhat consistent with scarce previous studies in Spain and Switzerland which found a significant association between formidability and youth aggressive behaviour, particularly more strong and consistent for males (Muñoz-Reyes et al., 2012; Sell et al., 2016). However, why do my results show no association at all for females and such a weak association for males? One first hypothesis is that the formidability parameters in the Spanish and Swiss studies might be biased because they did not incorporate as controls other measures of cost/benefit evaluations included in this PhD dissertation. Additionally, unlike in the Swiss and Spanish studies, the formidability index used in my study has methodological limitations. This scale combines three items with a range between 0 to 100 from one section of the questionnaire designed to measure three aspects of formidability (physical appearance, strength and ability to fight) with two four-level Likert items (probability of having problems due to the crime committed, and evaluation of seriousness of those problems) from the rationality section which was originally not designed to measure formidability. Thus, the interpretation of my results should be taken with caution. At present, formidability has been scarcely included in criminological studies and more research is needed in the future to confirm its relevance for the explanation of crime and violence.

#### **4. Breaking down rationality (II): rewards, losses, opportunity costs, and opportunities**

Another goal of this PhD dissertation was to analyse the relative relevance of psychic benefits and costs of crime in youths estimations, and compare them with opportunity costs and with opportunities for illicit activities.

### *Rewards and costs*

Results in this study provide some evidence that the ‘*benefit*’ portion of the rational decision process is relevant in the explanation of youth crime in consistency with the literature (Baker & Piquero, 2010). Thus, models that focus mostly in the ‘*cost*’ portion have a higher risk of estimating biased parameters. This is particularly relevant for research in Latin America mostly based on macro-level ecological studies in which illegal rewards are hardly ever included.

However, my results also showed that benefits exhibited a less robust relationship with crime, particularly with violence, and with smaller effect size than costs. This is inconsistent with some research that revealed that rewards are more relevant than costs in the explanation of crime (Dhami & Mandel, 2012; Piliavin, Gartner, Thornton, & Matsueda, 1986). What are the reasons for these differences? One first thing to remember is that studies that show that benefits have a weak or null effect are not so unusual. For example, in Baker and Piquero's (2010) systematic review, 30% of the estimates of perceived benefits showed no significant association with crime.

However, three measurement problems might be affecting the benefit parameters of my study. First, there is a mismatch between the dependent and independent variables that might explain the lack of significant effects of benefits for violent behaviour. While the vignette of the hypothetical scenario used to develop the construct of benefits of crime is based on a reactive aggressive scenario, behaviours included in the violence dependent variable included both reactive and proactive aggressive behaviours. Second, in this study benefits were measured in general terms without incorporating specific measures of material or more tangible rewards. Several studies have shown that this dimension is not irrelevant (e.g. Hochstetler, DeLisi, & Puhmann, 2007; Paternoster & Simpson, 1996; Uggen & Kruttschnitt, 1998). Finally, these measures are based on researcher-derived-consequences designs, which tend to produce non-

comprehensive and biased estimates of benefits of crime (Bouffard, 2002; 2007; Exum & Bouffard, 2010). Future research should explore designs that allow subjects to generate their own positive consequences of crime for different types of offenses.

### *Opportunity costs*

This study revealed that there was no significant effect of opportunity costs across all models of youth crime. These results are inconsistent with previous studies (Matsueda et al., 2006; Wright, Caspi, Moffitt, & Paternoster, 2004). The lack of significant effects might also be due to measurement problems. Unfortunately the m-proso data set did not include direct measures of opportunity costs. Measures used in the literature involve grades in school or actual employment (Matsueda et al., 2006) or even youths' opinion on how likely it is that crime reduces job opportunities (Wright et al., 2004). Instead, my study included a measure that involved items not originally designed to measure opportunity costs. This more indirect measure tapped into youths' opinions on school performance, commitment and opinions about how useful school might be for the future. Maybe here again it would be useful for future research to start taking more seriously the task of exploring subject-generated designs in order to incorporate novel items regarding the '*positive consequences of not doing crimes*' which are more adapted to youths' lifestyle. Indeed, the empirical exploration of this dimension has not been sufficiently taken into account by rational choice research in criminology (Baker & Piquero, 2010).

### *Criminal opportunities*

One final interesting component of rational decision-making that was partially validated in this PhD dissertation was opportunities for criminal and illicit activities. My results revealed that while parental supervision showed no significant

effects, unsupervised outside routine activities showed a robust and strong association with all types of crimes, even after controlling for rational and non-rational predictors. Unfortunately, illicit opportunities have been scarcely included in the literature of perceptual studies of rationality.<sup>234</sup> However, my results are partially consistent with some research (e.g. Paternoster, 1989a) that showed that parental supervision and time spent with peers had significant effects on use of legal and illegal drugs, petty theft and vandalism.<sup>235</sup>

These results show that illicit opportunities seem to matter for the explanation of crime independently of youths' levels of impulsivity, temper, moral beliefs, or perception of how legitimate the authorities are. When the access to illicit opportunities plays a relevant role in the explanation of crime, non-rational motivational states can: either be considered an unnecessary explanatory condition in a parsimonious model that accounts for a sufficiently great level of explained variance; or a necessary but insufficient condition for the explanation of crime that demands the inclusion of illicit opportunities (see Felson & Boba, 2010; Felson, 2014). In any case, it is a challenge for models based mainly on non-rational motivations that assume that perception and evaluation of opportunities are irrelevant or only relevant for certain types of very impulsive or crime-prone individuals. This is a serious issue given the scarce measurement of illicit opportunities in perceptual studies of rationality. Future research should incorporate this dimension more consistently. To this end, useful recent models outside the rational choice framework have incorporated the role of criminogenic environments and developed sophisticated measurement techniques (aka, space-

---

<sup>234</sup> In macro-level research, criminal opportunities are sometimes included using indirect variables such as income per capita, urbanisation rate, or population density assuming that they involve easy access to attractive criminal targets and even access to potential criminal partners (for some examples in Latin American studies see Borraz & Gonzalez, 2010; dos Santos, 2009; Nuñez et al., 2003).

<sup>235</sup> Two additional measures used in the literature are peers involved in illicit activities (e.g. Paternoster, 1989a) or items that directly ask respondents about perceived opportunities of committing crimes and getting away with out it (e.g. Matsueda et al., 2006; Piliavin et al., 1986). However, as argued in Chapter II the first one is problematic since it captures more differential association than illicit opportunities (Akers, 1990). The second one is also problematic because it does not capture opportunities, but rather the interaction between opportunities and certainty of arrest (Matsueda et al., 2006).



time budget methodology) (Wikstrom et al., 2012; see also Hoeben, Bernasco, Weerman, Pauwels, & van Halem, 2014). Of course, the cross-sectional nature of the data used in this study precludes from reaching strong conclusions. Unfortunately, this type of design also allows 'crime to cause illicit opportunities'. In other words, deviant and delinquent youths might seek unsupervised opportunities where more criminal opportunities are available.<sup>236</sup>

## 5. What about the explanatory effect of non-rational mechanisms?

One of the salient features of this study is the estimation of an explanatory model of youth crime that included for the first time rationality together with morality, legitimacy, self-control. This feature helps to minimise a limitation that can affect many of previous criminological studies: risk of model misspecification and overestimation of the explanatory value of parameters. My results showed that these three non-rational mechanisms exhibited a direct significant effect on youth crime. Additionally, they reduced the effect size of rational estimators and increased the goodness of fit across all the different models of crime. All in all, our results indicated that self-control was the strongest predictor across followed by rational evaluation of costs and benefits, legitimacy and morality across all models.

These results are inconsistent with two other studies that have included most of these causal mechanisms. Tittle and colleagues' (2010) study showed that morality had the strongest association with crime, then self-control, and finally evaluation of expected utilities was the weakest predictor. Jackson and colleagues' (2012) test of Tyler's legitimacy showed not only that moral values was the strongest predictor, but that after its inclusion in the model, legitimacy effect had a weaker effect on youth offending and only in two dimensions (obligation to obey

---

<sup>236</sup> There is grounds for being optimistic that future longitudinal research that combines rationality measures and illicit opportunities can confirm the hypothesis of this study: Osgood and colleagues' longitudinal study indicates that unstructured and unsupervised activities also can have causal influence on crime and deviance (Osgood et al., 1996).

the law and moral alignment to police) and rational evaluation of costs had the weakest effect.<sup>237</sup>

Differences between our results and these two studies might be due to three methodological issues. First, neither of these two studies include simultaneously the four mechanisms. Maybe the morality parameter is overestimated in Tittle and colleagues' study given the absence of a legitimacy predictor. Likewise, if Jackson and colleagues' model had included a measure of self-control, maybe legitimacy and morality parameters would have been weaker. A study conducted with a sample of young adults revealed that legitimacy effect on offending was barely significant and very weak when self control and legal cynicism were included in the model (Reisig, Wolfe, & Holtfreter, 2011). Likewise, Eisner and Nivette have argued in a review of legitimacy studies that most individual-level studies lack these control variables and, when included, legitimacy parameters tend to be modest or even non significant (Eisner & Nivette, 2013). A second important difference involves the way rational evaluation of costs was operationalised and measured. While Jackson et al. (2012) includes only a proxy of certainty of suffering penal sanctions, Tittle et al. (2010) include a more comprehensive index but excludes emotional costs and informal sanctions from parents and peers. Finally, none of these studies use a hypothetical scenario methodology. They both use a methodological design applied by the first wave of perceptual studies: cross-sectional surveys where individuals are asked about their current estimations about the costs and benefits of crime. As I have argued repeatedly, this type of design is more likely to affect the reliability and validity of estimated parameters.

Results of this PhD dissertation shed light on theoretical questions in criminology. Although my results show the relevance of taking into account rational

---

<sup>237</sup> There is another legitimacy study that includes moral beliefs as a control variable (Fagan & Tyler, 2005). However, I do not discuss its results because the mechanism is operationalised as moral disengagement and not as morality.

Although other studies such as Pauwels et al. (2011), Piquero et al. (2016) or Svensson (2015) incorporate self-control, deterrence and morality, estimated models always include the interaction terms so it is not possible to compare the effect size of the respective parameters.

deliberation of the costs and benefits of crime, it nevertheless, provides a defence for the autonomous role of these three non-rational mechanisms. Thus, this study calls for a balanced approach that conceives rational and non-rational components as complementary rather than as alternative. Unfortunately, still today there is a tendency in criminology to assume the explanation of crime as either from a rational choice framework or against it. On the one hand, Clarke and colleagues have been very critical of non-rational choice models arguing that they assumed a pathological, purposeless, compulsive and deterministic offender (Clarke & Cornish, 1986; Clarke & Felson, 2004). On the other hand, scepticism of rationality as a simplistic and unrealistic model of crime has come both from radical/marxist criminology (Ferrell, Hayward, & Young, 2015; Matthews, 2014) and from mainstream criminology (Akers, 1990; Gottfredson & Hirschi, 1990; Tyler, 2003; Wikström, 2010). Following Matsueda in criminology and Fontaine in behavioral psychology, it is important to assume as the point of departure a rational actor and evaluative decision processes. This parsimonious starting point is not an obstacle for the incorporation of cognitive limitations and more complex motivations into the rational choice model (Fontaine, 2006; Matsueda 2013; Matsueda, Kreager, & Huizinga, 2006).

Some authors like Hirschi (1979) or Thornberry (1989) have questioned theoretical integration in criminology between concepts or causal mechanisms that belong to theories based on motivational components and those based on constraint/control components. Rather than attempting to produce 'theoretical Franksteins', its better to go for a competitive approach between theories. In contrast, the approach assumed in this PhD dissertation is more in line with integrative models that contend that propensity and motivational theories are not necessarily incompatible (Wright et al., 2004). Propensity theories that place on emphasis on personality traits like self-control theory do not necessarily involve incompatibility with the idea that offenders have weak moral values or perceive authorities as illegitimate. Likewise, assuming offenders to be impulsive or temperamental does not require the assumption that they are blind or insensitive to

cost/benefit estimations. My results are in line with some integrated theories and studies that argue for the inclusion of both components in order to minimise problems of misspecification and to increase the explanatory power of criminological models (Braithwaite, 1989; Tittle, 1995; Tittle & Botchkovar, 2005a; Wright et al., 2004).

## **6. Interactions between rational and non-rational mechanisms**

One of the main goals throughout this study was the comparison of the explanatory relevance of rational choice in relation to non-rational motivations. One way of analyzing this issue was comparing their direct effects: how consistently and strongly were they associated with youth crime and violence? An additional analysis involved examining if the relationship between rational decision-making and youth crime is moderated in by these non-rational motivations.

Results of interaction analysis reinforced the relevance of rational decision-making in the explanation of youth crime. First, the global picture showed that the moderating effect of non-rational mechanisms on the relationship between rationality and crime was weaker than initially anticipated. The intervening role of self-control was almost null or non-existent. That is, I found little support for the idea that the strength of the association between perceived costs and benefits and crime is dependent on the individual's self control. Perception of the legitimacy of police authority and moral beliefs (particularly the latter) show a moderating role but still interaction effects are significant only for some sub-dimensions of rationality and for some types of crimes. Second, our results showed that when morality/legitimacy played a significant interaction effect, they reinforced rational considerations: high morality (or legitimacy) and low expected utility work together to inhibit involvement in crime and violence. In other words, adolescents who morally disapprove crime (or who consider authorities legitimate) are more sensitive to cost/benefit evaluations.

These interaction results of morality are consistent with some of Gallupe and Baron's (2010) findings in a sample of Canadian street youths where users of soft drugs with higher morality were much more sensitive to evaluation of costs than those with lower morality. Pauwels and colleagues (2011) also found among Dutch adolescents that committed vandalism and assault that those with stronger moral values were more sensitive to perceived sanctions. Additionally, a recent study conducted with a sample of imprisoned felons showed that perceived certainty of sanctions affected those with higher moral values more strongly (Piquero, Bouffard, Piquero, & Craig, 2016). However, at the same time several studies in the literature testing this type of interaction have found that costs/benefits evaluation plays a significant role mostly on individuals that have null or very weak morality (Bachman et al., 1992; Burkett & Ward, 1993; Paternoster & Simpson, 1996; Svensson, 2015; Tittle et al., 2010; Wenzel, 2004; Wikstrom et al., 2011).<sup>238</sup>

Research that tests interactions between instrumental considerations and morality is scarce and reveals no clear pattern (Svensson, 2015). This might be in part due to several important methodological differences existent in research. First, some of these studies do not use variety indexes that involve a diversity of crimes such as in my PhD dissertation and like Svensson (2015). Rather, they focus on specific crimes such as: corporate crime (Paternoster & Simpson, 1996), sexual offences (Bachman et al., 1992), tax evasion (Wenzel, 2004), use of drugs (Burkett & Ward, 1993; Gallupe & Baron, 2010), vandalism and assault (Pauwels et al., 2011),<sup>239</sup> or drink driving (Piquero et al., 2016). Second, some of these studies are based on samples of adults (Bachman et al., 1992; Paternoster & Simpson, 1996; Piquero et al., 2016; Tittle et al., 2010) instead of adolescents as in my study. Moral and decision-making properties might change significantly from adolescence

---

<sup>238</sup> Unfortunately to my knowledge there are no studies in criminology that test the interaction effects of legitimacy and rationality (see Chapter II).

<sup>239</sup> As mentioned before most of Pauwels and colleagues' tests of interaction models with general measures of offending and other specific crimes showed non-significant effects.

to early adulthood (Steinberg & Cauffman, 1996; Walsh, 2011).<sup>240</sup> Third, there is heterogeneity in the way morality is measured across studies. Many studies including my PhD dissertation are based on scales composed of items such as 'how serious/morally wrong is it to commit...'. However, others include different items such as 'doing...is a sin' (Burkett & Ward, 1993), or 'doing...is dishonest/trivial' (Wenzel, 2004). Piquero et al. (2016) use a different measure of moral beliefs taken from social control framework (Longshore, Chang, & Messina, 2005) that combines general items such as 'when parents set down a rule, children should obey' and specific crime-related items such as 'it is ok to sneak into a ballgame or movie without paying'. Some research does not include direct measures of morality and instead measures the perception of crime alternatives or 'propensity' in SAT terminology ('how often you feel tempted to do...') (Wikström et al., 2011). Fourth, there is also strong variability in the measurement of rational evaluation of costs and benefits. Some of these studies include less comprehensive measures that are focused only on formal sanctions (Burkett & Ward, 1993; Gallupe & Baron, 2010; Pauwels et al., 2011; Svensson, 2015; Wenzel, 2004b; Wikström et al., 2011); others incorporate informal sanctions but lack measures of rewards (Bachman et al., 1992; Piquero et al., 2016) or inner costs (Tittle et al., 2010). Finally, many of these studies do not include hypothetical scenarios with vignettes and instead measure individuals' cost/benefit estimations using just direct questions (Burkett & Ward, 1993; Tittle et al., 2010; Svensson, 2015; Wikström et al., 2011).<sup>241</sup>

Beyond all these methodological differences, how can we interpret these interaction results observed in this PhD dissertation? Why are adolescents that

---

<sup>240</sup> An additional aspect to take into consideration is that the range of moral values might be restricted in those studies based on non-conventional samples (e.g. Gallupe & Baron, 2010; Piquero et al., 2016). At the same time, some recent research suggests that studies based on student samples might have lower levels of moral/social preferences and reciprocation behaviours (Falk, Meier, & Zehnder, 2013).

<sup>241</sup> However, unlike my study that is based on researcher-generated scenarios, Piquero and colleagues' study used SGC subject-generated scenarios that allow subjects to generate their own consequences (see Chapter IV).

morally disapprove of crimes more sensitive to an instrumental consideration of costs and benefits?

One first way of understanding these results is to assume that rational considerations and morality are not diametrically opposed dimensions of human motivation as some studies and theoretical frameworks (e.g. *Situational Action Theory* or *Model of Frame Selection*) seem to assume (including this dissertation hypothesis). Maybe it is problematic to assume that we only perceive and think about how costly or beneficial it would be to commit a crime when we have weak moral values. This framework might be more persuasive in some cases. For example, it makes sense to think that most conventional adults do not rape or murder their neighbours not because of a crude calculation of potential costs and benefits, but rather because they just, to use SAT terminology, do not even perceive them as alternatives. Most adults with conventional lives and strong moral values have never ever thought about committing these crimes, let alone been involved in these types of behaviours. However, maybe it is more problematic to assume this framework to understand conventional adolescents' involvement in less serious crimes. Not only might they have occasionally considered many of these behaviours as crime alternatives, but they might also have been involved in some of them (as well as some of their peers and close friends). That is, many types of antisocial behaviours and crimes, even some violent ones, can occasionally be perceived as action alternatives by adolescents with strong moral inhibitions. Therefore, instrumental considerations can be present in youths' motivations not only when morality is absent or very weak but also when morality is strong. Additionally, the social control framework also helps us to understand this direct and complementary interaction between rationality and morality: deterrence is more effective when individuals have strong social bonds and beliefs in conventional moral values, and therefore, are more afraid to damage them or suffer social stigma (Nagin, 1998; Nagin & Paternoster, 1994).

Second, a potential explanation of this complementary relationship between rationality and morality can be found in the way rational choice is measured and operationalised. In recent decades, evaluation of costs and benefits has assumed a more comprehensive definition integrating informal sanctions and psychological costs. However, this more comprehensive concept taps into the emotional dimension of morality. Evaluation of informal and inner costs involve the anticipation of shame of significant others and guilt. However, guilt and shame are also moral emotions and part of the conceptualisation and measurement of morality according to the literature in developmental psychology of aggression (Eisner & Malti, 2015). This emotional dimension is the complement of the cognitive dimension of morality, which has been the centre of criminology studies (e.g. Bachman et al., 1992; Pauwels et al., 2011; Svensson, 2015; Tittle et al., 2010).<sup>242</sup> Perhaps this overlap between a more comprehensive measure of rationality and morality is also partially affecting the interaction between both constructs.

Limited research and particularly methodological differences between studies preclude us from drawing any firm conclusion on the relationships between rational and non-rational mechanisms. However, future research on this complex topic will have to face some challenges regarding the conceptualisation and measurement of both morality and rationality. I would like to make some preliminary comments on these two issues in the two next sections.

## 7. Measuring non-rational motivations in criminology: the case of morality

One problem that came up across the entire thesis relates to the definition and measurement of rational and non-rational motivations. In particular, when it comes to morality, I would like to discuss in this section some interesting

---

<sup>242</sup> Some studies (including this PhD dissertation) include measures of 'severity' or 'intensity' of guilt based on items that ask respondents *how serious/morally wrong/painful would it be to do X*. These types of item resemble a lot the way in which morality is measured in criminological studies.



challenges that I believe will need to be tackled by future criminological research. First I will briefly describe the implicit definition involved in morality measures used in criminology (and in this study) and then I will comment three potential limitations to be overcome: exclusion of emotional dimension; problematic measurement; and construct validity issues.

At present, morality is still not explicitly included in most criminological theories and only in recent years has it been integrated in some empirical studies. The most validated measure of morality used by criminologists like Paternoster, Loeber, Tittle, or Wikström is a composite scale composed of several items where respondents are asked their opinion about wrongfulness of deviant and delinquent behaviours (usually under the form 'how serious/morally wrong is it to commit...').<sup>243</sup> Therefore, morality is at best a measure of '*cognitive understanding*' of *deontological judgments* about doing antisocial and criminal behaviours. Two aspects characterise this measure. First, it focuses on a particular definition of morality centred on its deontological or Kantian dimension (e.g. how wrong are transgressions in themselves) excluding other moral definitions like consequentialism (e.g. what are the good or bad consequences of these transgressions), virtue ethics (e.g. how these transgressions define my moral character/personality) among others. Second, the measure is focused on assessing if the respondent recognises cognitively if a transgression is right or wrong, but leaves aside any emotional components. This way of integrating morality into the explanation of crime has at least three limitations or challenges.

One first potential problem with the operationalisation of morality is that it is not comprehensive. As I have argued in Chapter II, developmental researchers have called for an integrative framework that combines moral cognition and moral

---

<sup>243</sup> These types of item are used in Turiel's 'moral/conventional tasks instrument'. However, this instrument includes not only these questions about how wrong these transgressions are, but also if transgressions are dependent on authority, their generality, and what the underlying justifications of the underlying rules/norms are (Nado, Kelly, & Stich, 2009).

Another form included in criminology studies reviewed some pages ago are indirect measures focusing on individuals' perception of crime (Wikstrom et al., 2011).

emotions (Malti, Gasser, & Gutzwiller-Helfenfinger, 2010; Malti & Latzko, 2010; Monin, Pizarro, & Beer, 2007; Nado, Kelly, & Stich, 2009). Criminology measures focus only on the cognitive understanding of moral rules, but do not measure explicitly the affective dimension of morality, which includes prototypical emotions such as shame, guilt and empathy.<sup>244</sup>

A second problem regards the methodological design of measuring morality based on simple items demanding the respondent's opinion about wrongfulness of transgressions. Even if the focus is on the cognitive understanding of moral judgments, criminological studies could benefit from incorporating hypothetical scenarios with vignettes. Reliability and validity of measurement could be improved through the inclusion of i) more complex moral transgressions, but also of ii) more detailed and realistic description of the transgression and key aspects of the circumstances. This would involve looking back both inside and outside criminology. On the one hand, in criminology there are interesting methodological lessons to incorporate from the measurement of rational choice using hypothetical scenarios (see Chapter IV). On the other hand, hypothetical dilemmas are a validated tool frequently applied to measure moral judgment in developmental psychology: e.g. Kohlberg's Moral Judgment Interview (MJI), Rest's Defining Issues Test (DIT), Gibbs and colleagues' Sociomoral Reflection Measure (SRM), or Lind's Moral Judgment Test (MJT) among others (Colby & Kohlberg, 1987; Gibbs, Basinger, Grime, & Snarey, 2007).<sup>245 246</sup>

---

<sup>244</sup> However, it could be argued that some of these moral emotions are implicitly evoked when respondents are asked questions such as '*how serious would it be to do...*'. Ironically, some of these moral emotions have been included by authors such as Grasmick, Nagin, Paternoster, among others in measures of rational evaluation of cost and benefits (see Chapter II). I will come back to this tricky issue in the next section.

<sup>245</sup> A more specific concern should be if criminologists should measure morality incorporating production measures since research has shown that recognition measures have less reliability to distinguish between offenders and non-offenders, and exhibit weaker associations between moral judgment and deviance (Gavaghan, Arnold, & Gibbs, 1983; Stams et al., 2006; Van Vugt et al., 2011).

<sup>246</sup> An interesting exception in criminology is Wikstrom and colleagues (2012). In this book they present a set of interesting scenarios with permutations in the levels of monitoring and provocation to evaluate if participants would choose crime as a possible alternative action. However, this measurement of morality focuses exclusively on the cognitive validity dimension. Additionally, to my knowledge, this scenarios have not been yet used to analyse interactions of morality with rationality

The use of this hypothetical scenario technique needs not to be limited to a cognitive approach of morality. Researchers following the emotional tradition on morality (Greene, 2011; Haidt, 2001, 2012) have also used this technique to measure moral judgments. According to Pizarro and colleagues, these studies tend to focus less on dilemmas and more on extreme moral transgressions (e.g. pornography, incest, eating a dead pet) that produce stronger emotional reactions in the respondent. These designs ask respondent more about the degree of moral wrongness of the transgression rather than for a moral justification or for choosing a preferable course of action as in typical Kohlberian moral scenarios (Helion & Pizarro, 2015; Monin et al., 2007; Pizarro & Bloom, 2003). However, the use of scenarios in moral studies has also included less extreme transgressions. For example, developmental psychological studies of aggression have developed instruments to measure moral emotions attribution based on vignettes with violent and non-violent transgressions committed by children or adolescents (Arsenio, 2014; Malti, Colasante, Zuffianò, & de Bruine, 2016; Malti & Krettenauer, 2013). Another interesting mirror for criminologists are instruments developed in the psychology of emotions where respondents are presented with day-to-day life situations and common reactions to those situations.<sup>247</sup> Examples of these types of instrument are Tangney and colleagues' *Test of Self Conscious Affect* (TOSCA 3) (Tangney, Dearing, Wagner, & Gramzow, 2000) or Cohen and colleagues' *Guilt and Shame Proneness Scale* (GASP) (Cohen, Wolf, Panter, & Insko, 2011).

Whether we decide to include cognitive, emotional, or both, the use of hypothetical scenarios with vignettes constitutes an interesting methodological improvement over ways in which criminologists have been measuring morality. They provide an attractive alternative to analyse moral phenomena that minimises interferences from practical circumstances and preconceptions of respondents, increases reliability of responses, and incorporates stimuli that can be easily manipulated (Colby & Kohlberg, 1987; Greene, 2013; Hughes & Huby, 2004).

---

<sup>247</sup> For example, 'You break something at work and then hide it'.

However, its ecological validity has also been criticised, particularly when the hypothetical scenarios lack social/cultural context, familiarity, and relevance, and thus, diminishes the emotional attachment and identification of respondents (Abend, 2012; Bartels et al., 2014; Stams et al., 2006). Although these problems affect all social science experiments, the bias might be stronger when moral beliefs are the focus of analysis (Levitt & List, 2007).

A third final point I would like to make with regards more generally to the construct validity of the concept of morality in criminology. According to more bitter critics, there is a '*same old wine in new bottles*' problem with morality. What criminologists have been including recent years in their studies and models, rather than morality, is almost identical to scales of delinquent norms or deviant values/attitudes applied since the 1970s by sub-cultural and social learning researchers (Eisner, personal communication, 2015). If morality plays such a key role in the explanation of crime (or at least for criminologists such as Tittle or Wikström), shouldn't criminological research include a broader and richer conceptualisation? Is it correct for a definition of morality to focus exclusively on crimes or antisocial behaviours? Should it focus on any action that involves harm to others like Gray and colleagues (2012) suggest? Or instead, should morality be defined in more ample terms that allow it to include not only harm to others, but also rights, and welfare, in line with Turiel's measures (1983)? Should the concept be broad enough to include other types of more vague moral wrongs such as breaking a promise, defacing a national flag, or incest (Bloom, 2013)? Should the criminologist follow most of neuropsychological research and define what is morally permissible in deontological or consequentialist terms, or instead should they incorporate in their measures other philosophical frameworks of ethical and moral thought like pragmatism, existentialism, communitarianism, virtue ethics, etc. (Abend, 2011)? Should a broad definition of morality be based in terms of its social functions instead of its contents, like for example, Haidt and colleagues' Moral Foundations Theory (Graham et al., 2013; Haidt, 2012) which involves criteria that go beyond harm or fairness and also includes loyalty, authority and sanctity?

Another example of these ample definitions is Relationship Regulation Theory, where morality's definition is about regulating and sustaining social relationships (Fiske and Rai, 2015). Additionally why does morality have to be only about wrongness and not about rightness? Why not think of a concept that also includes positive and pro-social behaviours that involve altruism, generosity, kindness or compassion (Bloom, 2013)?

I do not have a straight answer about which definition of morality should criminologists use. However, what seems clear to me is that if criminologists are willing to talk about morality and to give it such a prominent role, it will be useful for future research to incorporate definitions and measures from developmental psychology, moral psychology and the science of morality, and start testing its association with criminal and deviant behaviours.

## **8. Rationality in criminology: two challenges**

One of the most difficult and central problems I faced in this PhD dissertation involved the discussion regarding what rationality is and how we can show it is a key component in the explanation of behaviour. The history of rational choice theory in criminology in the last forty years of micro-level studies is of improvement and specification of the strict rationality model into a more realistic model of human behaviour. This process has involved several and complex conceptual and methodological challenges for criminologists. In this section I want to focus on two of the most relevant ones I have faced during these four years. The first challenge is a problem of construct validity and refers to the concept of rational evaluation of costs and benefits and what it really means to be rational. The second challenge refers to internal validity issues. That is, how different methodological designs allow for inferring the existence of a causal relationship between rationality and criminal and deviant behaviour.

### *Construct validity*

Regarding the first challenge, in recent decades rational choice models have increasingly tried to assume an actor that although evaluates costs and benefits, is not necessarily motivated by self-interested and egoistic preferences; actors that include in their estimations a wider set of costs and benefits beyond risks of punishment from criminal justice institutions. Interestingly, there is nothing in Bentham's original model that precludes the inclusion of an ample set of costs and benefits. Nevertheless, initial models of rationality were generally focused on costs, and usually those associated with criminal justice institutions. In the 1980s and 1990s there was a wave of cross-sectional and longitudinal perceptual micro-level studies in criminology which included social disapproval from significant actors like peers or parents, the weakening of interpersonal relationships, or even the loss of future job opportunities. Furthermore, criminological models started to include not only tangible or monetary rewards in a more comprehensive way, but also intangible ones. The increasing sophistication of rational choice models led to the inclusion of the emotional realm in the evaluation and decision-making processes of rational actors. Particularly, how feelings of shame and guilt involved a psychological cost that can have different levels of intensity (i.e., severity) and certainty. These were considered just another type of cost. So, why could rational actors not anticipate and try to avoid them as with other costs? However, including these moral emotions involved implicitly also integrating morality into the rational choice model. This modification of the model raises the question of whether it is correct from a conceptual point of view to integrate what many have considered non-rational dimensions or components of human behaviour that not only block instrumental considerations (Wikström, 2006) but that even jeopardise rational decision-making processes (Elster, 1999; 2009). Following Jeremy Bentham or Gary Becker, criminologists like Harold Grasmick would disagree with the idea that morality and its emotions are non-rational. Rationality has no substantive restrictions and thus there is no problem in the integration of morality (or legitimacy or any other value) into the rational choice framework. It is just one specific type of

preferences that actors would seek to maximise. Thus, given his/her conventional moral values, a rational actor will evaluate before committing a crime how likely it is that they will feel these painful moral emotions, and how intense they will be. Thus, individuals with strong conventional moral values are perfectly rational. They are just avoiding committing crimes because they will suffer strong emotional costs and they will endanger their maximisation of utility.

In this study I followed some literature in criminology and social sciences that argues that this argument is problematic because it does not capture adequately the 'familiar' or 'intuitive' nature of how moral beliefs affect our everyday behaviour (Gerring, 1999). Arguing that morality's role in the explanation of crime can be reduced to a simple calculation of certainty and intensity of moral emotions to be suffered is not just 'descriptively incomplete', but 'descriptively false' (Hedstrom, 2005). Individuals avoid making transgressions not just, or not only, to intentionally obtain positive outcomes, but because transgressions are evaluated as intrinsically wrong. Additionally, I think there is a problem of 'inconsistency' with Grasmick and Bursik's idea that shame and guilt are 'self imposed costs or sanctions' that actors impose on themselves. Either actors are rational and try to maximise expected utility and therefore would not consciously inflict emotional pain on themselves; or given their beliefs in legitimacy of the law and their self-concept of moral beings, actors suffer these moral emotions non-intentionally (that is, they operate behind their individuals' backs), and therefore they are not rational. Both ways are incompatible.<sup>248</sup> Finally, I acknowledge that the project of building an unifying framework for social sciences with rationality as the key principle or building block is very tempting (see for example Becker (1993) or Gintis (2007)). However, stretching the limits of the concept of rationality excessively allows the inclusion of too diverse and heterogeneous (and maybe irrational?) cases or behaviours, which involves the risk of losing analytical precision and the potential of being empirically tested (de Haan & Vos, 2003;

---

<sup>248</sup> This criticism also affects those models of rational choice framework that are not limited by the orthodox '*homo economicus*' and also includes '*homo moralis*', where moral values are followed or pursued because of their intrinsic value and not as instruments for other ends, such as Herbert Gintis' Belief, Preferences and Constraints model (Gintis, 2015; Gintis & Helbing, 2015).

Goldthorpe, 1998; Rosenberg, 2008).<sup>249</sup> No matter what actors do or how they react, no matter how crazy or irrational the observed behaviour might seem, we can always interpret it retrospectively as a rational behaviour since anything can be considered a preference to be maximised. The greater the prioritisation of instrumentalism and parsimony over realism as epistemological criteria, the more rationality is regarded as an assumption, and the less it is regarded as a variable or something to be empirically assessed (Smelser & Swedberg, 2005; Stinchcombe, 1986).

This discussion regarding the limits of the definition of rationality also has measurement implications, particularly the potential problem of the overlapping between rationality and morality. In this PhD dissertation morality was defined and operationalised as a non-rational mechanism. However, the construct of morality used was within the mainstream, focusing only on the dimension of cognitive understanding and excluding the dimension of moral emotions. At the same time, a more comprehensive measurement of rationality was used that included the anticipation of moral emotions. This obviously generates a problem given that it has been argued that morality has an emotional component (which future research should incorporate). Something cannot be considered rational and irrational at the same time. Therefore, one important question for this study and for future research is what the role of moral emotions in the explanation of crime is and how should they be included. One option is to include them exclusively among the rational mechanisms as one of the potential costs and benefits, as this study has done. This option does not solve the limitation of a problematic non-emotional operationalisation of morality. Additionally, measuring these emotional costs risks tapping into the unmeasured emotional background of morality. A second option is to include a more comprehensive measure of morality that involves not only cognitive understanding but also moral emotions. This option of eliminating relevant psychological costs from the individuals' rational evaluations is

---

<sup>249</sup> There are also practical implications: imperfect and loose concepts increase measurement error and affect bias in statistical analysis in unknown ways (Harkness, 2011).



problematic unless we have a good argument for a substantive definition of rationality, which at present I lack. A third option is to develop more sophisticated and specific measures of moral emotions that allow its inclusion both as an *anticipated cost* in *rational* mechanisms constructs, and as *reactive and involuntary force* in *moral norms* mechanism constructs, but avoiding overlapping between both measures. As Piquero and colleagues have recently claimed, one of the key challenges of future research is the development and improvement of deterrence and morality measures (2016:17).

### *Internal validity*

Problems of *internal validity* constitute the *second challenge* that rationality studies face. There is no doubt that important improvements and increased levels of sophistication have been seen in the methodological designs of micro-level rationality studies in the recent decades. Cross-sectional studies with simple items asking about current estimations of costs were methodologically weak and have been progressively replaced by three main alternatives: longitudinal studies, hypothetical scenarios designs, and experiments.

*Longitudinal* studies have the advantage of allowing the empirical evaluation of a key condition for a causal relationship to take place: *temporal antecedence* of the predictors and causal mechanisms in relation to the dependent variable. However, these types of study are not well suited to test another important condition for causal links: *spatial-temporal contiguity* (Elster, 2007). Given the period of time between waves in panel studies (at best, one or two years) this is a very sensitive issue if the main goal is to test more instantaneous or short-term causal mechanisms such as perception/estimation of the costs and benefits of crime and decision-making processes (Grasmick & Bursik Jr., 1990; Eisner & Malti, 2015; Exum & Bouffard, 2010). An alternative methodological design offered by *Hypothetical Scenarios* studies combines the use of hypothetical vignette situations that describe in detail specific crimes with questions regarding perception of costs

and benefits, and respondents' intention of committing the aforementioned crime in the near future. This ingenious solution solves the problem of temporal order and contiguity. However, future intention to commit a crime is not a very reliable and valid proxy of actual crime (Exum & Bouffard, 2010). Thus, some studies (including this PhD dissertation) have opted for combining hypothetical vignette situations and self-reporting of past crimes. However, the increase in reliability of the dependent variable comes with a clear price: weakening the causal condition of temporal antecedence of predictors. Finally, *experiments* provide another interesting alternative that avoids many of these methodological problems by randomly allocating stimulus to observe actual deviated behaviours of subjects in real time in controlled and replicable settings. Nevertheless, artificiality of settings, the non-random nature of samples, and the trivial nature of dependent variables usually tested in these studies pose also serious limitations of ecological validity.

Future research might improve the internal validity of rationality studies in at least two ways. One possibility is developing longitudinal studies that combine hypothetical scenario vignettes and short follow-up periods between waves. This methodological design would allow more accurate testing of the effect of the perceptions of costs and benefits, not on future intentions to commit crime, but rather on actual ones. In addition, more studies are needed to evaluate the effects of social desirability that affects the response reliability of intentions to commit future crime for different types of crimes and for different types of individuals. Perhaps future research can show that in some combinations of type of crime and type of individual, future intention of crime is a more reliable proxy of actual crime. Another promising possibility for rational choice studies in criminology is to follow the lead of behavioural economics, economic psychology and evolutionary psychology and assume the methodological challenge of developing more sophisticated experiments that, within the limits of ethical protocols, include more serious types of deviant behaviours and involve more heterogeneous and non-conventional samples.

## Summary

The goal of this chapter was to discuss the findings of this PhD dissertation.

The first two sections showed how results were consistent with studies that claim that rational decision-making is a relevant explanatory mechanism of crime. Rationality predictors showed a significant effect after including control variables and non-rational predictors across all type of crimes. Thus, findings also support the claim of rational choice framework as a general theory of crime useful for both instrumental and expressive crimes. These results also showed, in contrast with previous studies, that evaluation of costs and benefits had stronger size effects than legitimacy and morality. I then showed two relevant methodological differences between those studies and my study that might explain divergence of results: the inclusion of a less comprehensive definition of rationality; and estimating respondents' costs and benefits through hypothetical questions without vignettes. Next I discussed the implications of an interesting finding: rationality parameters were affected by discrepancies between the type of crimes included in the vignette of the hypothetical scenarios and the type of crimes used in the dependent variable. Not only did these results indicate the need for more research and caution with the use of global measures that combined risks of different crimes; they also shed light on the question of whether rational choice explanations (and more generally criminological ones) should focus on identifying key causal mechanisms associated with specific types of crime instead of developing and testing a general theory of crime.

In the third section I analysed the different domains of rational decision-making and their link with youth crime. I first discussed findings consistent with the literature that shows that adolescents took more into consideration the costs and benefits associated with parent and peers' reactions than those associated with the police. However, unlike previous studies, in the Uruguayan case, police costs played no role whatsoever. I argued that this surprising result might be due to: the

weak capacity of juvenile criminal justice institutions in Uruguay to enforce law; the inclusion of minor transgressions in the dependent variable of my study; and the younger age of the sample of this PhD dissertation in contrast with university samples of most rationality studies. A second finding discussed was that youths' rational estimations were sensitive to costs and benefits associated with peers and paid little attention to those associated with parents. I showed that these results were consistent with the literature and argued that this was not surprising given the age of respondents. However, I also warned that given the cross-sectional nature of my study, an alternative hypothesis to rational choice (selection effect or homophily) could not be ruled out. A third finding discussed was the significant relationship of inner costs with youth crime which was stronger than youths' evaluations of parent reactions but weaker than youths' evaluation of peer reactions. These results were difficult to compare with previous studies which were based on more global and synthetic measures (reaction of significant others). I also argued that the unexpected finding that inner costs were significantly associated with crime and property crime but not with violent behaviour could be less surprising in contexts where violence is more tolerated and naturalised, and where reputation is defended by acting and reacting aggressively. I ended this section discussing the little relevance observed of the formidability scale, mostly due to methodological problems in the measures used in my study.

The fourth section was also focused on analysing different domains of youths' estimations of costs and benefits of crime. I first discussed the finding that rewards, although significantly associated with crime, had a weaker and less robust relationship than costs, particularly for the case of violence. I argued that three measurement problems in my study might explain this inconsistency with previous studies: there are mismatches in the violent crimes included between dependent and independent variables; the exclusion of measures of material rewards; and the hypothetical scenarios used do not allow respondents to generate their own benefits. Then I discussed the lack of significant effects of opportunity costs, arguing that measures used in my study were somewhat problematic.

Finally, I commented on the empirical support observed for the association between youth crime and opportunities for illicit activities. These results are consistent with scarce perceptual studies that have measured this dimension and call for a more sophisticated incorporation of illicit opportunities and criminogenic environments in future rationality studies. Again, the cross-sectional nature of the data allows for an alternative hypothesis: youth offenders finding environments where criminal opportunities are available.

In the fifth section I discussed the role of the other non-rational mechanisms included in this study. Unlike previous research, self-control was found to be the strongest predictor, followed by rational evaluation of costs and benefits, legitimacy and morality. I stressed three methodological differences that might explain this heterogeneity of results: previous research does not include the four mechanisms; there are different types of operationalisation and measurement of rationality across studies; and none of the previous research includes the hypothetical scenario methodology. I ended by discussing how these results called for a more balanced approach that conceived rational and non-rational mechanisms of explanation of crime as complementary rather than alternative.

In the sixth section I discussed how the relationship between rationality and youth crime was moderated by the three non-rational mechanisms. While self control showed very little significant interaction effects, legitimacy and mainly morality exhibited a more relevant moderating role, though only for some sub-dimensions and for some types of crimes. I showed that results of self-control were consistent with part of the literature: individuals with weak self-control are more sensitive to instrumental considerations. Next I commented that results regarding morality were consistent with only a few studies in the literature: individuals with strong moral beliefs are more sensitive to cost/benefit evaluations. Again I made explicit several differences between studies that hamper the comparison, potentially explaining this lack of pattern in the literature: heterogeneity regarding the type of dependent variable; differential age composition of samples; and great

variability in the measurement of morality and rationality. Notwithstanding these differences, I ended the section interpreting the interaction between rationality and morality observed in my study. First, the consideration that rationality and morality are not so strongly opposed as initially assumed, allows accepting that individuals with strong moral values might perceive criminal opportunities. Additionally, individuals with strong moral beliefs and social attachments might have more to lose from getting involved in crimes, and therefore are more sensitive to cost/benefit evaluations. I offered a second potential explanation of these results showing that a more comprehensive measure of the construct rationality might be tapping into emotional aspects of the construct morality.

The following section focused on the discussion of some challenges involved in the definition and measurement morality. I started describing the definition of morality implicit in criminologists' measures: as the cognitive understanding of deontological judgment of transgressions. I then described three limitations. First, actual measures do not incorporate the emotional dimension of morality. Second, measures are based on simple questions about the wrongfulness of deviant behaviours. I suggested the incorporation of hypothetical scenarios with vignettes as a way of improving reliability and validity. Third, I discussed more generally the construct validity of the definition of morality used by criminologists and questioned if future research should not involve richer and more complex conceptualisations.

The chapter ends with two main challenges faced by studies of rationality in criminology. First, I discussed the problem of construct validity. That is, what it means to be rational, how this was defined in this PhD dissertation and what possibilities lie ahead for future research. Particularly, I emphasised the problems of excessively extending the concept of rationality. A concept which is too ample risks losing analytical precision and the potential of being empirically falsifiable. I also described some measurement implications, particularly with regards to the role of moral emotions and how criminologists should incorporate them in future

research. Second, I discussed the problem of internal validity faced by rationality studies. I described the improvement and sophistication of methodological designs in recent decades through the development of longitudinal studies, hypothetical scenarios designs and experiments. I next described both the advantages and disadvantages of these three methodological designs in terms of causal order, spatial-temporal contiguity and reliability. Finally, I suggested some possible improvements to be implemented in future longitudinal studies and experiments.

## VII. Overview, limitations and implications

In the previous chapter I discussed the relevance of results obtained and put them in context with the relevant literature. I also reflected more generally on some challenges regarding the definition and measurement of rational and non-rational motivations. Now, to end this dissertation, I would like to pursue three final goals. First, I will provide a summary of the main findings of the study. Next, I will describe some of the main strengths and limitations. I will end the chapter and the dissertation mentioning some potential research and policy implications for the region of Latin America.

### 1. Overview

The goal of this study was to analyse if rational evaluation of costs and benefits were relevant to understanding adolescents' involvement in crime and deviance in Uruguay. To what extent are youths' rational considerations moderated by non-rational considerations such as their moral beliefs, perception of how legitimate police authority is, or self-control?

Results showed that youths evaluated costs and benefits when they committed crimes and transgressions. Consideration of costs and benefits were relevant not only to explain instrumental and property crimes like stealing a vehicle, but also for expressive and violent ones like intentionally trying to injure someone. Overall, these rational considerations turned out to be more relevant to explain youth crime than moral beliefs and perception of legitimacy, but less than self-control.

What about the relationship between rational and non-rational motivations? Results showed that evaluation of costs and benefits of crime is moderately



conditioned by non-rational motivations, except for self-control. That is, how youths consider costs and benefits before getting involved in crime does not vary considerably between those with strong self-control and those that have low self-control. However, moral beliefs and legitimacy played a more relevant moderating role. That is, youths with strong moral values (or that considered the police as legitimate) were more sensitive to the consideration of costs and benefits of crime than youths with weak moral values (or that considered police as illegitimate).

Evaluation of costs and benefits might be relevant to youths' decision to offend. However, are some specific dimensions of rationality more relevant than others?

Results showed that how adolescents perceive themselves in terms of their fighting abilities or their strength played almost no role in their decision to commit crimes. Additionally, youths did not care much neither about their parents' reactions, nor about having problems with the police. Instead, youths' involvement in crime was particularly sensitive to peer reactions. Adolescents care about how their friends feel about committing crimes, and what their friends' moral beliefs are about crimes and transgressions. Finally, psychological costs such as feelings of guilt also inhibited youths from getting involved in crime.

Importantly, youths were sensitive to both the rewards and costs of crime. How good they would feel if they did a crime and how much admiration they would receive from friends or parents were key benefits considered in their calculus. However, costs turned out to be more important components in their decision: how serious they thought was to commit a crime, how ashamed they would feel, and how serious would be the consequences. One aspect that did not matter in youths' estimations was opportunity costs. That is, youths' involvement in crime was not deterred neither by their school performance and commitment nor by how useful they thought would be school for their future.

Finally, motivations (rational or not rational) turned out to be relevant to explain youth's involvement in crime. What about the role of opportunities for crime? Results showed that youths that spend more time in unsupervised outside home activities such as going to a party, playing outside with friends or meeting with peers at night to do something were more likely to be involved in crime and violence.

## 2. Strengths and Limitations

Throughout this PhD dissertation, I have mentioned some relevant strengths of this study. First, it was conducted on a large representative sample of adolescents. Second, it included a comprehensive measurement of rationality that involved an ample variety of subjective costs and benefits and the use of hypothetical scenarios technique. Third, it also included multiple controls and predictors, and particularly three key non-rational mechanisms were measured: moral beliefs, legitimacy and self-control. Finally, the cross-cultural value of the study was important since it was conducted in an unusual research setting: Uruguay, Latin America.

Notwithstanding, there are a number of limitations that should be considered in the interpretation of results.

First, the m-proso survey data set is based on youths' self-report of their own involvement in antisocial, deviant and delinquent behaviours. Although this is the 'gold standard technique' in criminology and other social sciences, adolescents might report incorrect information or not answer truthfully on these sensitive topics due to memory biases or social desirability. This study minimised these problems by eliminating interviewers, avoiding questions that identify respondents, placing items associated with independent and dependent variables at different points of the interview, and introducing a survey ballot box. However, the response bias might still be present affecting the data and the analysis. Unfortunately, the m-

proso data set does not include multiple informants of adolescents' crimes (e.g. parents, teachers), and also lacks a triangulation with official police data which could help to minimise some of these biases.<sup>250</sup> Despite these limitations, reliability and robustness of results could be improved in future analysis by conducting more sophisticated statistical techniques to analyse the performance of each crime item and of survey respondents (e.g. Item Response Theory analysis).

Second, the population in Uruguay is not used to being surveyed on sensitive personal questions regarding their involvement in violence, deviance and immoral behaviours, at least in comparison with high-income societies where most of the relevant criminological research has been conducted. This potential problem has also been reported by other studies conducted in countries such as Greece, Russia or the Ukraine (Tittle et al., 2011; Tittle & Botchkovar, 2005b). The methodological precautions mentioned in the previous paragraph and some additional checks suggest that the data did not seem biased.<sup>251</sup> Nevertheless, it is important to take into account this issue and acknowledge potential errors that might affect the analysis and conclusions.

Third, the original version of the questionnaire used in this study was in the German language since it was developed by z-proso. Translation of instruments is one of the most complex challenges for cross-cultural research in criminology. Translation from German to Spanish might have affected the conceptual cross-cultural equivalence and affected the adequate measurement of the scales used in this dissertation. Several preventive measures were taken in the m-proso study to tackle this challenge that involved two successive translators, additional language checkings, and two pretests. Notwithstanding these precautions, subtle changes in the meaning of some items might have affected the results of this study.

---

<sup>250</sup> Unfortunately, police data in Uruguay has several problems of reliability (see chapter III) and it was not possible to triangulate it with m-proso data in any valid way. Yet, this type of problem is not unusual in cross-cultural studies like for example the case of Russia in Tittle and colleagues' (2010) study.

<sup>251</sup> The comparison between the m-proso study from Montevideo and the z-proso study from Zurich which involved similar samples and very similar questionnaire did not seem to reveal any serious or unusual problem in the Montevideo data (Trajtenberg & Eisner, 2014).

Fourth, 17% of the adolescents listed in the school records were not present when the survey was conducted. This subgroup of 'excluded' students is relevant because they are more likely to have personality and background problems, and increased risk of showing antisocial and delinquent conducts. Thus, although the study was based in a big representative sample, and although the data showed substantial variance in key variables, this 'selection effect' produces undesired truncation in the variance of independent and dependent variables and might generate models with biased parameter estimates.

Fifth, this dissertation does not cover all possible measures of rationality, morality, legitimacy and self-control in criminology. This study included only one of many possible forms of measurement of rationality. As argued in several passages of this study, the concept and the operationalisation of rational evaluation of costs and benefits is a matter of controversy in criminology. Although there is less variance on the measurement of the non-rational mechanisms included in this study, there is still controversy about how to conceptualise and operationalise them, particularly with regards to morality and legitimacy. Thus, there is no certainty about how robust results obtained in this dissertation are, and how they might change if alternative measures were used.

Sixth, this was a cross-sectional study where all the information regarding independent and dependent variables was collected at one point of time. Thus, one of the necessary conditions for the identification of a causal relationship is not fulfilled: temporal antecedence of the hypothesised cause. The problematic time ordering of variables makes it impossible to draw any firm conclusion about the causal order of the variables: I am not sure that cost/benefit evaluations, moral values, perception of legitimacy, and self-control actually preceded the outcome (youth delinquency and violence) in time. One particularly relevant problem that might be affecting this type of study design is reverse causality. That is, maybe there is a causal relationship between the observed variables but not in the

anticipated direction. This issue is particularly relevant for youth deviant behaviours which show a reciprocal and interactive relationship with motivational and cognitive processes of decision-making (Fontaine, 2012; Thornberry, 1987). For example, while weak moral values may well explain youth deviance and violence, it is also possible to argue that youths that committed crimes rationalise their behaviour and perceive crime as less immoral or less serious. Without a longitudinal design it is not possible to conclude that data confirms the study's anticipated causal relationships.<sup>252</sup> Thus, wherever in this study I interpreted results suggesting a causal relationship, it was merely a test of consistency with causal hypothesis.

Seventh, another problem that might affect the results of this PhD dissertation is the exclusion of relevant variables or cofounders that are strongly associated both with the predictors and outcomes of this study. This omitted variable problem is not minor since it can significantly inflate the estimates of the predictor parameters (Eisner & Malti, 2015; Shadish, Cook, & Campbell, 2002). The omitted variable problem has become a more serious challenge particularly with regards to neuropsychological, genetic and biochemical cofounders which have not been included by most of criminological studies (Beaver, Barnes, & Boutwell, 2015; Cullen, 2011; Eisner & Malti, 2015). Biosocial research has shown in recent decades that antisocial and violent behaviour is associated with genetic factors (Boutwell, Nedelec, Lewis, Barnes, & Beaver, 2015; Caspi et al., 2002) with structural and functional abnormalities in the brain (Raine, 2013; Raine & Yang, 2006) and with psycho-physiological features such as low heart rate (Ortiz & Raine, 2004).<sup>253</sup> Recent research in moral psychology has also been revolutionised

---

<sup>252</sup> However, it is important to remember that longitudinal designs do not solve all problems and particularly that they are not very well suited to identify short-term mechanisms involved in evaluation of costs and benefits of deviance (see Chapter IV). Additionally, I conducted some exploratory analysis using projected intentions of committing two types of crimes (reactive aggressive behaviour and shoplifting) and, all in all, results were not significantly different (results not shown).

<sup>253</sup> Although there is almost no biosocial criminological research in Latin America, some recent studies have shown interesting empirical evidence with regards to the association between low resting heart rate and violence among adolescents (Murray et al., 2016) or with prenatal maternal smoking and crime and conduct problems in young adulthood (Salatino-Oliveira A, Murray J, Kieling C, Genro JP, Polanczyk G, Anselmi L, 2016).

by interdisciplinary research that reveals the importance of biology and particularly the structure and activity of the brain or the hormonal system for the understanding of our moral judgements and moral emotions (Glenn, Raine, & Schug, 2009; Greene, 2013; Moll & de Oliveira-Souza, 2007; Robertson et al., 2007; Siegel & Crockett, 2013).<sup>254</sup> Likewise, the development of neuroeconomic research in the last two decades has brought together economics, psychology and neuroscience, showing the relevance of brain activity and providing a neural foundation to understand rational decision-making processes and its limits (Bossaerts & Murawski, 2015; Loewenstein, Rick, & Cohen, 2008; Sanfey, Loewenstein, McClure, & Cohen, 2006). Despite the fact that Gottfredson and Hirschi (1990) originally claimed that biological predictors had no relevance for the formation of self-control, in a recent review DeLisi (2015) shows empirical evidence for exactly the opposite hypothesis: low self-control is mainly a product of brain disorders. A systematic review also reveals that among the biological predictors of self-control are not only brain disfunctions, but also endocrinological and hormonal factors (e.g. salivary cortisol, enzyme (MAOA), and genetic variation (Baker, 2011)). Therefore, omitted biological variables in this study might be associated with both rational/non-rational predictors and with youth crime, and might affect our model and estimated parameters.

All in all, although several logical and empirical analyses conducted seem to show that the results of this study are not artifactual, given the aforementioned problems I cannot exclude the possibility of some bias. Thus, these findings should be taken with caution and be considered modestly as additional evidence to be taken into account in the understanding of youth crime and violence.

### **3. Research implications for Latin America**

To my knowledge there are no micro-level studies showing that the rational evaluation of costs and benefits is a significant component to explain youth

---

<sup>254</sup> See also footnote 60 in Chapter II.

involvement in crime and violence. Previous macro-level research in Latin America that defended the rationality of crime has shown that several variables associated with certainty of formal sanctions are significantly associated with crime, such as investment in public security, the number of police officers, conviction rates, and incarceration rates (but see Gandelman & Munyo (2016) for significant severity effects). However, several methodological problems aforementioned question the validity of these results. On the contrary, the results of this PhD dissertation showed that youths did not take into consideration problems with police authorities when they are deciding to get involved in crime and violent behaviour. However, youths do evaluate costs and benefits of crime, but mainly referring to peer reactions and to emotional inner costs (e.g. feelings of guilt).

There is very little criminological research in Latin America that included tests with validated measures of non-rational mechanisms from criminological theory. Few existent studies focused only on self-control and showed that in most cases it was associated significantly with youth crime and deviance (but see Chouhy et al., (2014) for non-significant effects). This dissertation confirmed these results and showed that self-control was the strongest predictor of general crime, property crime and violent behaviour. Additionally, this study also provided novel empirical evidence regarding two key non-rational components previously not considered in Latin-American studies: youths' moral values and perception of police legitimacy also mattered in the explanation of their involvement crime and deviance.

The role of moral values and legitimacy is particularly relevant when youths are raised in high-risk contexts not only characterised by epidemic or chronic levels of crime and violence but also by disorder, lawlessness, injustice and extreme exclusion. These types of 'toxic environment' foster a more cynical perception of justice and fairness of the world among youths, eroding moral reasoning and empathy about harming others, increasing attribution of aggressive motivations in others, and reinforcing the legitimacy of strategically using crime and violence to

obtain resources and survive (Ardila-Rey et al., 2009; Arsenio et al., 2009; Arsenio & Gold, 2006). Perceptions of unfairness, distrust and illegitimacy of criminal justice authorities is a salient feature in Latin American societies particularly among youths from excluded and poor neighbourhoods that have suffered abuse and stigmatisation from police and judges (Isla & Miguez, 2011; Zavaleta et al., 2016). Contexts where rule of law is fragile, where co-operation is weak and where authorities are perceived as illegitimate not only generate stronger support for violent vigilantism (Nivette, 2016), but also might weaken the deterrent effects of formal sanctions and stimulate more reactive and angry responses to punishment (Herrmann, Thöni, & Gächter, 2008). Thus, Latin American societies constitute a very singular and interesting scenario to explore more deeply youth crime and the role of instrumental considerations and rationality. We need to understand better how youths' evaluation of costs and benefits operates in these contexts where rule of law, legitimacy, and moral values are weak; where crime and violence constitute a more generalised and normal response; and where sometimes organised criminal networks dispute the power and legitimacy of the territory to fragile state institutions. This issue becomes particularly relevant in areas where low self-control might be a more generalised trait due to weak informal neighbourhood controls and poor parental socialisation processes at the family level (Gottfredson & Hirschi, 1990; Hay & Forrest, 2006; Pratt, Turner, & Piquero, 2004).

Therefore, a topic of future research is to explore more deeply how rational and non-rational considerations interact with exclusion, inequality and poverty. Consistent with some of the literature in this study, several controls showed that there was a null direct relationship between youth crime and violence with poverty, inequality or social class (Agnew et al., 2008; Brush, 2007; see also in Latin America Borraz & Gonzalez, 2010; dos Santos, 2009; Obando & Ruiz, 2007). However, no analysis was conducted to show if exclusion and poverty contexts affect crime and violence but through the mediating effect of instrumental evaluation of costs and benefits, moral values perception of legitimacy, and self-control. This type of research helps to provide empirical evidence for micro-macro



problem in criminology (Matsueda, 2013b; Wikström, 2007; see also Coleman, 1990), and particularly what type of macro conditions operate as ‘causes of causes’ (Wikström, 2006) and help to ‘intensify’ causally at the micro-level the association between rational and non-rational mechanisms and youth crime and violence. How do different scenarios of exclusion and social disorganisation modify the different types of costs and benefits anticipated by youths, and their different processes of interaction with moral values, legitimacy of authorities, and personality traits?

Future research should test if these direct and interaction effects are replicated in crime-prone populations. Further studies should conduct the m-proso questionnaire in samples of youth offenders from youth criminal justice institutions, or from representative samples of poor and excluded neighbourhoods where a great proportion of adolescents and young adults with background problems and high involvement in crime and violent behaviours live. Additionally, since the m-proso survey is based on the z-proso survey and both samples have almost the same age, future comparative cross cultural research could test whether results obtained in Montevideo, Uruguay, are replicated in Zurich, Switzerland. This would be also an interesting opportunity to include as controls additional criminological predictors such as family dynamics, school relationships, criminal peers, belonging to a violent gang and use of legal or illegal drugs, among others, to evaluate if results observed in this study hold. As mentioned before in previous sections, it would also be interesting if future research in Latin America goes beyond cross-sectional studies and develops sophisticated longitudinal and experimental studies that allow testing with more validity the relevance of rational evaluation of costs and benefits in the explanation of crime.

#### **4. Policy implications for Latin America**

When it comes to policy implications, the results of this study cast doubt that strategies focused mainly on increasing the risk of suffering penal sanctions will

constitute an effective solution for the crime and violence problem in the Latin-American context. For this to be a cost-effective prevention strategy, two problematic assumptions must hold. Not only do youth offenders need to be mostly motivated by rational considerations, but also they should be particularly focused on costs associated criminal justice institutions. Both assumptions are challenged by my results. That is not to say that globally an effective criminal justice system is something that governments should dismiss (Eisner, 2015). However, crime-prevention strategies in relation to youth crime and violence in Latin America should also be concerned with other complementary focuses of intervention.

First, although youths take into account an evaluation of costs and benefits, it is peer reactions that adolescents take more into account, while police and parental reactions are dismissed. Therefore, if we want to deter youths from getting involved in crime and violence, more fine-tuned prevention efforts based on peer programmes or peer-to-peer work are needed. Second, the role of morality in the explanation of all types of youth crime indicates that it should be targeted as a goal of crime prevention efforts. This could be achieved through promoting socialisation practices that develop and reinforce moral judgments and moral emotions either through family and parental support programmes or through school-based programmes (for more details, see Trajtenberg & Eisner, 2014). Third, the strong criminogenic role of self-control also calls for more resources invested in early intervention programmes to provide families with early education and effective child care and support to improve attachment, supervision and family discipline of children. Fourth, the relevance of the legitimacy of the police also calls for more prevention programmes that focus not only on increasing police efficacy and clearance of crimes, but also on improving their trust and legitimacy among youth populations, particularly in deprived and excluded neighbourhoods where organised crime networks prevail and youths can be more easily recruited.

## References

- Abend, G. (2011). Thick Concepts and the Moral Brain. *European Journal of Sociology*, 52(1), 143–172.
- Abend, G. (2012). What the Science of Morality Doesn't Say About Morality. *Philosophy of the Social Sciences*, 43(2), 157–200.
- Aboal, D., Campanella, J., & Lanzilotta, B. (2013). *Los Costos del Crimen en Uruguay*. Working Paper, Inter-American Development Bank # IDB-WP-408.
- Aboal, D., Lorenzo, F., & Perera, M. (2007). *Crimen y Violencia en Uruguay*. Informe de investigación del proyecto de investigación financiado por la CSIC, Universidad de la República, Montevideo.
- Addington, L.A. (2006). Using National Incident-Based Reporting System Murder Data to Evaluate Clearance Predictors. A research note. *Homicide Studies*, 10(2), 140–152.
- Aebi, M. (2008). *Temas de Criminología*. Madrid: Dykinson.
- AGEV-OPP. (2014). *Rendición de cuentas y balance presupuestal. Parte I. Contexto y Resultados en Áreas Programáticas*. Montevideo. Retrieved from [http://www.mtss.gub.uy/c/document\\_library/get\\_file?uuid=2d8ed9ab-4481-4919-8b2f-ab367d890ab5&groupId=11515](http://www.mtss.gub.uy/c/document_library/get_file?uuid=2d8ed9ab-4481-4919-8b2f-ab367d890ab5&groupId=11515), accessed 14 October 2016.
- Agnew, R., Matthews, S.K., Bucher, J., Welcher, A.N., & Keyes, C. (2008). Socioeconomic Status, Economic Problems, and Delinquency. *Youth & Society*, 40(2), 159–181.
- Aizer, A., & Doyle, J. (2013). Juvenile Incarceration, Human Capital and Future Crime: Evidence from Randomly-Assigned Judges. *The Quarterly Journal of Economics*, 130(2), 759-803.
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health*, 26(9), 1113–1127.
- Akerlof, G. (1990). Interview to George Akerlof, in R. Swedberg *Economics and Sociology: On Redefining Their Boundaries. Conversations with Economists and Sociologists* (pp. 61–77). Princeton, Princeton University Press.
- Akers, R.L. (1998). *Social Learning and Social Structure: A General Theory of Crime and Deviance*. Boston, MA: Northeastern University Press.
- Akers, R.L. (2010). *The Challenge of Cross-Cultural Testing of Theory in Criminology*. Keynote Address for the Korean Society of Criminology in America, 4th KSCA Annual Meeting, San Francisco, November 18. Retrieved from <http://my.ilstu.edu/~dkwak/KSCA/annualmeeting.html>, accessed 15 October 2016.
- Akers, R.L. (1990). Rational choice, deterrence, and social learning theory in

- criminology: The path not taken. *Journal of Criminal Law and Criminology*, 81(3), 653–676.
- Akers, R.L. (1991). Self-control as a general theory of crime. *Journal of Quantitative Criminology*, 7(2), 201–211.
- Akers, R.L. (1997). *Criminological Theories. Introduction and Evaluation*. 2<sup>ND</sup> Edition. Los Angeles, CA: Roxbury.
- Akers, R.L., & Sellers, C. S. (2012). *Criminological Theories. Introduction, evaluation and application*. 6<sup>th</sup> edition. New York: Oxford University Press.
- Allen, J.P. (2008). The attachment system in adolescence, in J. Cassidy & P. Shaver (eds.) *Handbook of Attachment: Theory, Research, and Clinical Applications* (pp. 419–435). 2<sup>nd</sup> Edition. New York: Guilford Press.
- Allison, P.D. (2012). *Do we really need zero – inflated models*. Statistical Horizons. Retrieved from <http://statisticalhorizons.com/zero-inflated-models>, accessed 13 October 2016
- Allison, P.D. (2005). *Fixed Effects Regression Models for Longitudinal Data Using SAS*, Cary, NC: SAS Institute Inc.
- Aloisio, C., Chouhy, C., Trajtenberg, N., & Vigna, A. (2009). *Jóvenes en conflicto con la ley: una mirada a las instituciones de rehabilitación desde la perspectiva de género*, in *Estudios de la edición 2008 del Fondo Concursable Carlos Filgueira. Infancia, adolescencia y políticas sociales*. Montevideo, Uruguay: INFAMILIA – Ministerio de Desarrollo Social
- Anderson, E. (1999). *Code of the Street: Decency, Violence and the Moral Life of the Inner City*. New York: Norton.
- ANEP. (2010). *Primer Informe Uruguay en Pisa 2009*. Administración Nacional de Educación Pública. Montevideo.
- ANEP-OPP-UnaONU. (2010). *Encuesta nacional de convivencia en los centros educativos*. Documento de difusión. Programa de apoyo al fortalecimiento de Políticas Educativas. Uruguay.
- ANEP-CODICEN (2005). *Estatuto del Estudiante de Educación Media*. Acta N° 47 del CODICEN. Normativa Vigente, 8 de julio de 2005. Retrieved from <http://www.utu.edu.uy/Normativa%20Vigente/ESTATUTO%20DEL%20ESTUDIANTE%20DE%20EDUCACION%20MEDIA.pdf>., accessed 12 October 2016
- ANEP-CODICEN. (2009). *Uruguay en el Segundo Estudio Regional Comparativo y Explicativo (SERCE)*. Informe nacional. ANEP - CODICEN. Montevideo.
- Anfitti, V., Rios, A., & Menese, P. (2013). Desprotección Social en la juventud y delito. ¿De qué manera el riesgo educativo impacta en el comienzo de trayectorias delictivas?, In *Jóvenes, instituciones y delito. Número 3* (pp 77-95) INJU-MIDES. Montevideo.
- Antonaccio, O., & Tittle, C.R. (2008). Morality, self-control, and crime. *Criminology*, 46(2), 479–510.

- Anwar, S., & Loughran, T.A. (2011). Testing a Bayesian learning theory of deterrence among serious juvenile offenders. *Criminology*, 49(3), 667–698.
- Apel, R. (2013). Sanctions, Perceptions, and Crime: Implications for Criminal Deterrence. *Journal of Quantitative Criminology*, 29(1), 67–101.
- Arbesun, R. (2010). Detenciones policiales e intervenciones policiales en adolescentes y jóvenes: serie histórica 1980-2004. *Espacio Abierto, Revista Del CIEJ-AFJU*, 12, 70–80.
- Ardila-Rey, A., Killen, M., & Brenick, A. (2009). Moral reasoning in violent contexts: Displaced and non-displaced colombian children's evaluations of moral transgressions, retaliation, and reconciliation. *Social Development*, 18(1), 181–209.
- Ariely, D. (2010). *Predictably Irrational. The hidden forces that shape our decisions*. New York, Harper Collins Publishers.
- Armas, V., & Blasa, A. (2009). *Analisis de los Aspectos Socio economicos y de Disuasion que Afectan la Tasa de Delincuencia en Venezuela*. Degree Dissertation. Universidad Catolica Andres Bello. Caracas.
- Arroyo, A., De Armas, G., Retamoso, G., & Vernazza, L. (2012). *Observatorio de los derechos de la infancia y la adolescencia en Uruguay*. UNICEF: Montevideo.
- Arsenio, W.F. (2014). Moral Emotions Attribution and Aggression, in M. Killen & J. Smetana (eds.) *Handbook of Moral Development* (pp. 235–257). 2<sup>nd</sup> Edition. New York, NY: Psychology press.
- Arsenio, W.F. (1988). Children's conceptions of the situational affective consequences of sociomoral events. *Child Development*, 59(6), 1611–1622.
- Arsenio, W.F. (2010). Social information processing, emotions, and aggression: Conceptual and methodological contributions of the special section articles. *Journal of Abnormal Child Psychology*, 38(5), 627–632.
- Arsenio, W.F., Adams, E., & Gold, J. (2009). Social Information processing, moral reasoning, and emotion attributions: Relations with adolescents' reactive and proactive aggression. *Child Development*, 80(6), 1739–1755.
- Arsenio, W.F., & Gold, J. (2006). The effects of social injustice and inequality on children's moral judgments and behavior: Towards a theoretical model. *Cognitive Development*, 21(4), 388–400.
- Arsenio, W.F., Gold, J., & Adams, E. (2006). Children's conceptions and displays of moral emotions, in M. Killen & J. Smetana (eds.) *Handbook of Moral Development* (pp. 581–610). New Jersey: Lawrence Erlbaum Associates, Publishers.
- Averdijk, M., Muller-Johnson, K., & Eisner, M. (2012). *Sexual victimization of children and adolescents in Switzerland*. Zurich. Final Report for the UBS Optimus Foundation). Retrieved from [http://www.optimusstudy.org/fileadmin/user\\_upload/documents/](http://www.optimusstudy.org/fileadmin/user_upload/documents/)

[Full\\_Report\\_Schweiz/Optimus\\_Study\\_Final\\_Report\\_2012\\_e.pdf](#), accessed 16 October 2016

- Bachman, R., Paternoster, R., & Ward, S. (1992). The rationality of sexual offending: Testing a deterrence/rational choice conception of sexual assault. *Law and Society Review*, 26, 343–372.
- Baker, T., & Piquero, A.R. (2010). Assessing the perceived benefits-criminal offending relationship. *Journal of Criminal Justice*, 38(5), 981–987.
- Balbo, M., & Posadas, J. (1998). *Una Primera Aproximación al Crimen en la Argentina*. Anales de la XXXII Reunión Anual de la Asociación Argentina de Economía Política. Argentina
- Bandura, A., Barbaranelli, C., Caprara, G.V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology*, 71(2), 364–374.
- Bänziger, M. & Killias, M. (2014) Unsolved Homicides in Switzerland: Patterns and Explanations. *European Journal of Criminology*, 11(5), 619-634.
- Barcelo, L. (2005). *¿De qué hablamos cuando hablamos de escuela?: representaciones sociales y prácticas educativas en un contexto de exclusión. Estudio de caso*. Universidad Udelar. Montevideo
- Baridon, D. (2010). *Estudio de la violencia escolar en los centros de educación media de Juan Lacaze*. Universidad de Alcalá. Alcalá de Henares.
- Baron, R.M. & Kenny, D.A. (1986) The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Bartels, D.M., Bauman, C.W., Cushman, F.A., Pizarro, D.A., McGraw, A.P., & Peter, A. (2014). Moral Judgment and Decision Making, in G. Keren & G. Wu (eds.) *The Wiley Blackwell Reader of Judgment and Decision Making* (pp. 1–52). Chichester, UK: Wiley.
- Basombrio, C., & Dammert, L. (2013). *Seguridad y Populismo Punitivo en America Latina: Lecciones Corroboradas, Constataciones Novedosas y Temas Emergentes*. Woodrow Wilson Center. Washington D.C. Retrieved at <https://www.wilsoncenter.org/sites/default/files/Seguridad%20y%20Populismo%20Punitivo%20en%20America%20Latina.pdf>, accessed 17 october 2016.
- Beaver, K.M., Barnes, J.C., & Boutwell, B.B. (2015). Why We Need a Nature/Nurture in Criminology, in K.M. Beaver, J.C. Barnes & B.B. Boutwell (ed) *The Nurture vs. Nature Debate in Criminology. On the Origins of Criminal Behavior and Criminality* (pp. 1–8). SAGE Publications. London.
- Bechara, A., & Damasio, A.R. (2005). The somatic marker hypothesis: A neural theory of economic decision. *Games and Economic Behavior*, 52(2), 336-372.
- Becker, G.S. (1990). Interview with Gary Becker, in R. Swedberg *Economics and Sociology: On Redefining Their Boundaries. Conversations with Economists*

- and Sociologists* (pp. 27–46). Princeton, Princeton University Press
- Becker, G.S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy*, 76, 169-217
- Becker, G.S. (1993). Nobel Lecture: The Economic Way of Looking at Behavior. *Journal of Political Economy*, 101, 385-409.
- Becker, R., & Mehlkop, G. (2006). An empirical utilization of Rational Choice Theory with cross-sectional data of the 1990 and 2000 German general population surveys. *Rationality and Society*, 18(2), 193–235.
- Benz, M., & Meier, S. (2008). Do people behave in experiments as in the field?- Evidence from donations. *Experimental Economics*, 11(3), 268–281.
- Berkman, H. (2007). *Social Exclusion and Violence in Latin America and the Caribbean*. New York: Inter-American Development Bank.
- Black, D. (1983). Crime as Social Control. *American Sociological Review*, 48, 34-45.
- Blair, R.J.R., White, S.F., Meffert, H., & Hwang, S. (2013). Emotional learning and the development of differential moralities: implications from research on psychopathy. *Annals of the New York Academy of Sciences*, 1299, 36–41.
- Blaug, M. (1992). *The Methodology of Economics, or How Economists Explain*. 2<sup>nd</sup> Edition. Cambridge: Cambridge University Press.
- Block, M., & Gerety, V. (1995). Some experimental evidence on differences between student and prisoner reactions to monetary penalties and risk. *Journal of Legal Studies*, 24, 123–138.
- Bloom, P. (2013). *Just Babies. The Origins of Good and Evil*. New York: Crown.
- Bloom, P. (2014a). Interview to Paul Bloom, in *Very Bad Wizards Blog*, Episode 42. Retrieved from <https://verybadwizards.fireside.fm/42>, accessed 20 October 2016.
- Bloom, P. (2014b). The War on Reason. *The Atlantic Monthly*, March.
- Blumstein, A., Cohen, J., & Nagin, D. (eds.) (1978). *Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates*. National Research Council, National Academy of Sciences. Washington, DC: National Academy Press.
- Bodenhorn, H., Moehling, C., & Price, G.N. (2012). Short Criminals: Stature and Crime in Early America. *Journal of Law and Economics*, 55(2), 393–419.
- Bodenhorn, H., & Price, G. (2009). *Crime and Body Weight in the Nineteenth Century: Was there a Relationship between Brawn, Employment Opportunities and Crime?* NBER Working Paper 15099, June, National Bureau of Economic Research, Cambridge, MA.
- Borges, D., Miranda, D., Duarte, T., Novaes, F., Ettel, K., Guimarães, T., & Ferreira, T. (2012). Mortes violentas no Brasil: uma análise do fluxo de informações, in I. Figueiredo; C. Neme; C. Lima. (eds.) *Pensando a*

*Segurança Pública - Homicídios no Brasil: Registro e Fluxo de Informações* (pp. 329–409). 1<sup>st</sup> Edition, Brasília.

- Borraz, F., & Gonzalez, N. (2010). Determinantes Económicos y Sociodemográficos de la Delincuencia en Uruguay. *Bienestar y Política Social*, 6(2), 47–77.
- Bossaerts, P. & Murawski, C. (2015). From behavioural economics to neuroeconomics to decision neuroscience: The ascent of biology in research on human decision making. *Current Opinion in Behavioral Sciences*, 5, 37-42.
- Botchkovar, E., Marshall, I. H., Rocque, M., & Posick, C. (2015). The Importance of Parenting in the Development of Self-Control in Boys and Girls: Results from a Multinational Study of Youth. *Journal of Criminal Justice*, 43, 133–141.
- Bottoms, A., & Tankebe, J. (2012). Criminology: Beyond procedural justice: A dialogic approach to legitimacy in criminal justice. *Journal of Criminal Law & Criminology*, 102(1), 119–170.
- Boudon, R. (1998). Social Mechanisms without black boxes, in R. Swedberg & P. Hedstrom (eds.) *Social Mechanisms: An analytical approach to social theory* (pp. 172-203). Cambridge: Cambridge University Press.
- Bouffard, J.A. (2002). Methodological and theoretical implications of using subject generated consequences in tests of rational choice theory. *Justice Quarterly*, 19, 747–771.
- Bouffard, J.A. (2007). Predicting differences in the perceived relevance of crime's costs and benefits in a test of rational choice theory. *International Journal of Offender Therapy and Comparative Criminology*, 51(4), 461–485.
- Bouffard, J.A., Exum, M.L., & Collins, P.A. (2010). Methodological artifacts in tests of rational choice theory. *Journal of Criminal Justice*, 38(4), 400–409.
- Bouffard, J.A., Bry, J., Smith, S., & Bry, R. (2008). Beyond the “science of sophomores”: does the rational choice explanation of crime generalize from university students to an actual offender sample? *International Journal of Offender Therapy and Comparative Criminology*, 52(6), 698–721.
- Bouffard, J., Exum, M.L., & Paternoster, R. (2000). Wither the Beast? Role of emotions in Rational Choice Theory of Crime, in S. Simpson (ed.) *Of crime and criminality*. Thousands Oaks, CA: Pine Forge Press.
- Bouffard, L.A., & Bouffard, J.A. (2011). Understanding men's perceptions of risks and rewards in a date rape scenario. *International Journal of Offender Therapy and Comparative Criminology*, 55(4), 626–645.
- Bouffard, L.A., & Piquero, N.L. (2010). Defiance Theory and Life Course Explanations of Persistent Offending. *Crime & Delinquency*, 56, 227-252.
- Bourdieu, P. (2005). *The Social Structures of the Economy*. Cambridge: Polity Press.
- Boutwell, B., Nedelec, J.L., Lewis, R.H., Barnes, J.C., & Beaver, K.M. (2015). A Behavioral Genetic Test of the Evolutionary Taxonomy. *Evolutionary*



*Psychological Science*, 3, 1–10.

- Braithwaite, J. (1989). *Crime, Shame and Reintegration*. New York. Cambridge University Press.
- Brezina, T. (2004). The Code of the Street: A Quantitative Assessment of Elijah Anderson's Subculture of Violence Thesis and Its Contribution to Youth Violence Research. *Youth Violence and Juvenile Justice*, 2(4), 303–328.
- Briceño-León, R., Villaveces, A., & Concha-Eastman, A. (2008). Understanding the uneven distribution of the incidence of homicide in Latin America. *International Journal of Epidemiology*, 37, 751–757.
- Briceno-Leon, R., & Zubillaga, V. (2002). Violence and Globalization in Latin America. *Current Sociology*, 50(1), 19-37.
- Brush, J. (2007). Does income inequality lead to more crime? A comparison of cross-sectional and time-series analyses of United States counties. *Economics Letters*, 96(2), 264–268.
- Buker, H. (2011). Formation of self-control: Gottfredson and Hirschi's general theory of crime and beyond. *Aggression and Violent Behavior*, 16, 265-276.
- Bukstein, D., & Montossi, F. (2009). *Un estudio sobre la criminalidad en Montevideo: los efectos de la ley de humanización de cárceles*. Documento de Investigación No. 53, Universidad ORT Uruguay. Montevideo.
- Burkett, S.R., & Ward, D.A. (1993). A note on perceptual deterrence, religiously based moral condemnation, and social control. *Criminology*, 31(1), 119–134.
- Bushman, B.J., & Anderson, C.A. (2001). Is it Time to Pull the Plug on the Hostile Versus Instrumental Aggression Dichotomy? *Psychological Review*, 108(1), 273–279.
- Bushway, S., & Apel, R. (2010). Instrumental Variables in Criminology and Criminal Justice, in A. Piquero & D. Weisburd (eds.) *Handbook of quantitative criminology* (pp. 595–612). New York: Springer.
- Bushway, S., & Reuter, P. (2008). Economists' Contribution to the Study of Crime and the Criminal Justice System, in M. Tonry (ed.) *Crime and Justice: A Review of Research*, 37(1), 389–452.
- Cabrera, A.E. (2015). *Factores socioeconomicos y demograficos que afectan la tasa de homicidios. Un estudio para los departamentos de Colombia*. Dissertation, Universidad del Valle, Facultad de Ciencias Economicas, Santiago de Cali.
- Cajigas, N., Luzardo, M., Mungay, M., & Kahan, E. (2013). *Una mirada psicológica de la violencia en los centros educativos: prevalencia de afectos, actitudes y conductas negativas de adolescentes del secundario público de Montevideo, Uruguay* (Editorial). Montevideo.
- Cajigas de Segredo, N., Kahan, E., Luzardo, M., Najson, S., Ugo, C., & Zamalvide, G. (2006). Agresión entre pares (bullying) en un centro educativo de Montevideo: Estudio de las frecuencias de los estudiantes de mayor riesgo.

*Revista Médica del Uruguay*, 22, 143–151.

- Calvete, E., & Orue, I. (2012). The role of emotion regulation in the predictive association between social information processing and aggressive behavior in adolescents. *International Journal of Behavioral Development*, 36(5), 338–347.
- Camara, M., & Salama, P. (2004). Homicidios en America del Sur: los pobres son peligrosos? *Revista de Economia Institucional*, 6(10), 159–181.
- Camerer, C., & Thaler, R.H. (1995). Ultimatums, Dictators, and Manners. *Journal of Economic Perspectives*, 9(2), 209–219.
- Campanella, J. (2008). Una aproximación económica a los determinantes del delito en Montevideo en el período 1986-2005, in R. Paternain, & R. Sanseviero, (eds.) *Violencia, Inseguridad y Miedos en Uruguay. ¿Qué tienen para decir las Ciencias Sociales?* (pp. 35-54). Montevideo: Friederich Ebert Stiftung.
- Cano, A. (2014). Pobres peligrosos. Análisis del proceso de criminalización de la pobreza y la juventud en Uruguay y de los desafíos que representa para la psicología comunitaria. *Athenea Digital*, 14(1), 91–109.
- Cano, I. (2000). Registros Criminais da Polícia no Rio de Janeiro: problemas de confiabilidade e validade, in D. Cerqueira, J. Lemgruber & L. Musumeci (eds.) *Forum de Debates Criminalidade, violência e segurança pública: uma discussão sobre as bases de dados e questões metodológicas*. Rio de Janeiro: Ipea/CESEC-UCAM.
- Cappelen, A.W., Nygaard, K., Sorensen, E., & Tungodden, B. (2015). Social Preferences in the Lab: A Comparison of Students and a Representative Population. *Scandinavian Journal of Economics*, 117(4), 1306–1326.
- Carmichael, S., & Piquero, A. R. (2004). Sanctions, perceived anger, and criminal offending. *Journal of Quantitative Criminology*, 20(4), 371–393.
- Carr, P.J., Napolitano, L., & Keating, J. (2007). We never call the cops and here is why: A qualitative examination of legal cynicism in three Philadelphia neighborhoods. *Criminology*, 45(2), 445–480.
- Caspi, A., McClay, J., Moffitt, T.E., Mill, J., Martin, J., Craig, I.W., Taylor, A. & Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, 297(5582), 851–4.
- Castillo, F. (2013). Una aproximación etnográfica a las representaciones de la legalidad y la ilegalidad en el asentamiento Chacarita. *Revista Mirada Joven*, 3, 27-43.
- Cerqueira, D. (2014). *Causas e consequências do crime no Brasil*. PhD dissertation. Pontifícia Universidade Católica do Rio de Janeiro (PUC).
- Cerqueira, D., & Lobão, W. (2004). Criminalidade, ambiente socioeconômico e polícia: desafios para os governos. *RAP*, 38(3), 371–399.
- Cerro, A.M., & Meloni, O. (2000). Determinants of the crime rate in Argentina

- during the '90s. *Estudios de Economía*, 27(2), 297–311.
- Cerro, A.M., & Rodriguez, A.R. (2014a). Efectos del delito en el mercado Laboral, in A.M. Cerro & O. Meloni (eds.) *Investigaciones sobre Economía de la Delincuencia en Argentina* (pp. 164–181). Editorial Dunken, Buenos Aires.
- Cerro, A.M., & Rodriguez, A.R. (2014b). Características del delito en las provincias argentinas. in A.M. Cerro & O. Meloni (eds.) *Investigaciones sobre Economía de la Delincuencia en Argentina* (pp. 11–38). Editorial Dunken, Buenos Aires.
- Chambliss, W.J. (1967). Types of Deviance and the Effectiveness of Legal Sanctions. *Wisconsin Law Review*, 1967, 703–719.
- Chambouleyron, A., & Willington, M. (1998). Crimen y Castigo en la Argentina: un enfoque empírico, in *Anales de la XXXII Reunión Anual de la Asociación Argentina de Economía Política*.
- Cheng, C., & Hoeckstra, M. (2012). *Does Strengthening Self-Defense Law Deter Crime or Escalate Violence? Evidence from Castle Doctrine*. National Bureau of Economic Research, Working Paper No. 18134.
- Cheung, N.W.T., & Cheung, Y.W. (2008). Self-control, social factors, and delinquency: A test of the general theory of crime among adolescents in Hong Kong. *Journal of Youth and Adolescence*, 37(4), 412–430.
- Cheung, N.W.T., & Cheung, Y.W. (2010). Strain, Self-Control, and Gender Differences in Delinquency Among Chinese Adolescents: Extending General Strain Theory. *Sociological Perspectives*, 53(3), 321-345.
- Chouhy, C., Cullen, F.T., & Unnever, J.D. (2016). Mean streets revisited: Assessing the generality of rival criminological theories. *Victims & Offenders*, (11)2, 1–26.
- Chouhy, C., Trajtenberg, N., & Vigna, A. (2010). *Algunos mitos sobre los jóvenes en conflicto con la ley: ¿precoces, violentos, armados, drogados y reincidentes?* Derechos Humanos en Uruguay. Informe 2009. Montevideo, Uruguay: Servicio de Paz y Justicia.
- Clarke, R., & Cornish, D.B. (eds.) (1986). *The reasoning criminal*. Rational Choice perspectives of offending. New York: Springer.
- Clarke, R.V.G., & Felson, M. (2004). *Routine activity and rational choice*. *Advances in criminological theory Vol 5* (pp. 1-16). New Brunswick, NJ: Transaction Publishers.
- Clarke, R.V. (1983). Situational Crime Prevention: Its Theoretical Basis and Practical Scope, in M. Tonry & N. Morris (eds.) *Crime and Justice: An Annual Review of Research Vol 4* (pp. 225-256). Chicago: Chicago University Press.
- Clarke, R.V. (1995). Situational Crime Prevention, in M. Tonry & D.P. Farrington (eds.). *Building a safer society: Strategic approaches to crime prevention*. *Crime and Justice: A review of research* (pp. 91-150). Chicago: University of Chicago Press.

- Coase, R. (1994). *Essays on Economics and Economists*. Chicago: The University of Chicago Press.
- Cochran, J.K., Aleksa, V., & Sanders, B.A. (2008). Are Persons Low in Self-Control Rational and Deterrable? *Deviant Behavior*, 29(5), 461-483.
- Cochran, J.C., Chamlin, M.B., Wood, P.B., & Sellers, C.S. (1999). Shame, Embarrassment, and Formal Sanction Threats: Extending the Deterrence/Rational Choice Model to Academic Dishonesty. *Sociological Inquiry*, 69(1), 91–105.
- Cohen, J. (1983). The Cost of Dichotomization. *Applied Psychological Measurement*, 7(3), 249–253.
- Cohen, J., & Silva Balerio, D. (2003). *Investigación sobre las infracciones juveniles y las sanciones judiciales aplicadas a adolescentes en Montevideo*. Montevideo: UNICEF - DNI.
- Cohen, L.E., & Felson, M. (1979). Social Change and Crime Rate Trends: A Routine Activity Approach. *American Sociological Review*, 33, 588-608.
- Cohen, T.R., Wolf, S.T., Panter, A.T., & Insko, C.A. (2011). Introducing the GASP scale: A new measure of guilt and shame proneness. *Journal of Personality and Social Psychology*, 100(5), 947–966.
- Colby, A., & Kohlberg, L. (1987). *The measurement of moral judgment: Volume 1*. New York: Cambridge University Press.
- Coleman, J.S. (1990). *Foundations of Social Theory*. Cambridge, MA: Belknap.
- Copes, H., Hochstetler, A., & Forsyth, C.J. (2013). Peaceful Warriors: Codes For Violence Among Adult Male Bar Fighters. *Criminology*, 51(3), 761–794.
- Corbacho, A., Philipp, J., & Ruiz-Vega, M. (2014). Crime and Erosion of Trust: Evidence for Latin America. *World Development*, 70, 400–415.
- Corman, H., & Mocan, N. (2013). *Alcohol Consumption, Deterrence and Crime in New York City*. Working Paper No 18731, National Bureau of Economic Research, Cambridge, MA.
- Costa, F.J.M., de Faria, J.S., & Iachan, F. (2015). *Homicides and the Age of Criminal Responsibility in Brazil: A Regression Discontinuity Approach*. Getulio Vargas Foundation, FVG/EPGE - Escola Brasileira de Economia e Finanças, Rio de Janeiro, Brazil.
- Couttolene, B., Cano, I., Carneiro, L. P., & Phebo, L. (2000). Violencia y policía en Rio de Janeiro, in J.L. Londoño, A. Gaviria & R. Guerrero (eds.) *Asalto al desarrollo: Violencia en América Latina* (pp. 59–102). Banco Interamericano de Desarrollo, Washington D.C.
- Crick, N.R., & Dodge, K. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115, 74-101.
- Crick, N.R., & Dodge, K. (1996). Social Information-Processing Mechanisms in

- Reactive and Proactive Aggression. *Child Development*, 67(3), 993–1002.
- Crockett, M.J., Clark, L., Hauser, M.D., & Robbins, T.W. (2010). Serotonin selectively influences moral judgment and behavior through effects on harm aversion. *Proceedings of the National Academy of Sciences of the United States of America*, 107(40), 17433–8.
- Cullen, F.T. (2011). Beyond Adolescence-Limited Criminology: Choosing Our Future - The American Society of Criminology 2010 Sutherland Address. *Criminology*, 49(2), 287–330.
- D'Arcy, J., & Herath, T. (2011). A review and analysis of deterrence theory in the IS security literature: making sense of the disparate findings. *European Journal of Information Systems*. 20(6), 643-658.
- Damasio, A. (1996). *Descartes' Error: Emotion, Reason, and the Human Brain* New York: Grosset/Putnam.
- Dammert, L., & Bailey, J. (2005). Reforma policial y participación military en el combate a la delincuencia: Análisis y desafíos para América Latina. *Revista Fuerzas Armadas Y Sociedad*, 19(1), 133–52.
- Dammert, L., & Salazar, F. (2009). *¿Duros con el delito?: populismo e inseguridad en América Latina*. Santiago de Chile: Flacso.
- Dammert, L., Salazar, F., Montt, C., & Gonzalez, P. (2010). *Crimen e Inseguridad: indicadores para las Americas*. Santiago de Chile: Flacso
- Danziger, S., Levay, J., & Avnaim-Pesso, L. (2011). Extraneous factors in judicial decisions. *Proceedings of the National Academy of Sciences of the United States of America*, 108(17), 6889–6892.
- Davidson, D. (1963). Actions, Reasons, and Causes. *The Journal of Philosophy*, 60(23), 685–700.
- De Haan, W., & Vos, J. (2003). A crying shame: The over – rationalized conception of man in the rational choice perspective. *Theoretical Criminology*, 7(1), 29 – 54.
- de la Fuente, H., Mejías, C., & Castro, P. (2011). Análisis econométrico de los determinantes de la criminalidad en Chile. *Política Criminal*, 6(11), 192-208.
- De Martino, M., & Gabin, B. (1998). *Hacia un Enfoque Integral de la Minoridad Infractora*. Carlos Alvarez editor, Montevideo, Uruguay.
- de Mello, J.M. & Schneider, A. (2010). Assessing São Paulo´s Large Drop in Homicides: The Role of Demography and Policy Interventions, in R. Di Tella, S. Edwards & E. Schargrotsky (eds.) *The Economics of Crime: Lessons for and from Latin America* (207-238). Chicago: University of Chicago Press.
- de Waal, F. (2009). Do apes have a theory of mind, in S. Macedo & J. Ober (eds.) *Primates and Philosophers'* (pp. 69–74). Princeton, NJ: Princeton University Press.
- Del Felice, C. (2008). Youth Criminality and Urban Social Conflict in the City of

- Rosario, Argentina. *International Journal of Conflict and Violence*, 2(1), 72 – 97.
- DeLisi, M. (2015). Low Self-Control Is a Brain-Based Disorder, in K.M. Beaver, J.C. Barnes & B.B. Boutwell (ed) *The Nurture vs. Nature Debate in Criminology. On the Origins of Criminal Behavior and Criminality* (172–183). SAGE Publications. London.
- Delisi, M., Hochstetler, A., & Murphy, D.S. (2003). Self-control behind bars: A validation study of the Grasmick et al. scale. *Justice Quarterly*, 20, 241-263.
- Desmond, S.A., Bruce, A.S., & Stacer, M.J. (2012). Self-Control, Opportunity, and Substance Use. *Deviant Behavior*, 33, 425–447
- Deus Viana, A., & Gonzalez Perret, D. (coord. . (2004). *Juicios y Silencios. Los Derechos Humanos de los Niños y Adolescentes en el Proceso de Infracción a la Ley Penal en Uruguay*. Fundación Konrad Adenauer. Montevideo. Ed. Mastergraf.
- Dezhbakhsh, H., Rubin, P.H., & Shepherd, J.M. (2003). Does Capital Punishment Have a Deterrent Effect? New Evidence from Postmoratorium Panel Data. *American Law and Economics Association*, 5(2), 344–376.
- Dezhbakhsh, H., & Shepherd, J.M. (2006). The deterrent effect of capital punishment: Evidence from a “judicial experiment.” *Economic Inquiry*, 44(3), 512–535.
- Dhami, M.K., & Mandel, D.R. (2012). Crime as risk taking. *Psychology, Crime & Law*, 18(4), 389–403.
- Di Tella, E.S., & Schargrodsy, E. (2010). Introduction, in E. Di Tella, & E. Schargrodsy, (eds.) *The Economics of Crime: Lessons for and from Latin America* (pp. 1–15). Chicago: National Bureau of Economic Research and the University of Chicago Press.
- Di Tella, R., & Schargrodsy, E. (2004). Do police reduce crime? Estimates using the allocation of police forces after a terrorist attack. *American Economic Review*, 94(1), 115–133.
- Dirix, A., Gelders, D., & den Bulck, J. Van. (2013). Adolescent Perceptions of the Performance and Fairness of the Police: Examining the Impact of Television Exposure. *Mass Communication and Society*, 16(1), 109–132.
- Dodge, K. (1991). The structure and function of reactive and proactive aggression, in D.J. Pepler & K.H. Rubin (Eds.), *The Development and Treatment of Childhood Aggression* (pp. 201–232). Hillsdale, NJ: Lawrence Erlbaum.
- Dodge, K., & Crick, N. R. (1990). Social Information-Processing Bases of Aggressive Behavior in Children. *Personality and Social Psychology Bulletin*, 16(1), 8–22.
- Dodge, K., Price, J. M., Bachorowski, J. a, & Newman, J. P. (1990). Hostile attributional biases in severely aggressive adolescents. *Journal of Abnormal Psychology*, 99(4), 385–392.

- Dodge, K., Lochman, J., Harnish, J., Bates, J., & Pettit, G. (1997). Reactive and Proactive Aggression in School Children and Psychiatrically Impaired Chronically Assaultive Youth. *J Abnorm Psychol*, 106(1), 37–51.
- Dominguez, P., & Silva Balerio, D. (2014). *Autonomía anticipada. Tramas y trampas de los adolescentes institucionalizados por protección*. Unicef y La Barca, Montevideo.
- Santos, M.J. (2009). Dinâmica temporal da criminalidade: Mais evidências sobre o “efeito inércia” nas taxas de crimes letais nos estados brasileiros. *Economia*, 10, 169-194
- Santos, M., & Kassouf, A.L. (2008). Estudos Econômicos das Causas da Criminalidade no Brasil : Evidências e Controvérsias. *Revista Economia*, 9, 343–372.
- Ehrlich, I. (1975). The Deterrent Effect of Capital Punishment: A Question of Life and Death. *Am. Econ. Rev.*, 65, 397–417.
- Ehrlich, I. (1977). Capital Punishment and Deterrence: Some Further Thoughts and Additional Evidence. *Journal of Political Economy*, 85(4), 744-788.
- Eide, E. (2000). Economics of criminal behaviour, in B. Bouckaert & G. de Geest (eds.) *Encyclopedia of Law & Economics Vol. 5* (pp. 345–389). Ghent: Edward Elgar.
- Eide, E., Rubin, P.H. & Shepherd, J.M. (2006). Economics of Crime. *Foundations and Trends in Microeconomics*, 2(2). Now Publishers, Boston, M.A.
- Eisner, M. (2009). The Uses of Violence: An Examination of Some Cross-Cutting Issues. *International Journal of Conflict and Violence*, 3(1), 40–59.
- Eisner, M. (2014). Reducing Homicide by 50% in 30 years. Universal Mechanisms and Evidence – Based Public Policy. Paper presented in the *WHO and University of Cambridge Global Violence Reduction Conference 2014*. Cambridge.
- Eisner, M. (2015). *Como reducir los homicidios en un 50% en los proximos 30 años*. Instituto Igarapé. Retrieved from <https://igarape.org.br/en/como-reducir-los-homicidios-en-un-50-en-los-proximos-30-anos/>, accessed 21 October 2016
- Eisner, M., & Malti, T. (2015). Aggressive and Violent Behavior, in M.E. Lamb & R.M. Lerner (eds.) *Handbook of Child Psychology and Developmental Science, Vol. 3: Social, emotional and personality development* (pp. 794–884). New York: Wiley.
- Eisner, M., & Nivette, A. (2012). How to reduce the global homicide rate to 2 per 100,000 by 2060, in B. Welsh & R. Loeber (eds.) *The Future of Criminology* (pp. 219–228). New York: Oxford University Press.
- Eisner, M., & Nivette, A. (2013). Does Low Legitimacy Cause Crime? A Review of the Evidence, in A. Bottoms, A. Libeling & J. Tankebe (eds.) *Legitimacy and Criminal Justice: An International Exploration* (pp 308-325). Oxford: Oxford University Press.

- Eisner, M., & Parmar, A. (2007). Doing criminological research in ethnically and culturally diverse contexts, in R.D. King & E. Wincup (eds.) *Doing Research on Crime and Justice* (pp. 171–199). Oxford: Oxford University Press.
- Eisner, M., & Ribeaud, D. (2007). Conducting a Criminological Survey in a Culturally Diverse Context: Lessons from the Zurich Project on the Social Development of Children. *European Journal of Criminology*, 4, 271-298.
- Ekelund, R.B., Jackson, J.D., Ressler, R.W., & Tollison, R. D. (2006). Marginal deterrence and multiple murders. *Southern Economic Journal*, 72, 521–541.
- Ellis, P.D. (2010). *The essential guide to effect sizes*. Statistical power, meta-analysis, and the interpretation of research results. Cambridge, NY: Cambridge University Press.
- Elster, J. (1979). *Ulysses and the Sirens*. *Studies in Rationality and Irrationality*. Cambridge: Cambridge University Press.
- Elster, J. (1983). *Sour Grapes: Studies in the Subversion of Rationality*. Cambridge: Cambridge University Press.
- Elster, J. (1989a). *Nuts and Bolts for the Social Sciences*. Cambridge: Cambridge University Press.
- Elster, J. (1989b). Social norms and economic theory. *Journal of Economic Perspectives*, 3, 99–117.
- Elster, J. (1989c). *Solomonic Judgements: Studies in the Limitations of Rationality*. Cambridge: Cambridge University Press.
- Elster, J. (1989d). *The Cement of Society: A Study of Social Order*. Cambridge: Cambridge University Press.
- Elster, J. (1999). *Alchemies of the mind. Rationality and Emotions*. Cambridge: Cambridge University Press.
- Elster, J. (2000). Rational Choice History: A Case of Excessive Ambition. *American Political Science Review*, 94(3), 685–695.
- Elster, J. (2007). *Explaining Social Behaviour: More Nuts and Bolts for The Social Sciences*. Cambridge: Cambridge University Press.
- Elster, J. (2009a). Emotions, in P. Hedström & P. Bearman (eds.) *The Oxford Handbook of Analytical Sociology* (pp. 51-71). Oxford: Oxford University Press.
- Elster, J. (2009b). Excessive Ambitions. *Capitalism and Society*, 4, 1-30.
- Elster, J. (2009c). Social norms and the explanation of behaviour. , in P. Hedström & P. Bearman (eds.) *The Oxford Handbook of Analytical Sociology* (pp. 195-217). Oxford: Oxford University Press.
- Elster, J. (2012). *Desinteres El. Tratado critico del hombre economico*. Mexico: Editorial Siglo XXI.
- Evans, W.N., & Owens, E.G. (2007). Cops and crime. *Journal of Public*



- Economics*, 91(1–2), 181–201.
- Exum, M.L., Bailey, D., & Wright, E.L. (2014). False positive and false negative rates in self-reported intentions to offend: A replication and extension. *Journal of Criminal Justice*, 42(1), 1–9.
- Exum, M.L., & Bouffard, J.A. (2010). Testing Theories of Criminal Decision Making: Some empirical Questions about Hypothetical Scenarios, in A. Piquero & D. Weisburd (eds.) *Handbook of quantitative criminology* (pp. 581–594). New York: Springer.
- Exum, M.L., Turner, M. G., & Hartman, J.L. (2012). Self-Reported Intentions to Offend: All Talk and No Action? *American Journal of Criminal Justice*, 37(4), 523–543.
- Fagan, J., & Piquero, A.R. (2007). Rational Choice and Developmental Influences on Recidivism Among Adolescent Felony Offenders. *Journal of Empirical Legal Studies*, 4(4), 715–748.
- Fagan, J., & Tyler, T.R. (2005). Legal socialization of children and adolescents. *Social Justice Research*, 18(3), 217–241.
- Fajnzylber, P., & Araujo Jr., A.F. (2001). Violencia e criminalidade, in M.B. Lisboa & N.A. Menezes (eds.) *Microeconomia e Sociedade no Brasil* (pp. 333–394). Contra Capa, Rio de Janeiro.
- Fajnzylber, P., Lederman, D., & Loayza, N. (1998). *Determinants of Crime Rates in Latin America and the World: An Empirical Assessment*. World Bank Latin American and Caribbean Studies. Washington, DC: World Bank.
- Fajnzylber, P., Lederman, D., & Loayza, N. (2002). What causes violent crime? *European Economic Review*, 46(7), 1323–1357.
- Falk, A., Meier, S., & Zehnder, C. (2013). Do lab experiments misrepresent social preferences? The case of self-selected student samples. *Journal of the European Economic Association*, 11(4), 839–852.
- Farrell, G. (2010). Situational crime prevention and its discontents: Rational choice and harm reduction versus “cultural criminology.” *Social Policy and Administration*, 44(1), 40–66.
- Farrington, D.P. (1986). Age and crime. *Crime and Justice*, 7, 189–250.
- Farrington, D.P. (2015). Cross-national comparative research on criminal careers, risk factors, crime and punishment. *European Journal of Criminology*, 12(4), 386–399.
- Feeney, F. (1986). Robbers as decision-makers, in D.B. Cornish & R.V. Clarke (eds.) *The reasoning criminal: rational choice perspectives on offending* (pp. 53–71). New York: Springer-Verlag.
- Fehr, E., & Fischbacher, U. (2004). Third-party punishment and social norms. *Evolution and Human Behavior*, 25(2), 63–87.
- Fehr, E., Fischbacher, U., & Gächter, S. (2002). Strong reciprocity, human

- cooperation, and the enforcement of social norms. *Human Nature*, 13(1), 1–25.
- Fehr, E., & Gächter, S. (2002). Altruistic punishment in humans. *Nature*, 415(6868), 137–140.
- Felson, M. (2003). Review of 'Choosing Crime: The Calculus of Property Offences' by K.D. Tunnell'. *American Journal of Sociology*, 98(6), 1497–1499.
- Felson, M. (2014). Breaking rules: the social and situational dynamics of young people's urban crime. *Journal of Criminal Justice Education*, 25(2), 1–5.
- Felson, M., & Boba, R. (2010). *Crime and Everyday Life*. Thousand Oaks, CA: Sage.
- Felson, M., & Clarke, R. (1998). *Opportunity Makes the Thief. Practical theory for crime prevention* (No. 98). London: Home Office. Policing and Reducing Crime Unit.
- Fernández, T. (2007). *Uruguay en PISA 2006*. Montevideo.
- Ferrell, J., Hayward, K., & Young, J. (2015). *Cultural criminology: An invitation*. Second Edition. London: Sage.
- Fessler, D. (2013). En busca del pasado ideal. Delitos, delincuentes y menores, in C. González, S. Leopold, L. López & P. Martinis (eds.) *Los sentidos del castigo. El debate uruguayo sobre la responsabilidad en la infracción adolescente*. CSIC - Trilce. Montevideo.
- Field, A., Miles, J., & Field, Z. (2012). *Discovering Statistics Using R. Statistics*. Los Angeles: SAGE.
- Fiske, A.P., & Rai, T.S. (2015). *Virtuous violence: Hurting and killing to create, sustain, end, and honor social relationships*. Cambridge: Cambridge University Press.
- Flashman, J., & Gambetta, D. (2014). Thick as thieves: Homophily and trust among deviants. *Rationality & Society*, 26(1), 3–45.
- Flora, D.B., Finkel, E.J., & Foshee, V.A. (2003). Higher Order Factor Structure Of A Self-Control Test: Evidence From Confirmatory Factor Analysis With Polychoric Correlations. *Educational and Psychological Measurement*, 63, 112-127.
- Fontaine, R.G. (2006). Evaluative behavioral judgments and instrumental antisocial behaviors in children and adolescents. *Clinical Psychology Review*, 26, 956-967.
- Fontaine, R.G. (2007a). Disentangling the Psychology and Law of Instrumental and Reactive Subtypes of Aggression. *Psychology, Public Policy, and Law*, 13(919), 143–165.
- Fontaine, R.G. (2007b). Toward a conceptual framework of instrumental antisocial decision-making and behavior in youth. *Clinical Psychology Review*, 27, 655-675.

- Fontaine, R.G. (2008). Social information processing, subtypes of violence, and a progressive construction of culpability and punishment in juvenile justice. *International Journal of Law and Psychiatry*, 31(2), 136–149.
- Fontaine, R.G. (2012). *The Mind of the Criminal. The Role of Developmental Social Cognition in Criminal Defense Law*. New York, NY: Cambridge University Press.
- Fontaine, R.G. (2015). The Wrongfulness of Wrongly Interpreting Wrongfulness: Provocation, Interpretational Bias, and Heat of Passion Homicide. *New Criminal Law Review*, 12(1), 69–92.
- Fontaine, R.G., & Dodge, K. A. (2006). Real-time decision making and aggressive behavior in youth: A heuristic model of Response Evaluation and Decision (RED). *Aggressive Behavior*, 32(6), 604–624.
- Fontaine, R.G., Tanha, M., Yang, C., Dodge, K.A., Bates, J. E., & Pettit, G.S. (2010). Does response evaluation and decision (RED) mediate the relation between hostile attributional style and antisocial behavior in adolescence? *Journal of Abnormal Child Psychology*, 38(5), 615–626.
- Fontaine, R.G., Yang, C., Dodge, K. A., Bates, J. E., & Pettit, G.S. (2008). Testing an individual systems model of Response Evaluation and Decision (RED) and antisocial behavior across adolescence. *Child Development*, 79(2), 462–475.
- Fontaine, R.G., Yang, C., Dodge, K. a, Pettit, G.S., & Bates, J.E. (2009). Development of Response Evaluation and Decision (RED) and antisocial behavior in childhood and adolescence. *Developmental Psychology*, 45(2), 447–459.
- Fraiman, R., & Rossal, M. (2009). *Si tocás pito te dan cumbia. Esbozo antropológico de la violencia en Montevideo* (Ministerio). Montevideo: Cebra Comunicación.
- Fraiman, R., & Rossal, M. (2011). *De calles, trancas y botones*. Montevideo: Ministerio del Interior.
- Freeman, J., & Watson, B. (2006). An application of Stafford and Warr’s reconceptualisation of deterrence to a group of recidivist drink drivers. *Accident Analysis and Prevention*, 38(3), 462–471.
- Freese, J. (2007). Replication Standards for Quantitative Social Science: Why Not Sociology? *Sociological Methods & Research*, 36, 152-172.
- Frick, P.J. (2009). Extending the construct of psychopathy to youth: Implications for understanding, diagnosing, and treating antisocial children and adolescents. *Canadian Journal of Psychiatry*, 54, 803-812.
- Frick, P.J., Cornell, A.H., Bodin, S.D., Dane, H.E., Barry, C.T., & Loney, B.R. (2003). Callous-unemotional traits and developmental pathways to severe conduct problems. *Developmental Psychology*, 39(2), 246–260.
- Frick, P.J., Ray, J.V, Thornton, L.C., & Kahn, R.E. (2014). Can callous-unemotional traits enhance the understanding, diagnosis, and treatment of serious conduct

- problems in children and adolescents? A comprehensive review. *Psychological Bulletin*, 140(1), 1–57.
- Friedman, M. (1953). *Essays in Positive Economics. Essays in Positive Economics*. University of Chicago Press, Chicago IL.
- Frijda, N. (1986). *The emotions*. Cambridge: Cambridge University Press.
- Frühling, H. (2009). *Violencia y policia en America Latina. Ciudadania y Violencias*. FLACSO. Quito, Ecuador.
- Gallupe, O., & Baron, S. W. (2010). Morality, Self-Control, Deterrence, and Drug Use: Street Youths and Situational Action Theory. *Crime & Delinquency*, 60, 284-385.
- Gambetta, D. (1987). *Were they pushed or did they jump? Individual decision mechanisms in education*. Cambridge University Press.
- Gambetta, D. (1998). Concatenation of mechanisms, in P. Hedstrom & R. Swedberg (eds.) *Social Mechanisms: An analytical approach of Social Theory*. Cambridge: Cambridge University Press.
- Gandelman, N., & Munyo, I. (2016). Juvenile Incarceration and Crime after Release: Evidence from a Harsher Law. Presented in *Growth and Economics (RIDGE 2015)*, March Forum: Workshop on Economics of Crime. Montevideo, Uruguay.
- Gau, J.M. (2011). The convergent and discriminant validity of procedural justice and police legitimacy: An empirical test of core theoretical propositions. *Journal of Criminal Justice*, 39(6), 489–498.
- Gau, J.M., Corsaro, N., Stewart, E. A., & Brunson, R.K. (2012). Examining macro-level impacts on procedural justice and police legitimacy. *Journal of Criminal Justice*, 40(4), 333–343.
- Gavaghan, M.P., Arnold, K. D., & Gibbs, J.C. (1983). Moral judgment in delinquents and nondelinquents – recognition versus production measures. *Journal of Psychology*, 114, 267–274.
- Gaviria, A. (2000). Increasing returns and the evolution of violent crime: The case of Colombia. *Journal of Development Economics*, 61(May), 1–25.
- Gaviria, A., & Pagés, C. (2002). Patterns of crime victimization in Latin American cities. *Journal of Development Economics*, 67(1), 181–203.
- Gerring, J. (1999). What Makes a Concept good? A Criterial Framework for Understanding Concept Formation in the Social Sciences. *Polity*, 31(3), 357–393.
- Gibbons, D. (1994). *Thinking about crime and criminals: Problems and issues in theory development in criminology*. Englewood Cliffs, NJ: Prentice Hall.
- Gibbs, J.P. (1975). *Crime, punishment, and deterrence*. New York: Elsevier.
- Gibbs, J.C., Basinger, K. S., Grime, R. L., & Snarey, J. R. (2007). Moral judgment development across cultures: Revisiting Kohlberg's universality claims.

- Developmental Review*, 27(4), 443–500.
- Giddens, A. (1984). *The constitution of society. Outline of the theory of structuration*. Berkley, CA: University of California Press.
- Gintis, H. (2007). A framework for the unification of the behavioral sciences. *The Behavioral and Brain Sciences*, 30(1), 1-16-61.
- Gintis, H. (2009). *The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences*. Princeton: Princeton University Press.
- Gintis, H. (2010). Towards a renaissance of economic theory. *Journal of Economic Behavior and Organization*, 73(1), 34–40.
- Gintis, H. (2013). Altruistic reciprocity, in L. Bruni & S. Zamagni (eds.) *Handbook on the Economics of Reciprocity and Social Enterprise* (pp. 20–43). Cheltenham, Edward Elgar Publisher.
- Gintis, H. (2015). *A Typology of Human Morality*. Prepared for the Strungmann Forum Complexity and Evolution: A New Synthesis for Economics. the Santa Fe Institute. Retrieved from <http://www.umass.edu/preferen/gintis/HumanMorality.pdf>, accessed 13 October 2016.
- Gintis, H., & Helbing, D. (2015). Homo Socialis: An Analytical Core for Sociological Theory. *Review of Behavioral Economics*, 2(1–2), 1–59.
- Giorgi, V., Kaplun, G., & Moras, L. (eds.) (2012). *La violencia está en los otros: la palabra de los actores educativos*. CSIC - Trilce, Montevideo.
- Glenn, a L., Raine, a, & Schug, R. a. (2009). The neural correlates of moral decision-making in psychopathy. *Molecular Psychiatry*, 14, 5–6.
- Goldthorpe, J.H. (1998). Rational action theory for sociology. *British Journal of Sociology*, 49(2), 167–192.
- Goldthorpe, J.H. (1997). The “Goldthorpe” class schema: Some observations on conceptual and operational issues in relation to the ESRC review of governmental social classifications, in *Rose, D. and K. O’Reilly (eds) Constructing classes: Towards a new social classification for the UK* (pp. 40–48). UK, London: Office for National Statistics.
- Goldthorpe, J.H. (2004). Sociology as a Social Science and Cameral Sociology: Some further thoughts. *European Sociological Review*, 20, 97 – 105.
- Gonzalez, C. (2011). El Tratamiento Socio jurídico de las Infracciones Adolescentes en Uruguay. *Revista de Trabajo Social*, 11(1), 1–9.
- Gonzalez, C., & Leopold, S. (2013). De crisis y reformas: el actual funcionamiento del sistema penal juvenil en Uruguay desde la perspectiva de sus actores y expertos, in C. González, S. Leopold, L. López & P. Martinis (eds.) *Los sentidos del castigo. El debate uruguayo sobre la responsabilidad en la infracción adolescente*. CSIC - Trilce. Montevideo.
- Gottfredson, M., & Hirschi, T. (2003). Self-Control and Opportunity, in C.L. Britt, &

- M. Gottfredson (eds.) *Advances in criminological theory: Volume 12. Control Theories of Crime and Delinquency* (pp. 5-20). New Brunswick, NJ: Transaction Publishers.
- Gottfredson, M. & Hirschi, T. (1990). *A General Theory of Crime*. Stanford, CA: Stanford University Press.
- Goudriaan, H., Lynch, J.P., & Nieuwbeerta, P. (2004). Reporting to the police in Western nations: A theoretical analysis of the effects of social context. *Justice Quarterly*, 21(4), 933–969.
- Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S.P., & Ditto, P.H. (2013). Moral Foundations Theory: The Pragmatic Validity of Moral Pluralism. *Advances in Experimental Social Psychology*, 47, 55–130.
- Grasmick, H.G. & Kobayashi, E. (2002). Workplace deviance in japan: Applying an extended model of deterrence. *Deviant Behavior*, 23(1), 21–43.
- Grasmick, H.G., Bursik, R.J., & Kinsey, K. A. (1991). Shame and Embarrassment as Deterrents to Noncompliance with the Law: The Case of an Antilittering Campaign. *Environment and Behavior*, 23, 233-251.
- Grasmick, H.G., & Bursik Jr., R.J. (1990). Conscience, Significant Others, and Rational Choice: Extending the Deterrence Model. *Law & Society Review*, 24(3), 837–861.
- Grasmick, H.G., & Green, D.E. (1981). Deterrence and the Morally Committed. *The Sociological Quarterly*, 22(1), 1–14.
- Grasmick, H.G., Tittle, C.R., Bursik, R.J., & Arneklev, B.J. (1993). Testing the Core Empirical Implications of Gottfredson and Hirschi's General Theory of Crime. *Journal of Research in Crime and Delinquency*, 30, 5-29.
- Grasmick, H.G., & Green, D. (1980). Legal punishment, social disapproval and internalization as inhibitors of illegal behavior. *Journal of Criminal Law and Criminology*, 71(3), 325–335.
- Gray, K., Waytz, A., & Young, L. (2012). The Moral Dyad: A Fundamental Template Unifying Moral Judgment. *Psychological Inquiry*, 23(2), 206–215.
- Green, D. (1989). Measures of Illegal behavior in individual level research. *Journal of Research in Crime and Delinquency*, 26, 253 – 275.
- Greene, J. (2005). Cognitive Neuroscience and the Structure of the Moral Mind, in P. Carruthers, S. Lawrence & S. Stich (eds.) *The Innate Mind: Structure and Contents* (pp. 338-352). New York: Oxford University Press.
- Greene, J. (2013). *Moral Tribes. Emotion, Reason and the Gap between Us and Them*. New York: The Penguin Press.
- Greene, J. (2011). Emotion and Morality: A Tasting Menu. *Emotion Review*, 3(3), 1–3.
- Greene, J., Sommerville, R.B., Nystrom, L.E., Darley, J.M., & Cohen, J.D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*,

293(5537), 2105–2108.

Grogger, J. (1998). Market Wages and Youth Crime. *Journal of Labor Economics*, 16(4), 756-791.

GSHS. (2012). *II Encuesta Mundial de Salud Adolescente*. Montevideo. Retrieved from [http://www.msp.gub.uy/sites/default/files/archivos\\_adjuntos/II\\_Encuesta\\_Mundial\\_de\\_Salud\\_Adolescente\\_.pdf](http://www.msp.gub.uy/sites/default/files/archivos_adjuntos/II_Encuesta_Mundial_de_Salud_Adolescente_.pdf), accessed 23 October 2016

Guala, F. (2012). Reciprocity: Weak or strong? What punishment experiments do (and do not) demonstrate. *Behavioral and Brain Sciences*, 35(1), 1–15.

Guerrero, R., Gutiérrez, M.I., Fandiño-Losada, A., & Cardona, S. (2012). Sistema de indicadores comparables de convivencia y seguridad ciudadana: un consenso de países. *Revista Panamericana de Salud Pública*, 31(3), 253–259.

Haidt, J. (2001). The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment. *Psychological Review*, 108(4), 814–834.

Haidt, J. (2012). *The righteous mind. Why Good People Are Divided by Politics and Religion*. New York: Pantheon.

Harkness, J. (2003). Questionnaire Translation, in J. Harkness, F. Van de Vijer & P. Moher (eds.) *Cross Cultural Survey Methods* (pp. 35-56). Hoboken, NJ: John Wiley & Sons, Inc.

Harkness, J., Pennell, B.E., & Schoua-Glusberg, A. (2004). Questionnaire translation and assessment, in S. Presser, J. Rothgeb, M. Couper, et al. (eds.) *Methods for Testing and Evaluating Survey Questionnaires* (pp. 453–473). Hoboken, NJ: John Wiley & Sons.

Harris, S. (2012). *Free Will*. New York: Free Press.

Hausman, D.M. (2001). Explanation and Diagnosis in Economics. *Revue Internationale De Philosophie*, 55, 311–26.

Hausman, D. M. (2011). Mistakes about Preferences in the Social Sciences. *Philosophy of the Social Sciences*, 41(1), 3-25.

Hay, C., & Forrest, W. (2006). The development of self-control: Examining self-control theory's stability thesis. *Criminology*, 44(4), 739–774.

Hay, C., & Forrest, W. (2008). Self-control theory and the concept of opportunity: The case for a more systematic union. *Criminology*, 46(4), 1039–1072.

Hayward, K. (2007). Situational crime prevention and its discontents: Rational choice theory versus the “culture of now.” *Social Policy and Administration*, 41(3), 232–250.

Hechter, M., & Kanazawa, S. (1997). Sociological Rational Choice Theory. *Annual Review of Sociology*, 23, 191-214.

Hedstrom, P. (2005). *Dissecting the Social. On the principles of analytical sociology*. Cambridge: Cambridge University Press.

- Hedstrom, P., & Bearman, P. (2009). What is Analytical Sociology All About? An Introductory Essay, in P. Hedstrom & P. Bearman (eds.) *The Oxford Handbook of Analytical Sociology* (pp. 26–47). Oxford: Oxford University Press.
- Hedstrom, P., & Swedberg, R. (1998). Social Mechanisms: An Introductory Essay, in P. Hedstrom & R. Swedberg (eds.) *Social Mechanisms An Analytical Approach to Social Theory* (pp. 1–31). Cambridge: Cambridge University Press.
- Heimer, K. (1996). Gender, interaction, and delinquency: Testing a theory of differential social control. *Social Psychological Quarterly*, 59, 39–61.
- Heinecke, J. (1988). Crime, Deterrence, and Choice: Testing the Rational Behavior Hypothesis. *American Sociological Review*, 53(2), 303 – 305.
- Helion, C., & Pizarro, D.A. (2015). Beyond dual-processes: The interplay of reason and emotion in moral judgment, in J. Clausen & N. Levy (eds.) *Springer Handbook of Neuroethics* (pp. 109–126). New York: Springer
- Henrich, J. (2012). Economic Markets and Human Fairness. How Trading With Others Makes Us Treat Them Better. *Being Human*. Retrieved from <http://www.beinghuman.org/article/economic-markets-and-human-fairness>, accessed 23 October 2016.
- Henrich, J. (2013). Interview to Josph Henrich in in *Very Bad Wizards Blog*, Episode 18. Retrieved from <https://verybadwizards.fireside.fm/18>, accessed 22 October 2016
- Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., Mcelreath, R., Alvard, M., Barr, A., Ensminger, J. Smith Henrich, N., Hill, K., Gil-White, F., Gurven, M., Marlowe, F.W., Patton, J.Q., & Tracer, D. (2007). “Economic Man” in Cross-cultural Perspective : Behavioral Experiments in 15 Small-scale Societies. *Social Dynamics*, 204(6), 795–815.
- Henrich, J., Heine, S.J., & Norenzayan, A. (2010). The weirdest people in the world? *The Behavioral and Brain Sciences*, 33, 61-83-135.
- Henry, K.L. (2007). Who’s skipping school: Characteristics of truants in 8th and 10th grade. *Journal of School Health*, 77(1), 29–35.
- Henry, K.L., & Huizinga, D. H. (2007). Truancy’s Effect on the Onset of Drug Use among Urban Adolescents Placed at Risk. *Journal of Adolescent Health*, 40(4).
- Hernes, G. (1998). Real Virtuality, in P. Hedstrom & R. Swedberg (eds.) *Social Mechanisms An Analytical Approach to Social Theory* (pp. 74–101). Cambridge: Cambridge University Press.
- Herrmann, B., Thöni, C., & Gächter, S. (2008). Antisocial punishment across societies. *Science*, 319(5868), 1362–1367.
- Hicks, J.R. (1939). *Value and Capital*. Oxford: Clarendon Press.
- Higgins, G.E., Wolfe, S.E., & Ricketts, M.L. (2008). Digital Piracy: A Latent Class



- Analysis. *Social Science Computer Review*, 27, 24-40.
- Higgins, G., Wilson, A., & Fell, B. (2005). An application of deterrence theory to software piracy. *Journal of Criminal Justice and Popular Culture*, 12(3), 166–184.
- Hilbe, J.M. (2007). *Negative Binomial Regression*. Cambridge: Cambridge University Press.
- Hindelang, M.J., Hirschi, T., & Weis, J.G. (1979). Correlates of Delinquency: The Illusion of Discrepancy between Self-Report and Official Measures. *American Sociological Review*, 44:995-1014.
- Hirschi, T. (1969). *Causes of Delinquency*. Berkley, CA: University of California Press.
- Hirschi, T. (1979). Separate and unequal is better. *Journal of Research In Crime and Delinquency*, 16(1), 34–38.
- Hirschi, T. (1986). On the compatibility of rational choice and social control theories of crime, in D.B. Cornish & R.V. Clarke (eds.) *The reasoning criminal: Rational choice perspectives on offending* (pp. 105–118). New York: Springer-Verlag.
- Hirschi, T. (2004). Self-control and crime, in R.F. Baumeister & K.D. Vohs (eds.) *Handbook of self-regulation: Research, theory, and applications* (pp. 537–552). New York: Guilford Press.
- Hirschi, T., & Gottfredson, M.R. (1983). Age and the explanation of crime. *American Journal of Sociology*, 89, 552–584.
- Hirschi, T., & Gottfredson, M.R. (1993). Commentary: Testing the general theory of crime. *Journal of Research in Crime and Delinquency*, 30(1), 47–54.
- Hirschi, T., & Gottfredson, M.R. (1994). The generality of deviance, in T. Hirschi & M. Gottfredson (eds.) *The generality of deviance* (pp. 1–22). New Brunswick, NJ: Transaction,
- Hirschi, T., & Gottfredson, M.R. (1995). Control Theory and the Life-Course Perspective. *Studies on Crime and Crime Prevention*, 4, 131–42.
- Hirschi, T., & Gottfredson, M.R. (2000). In Defense of Self-Control. *Theoretical Criminology*, 41(1), 55-69.
- Hirschi, T., & Gottfredson, M.R. (2001). Self-control theory, in R. Paternoster, & R. Bachman (eds.) *Explaining criminals and crime* (pp. 81–96). Los Angeles, CA: Roxbury Publishing Company
- Hirschman, A. (1990). Interview to Albert Hirschman, in R. Swedberg *Economics and Sociology: On Redefining Their Boundaries. Conversations with Economists and Sociologists* (pp. 152–166). Princeton, Princeton University Press.
- Hjalmarsson, R. (2009). Crime and expected punishment: Changes in perceptions at the age of criminal majority. *American Law and Economics Review*, 11(1), 209–248.

- Hochstetler, A., DeLisi, M., & Puhmann, A.M. (2007). Toward an integrated model of offending frequency: A replication study. *Justice Quarterly*, 24(4), 582–599.
- Hoeben, E. M., Bernasco, W., Weerman, F.M., Pauwels, L., & van Halem, S. (2014). The space-time budget method in criminological research. *Crime Science: An Interdisciplinary Journal*, 3(12), 1–15.
- Hong, G. (2015) *Causality in the Social World. Moderation, mediation and spill over*. John Wiley & Sons, Ltd. United Kingdom.
- Horney, J., & Marshall, I. H. (1992). Risk perceptions among serious offenders: The role of crime and punishment. *Criminology*, 30(4), 575–594.
- Hubbard, R., & Armstrong, J.S. (1992). Are null results becoming an endangered species in marketing? *Marketing Letters*, 3, 127–136.
- Hughes, R., & Huby, M. (2004). The construction and interpretation of vignettes in social research. *Social Work & Social Sciences Review*, 11(1), 36–51.
- Hwang, S., & Akers, R. L. (2003). Substance use by Korean adolescents: a cross-cultural test of social learning, social bonding, and self-control theories, in R.L. Akers & G.F. Jensen (eds.) *Social Learning Theory and the Explanation of Crime: A guide for the new century. Advances in criminological theory Vol 11* (pp. 39 – 63). New Brunswick, NJ: Transaction Publishers.
- Ibáñez, A. M., Rodríguez, C., & Zarruk, D. (2013). *Crime, Punishment, and Schooling Decisions: Evidence from Colombian Adolescents*. IDB-WP-413, Inter-American Development Bank, Research Department.
- Igarapé Institute. (2015). Homicide Monitor. Retrieved from <http://homicide.igarape.org.br>, accessed 23 october 2016
- Imbusch, P., Misse, M., & Carrión, F. (2011). Violence research in Latin America and the Caribbean: A literature review. *International Journal of Conflict and Violence*, 5, 87–154.
- INE. (2013). *Anuario estadístico del Instituto Nacional de Estadística*. Montevideo.
- Inglehart, R., & Carballo, M. (1997). Does Latin America Exist ? ( And is There a Confucian Culture ?): A Global Analysis of Cross-Cultural Differences '. *PS: Political Science and Politics*, 30(1), 34–47.
- Inglehart, R., & Carballo, M. (2008). ¿Existe Latinoamérica?: Un análisis global de diferencias transculturales. *Perf. Latinoam*, 16(31), 13–38.
- Isla, A., & Miguez, D.P. (2011). Formations of Violence in Post-Dictatorial Contexts: Logics of Confrontation between the Police and the Young Urban Poor in Contemporary Argentina. *International Journal of Violence and Conflict*, 5, 240 – 260.
- Jackson, J., Bradford, B., Hough, M., Myhill, A., Quinton, P., & Tyler, T.R. (2012). Why do people comply with the law? *British Journal of Criminology*, 52(6), 1051–1071.
- Jackson, J., & Sunshine, J. (2007). Public confidence in policing: A neo-

- durkheimian perspective. *British Journal of Criminology*, 47(2), 214–233.
- Jaitman, L. (2016). Introducción: los costos del crimen en el bienestar, in L. Jaitman (ed.) *Los Costos del Crimen y la Violencia en el Bienestar en America Latina y el Caribe* (pp. 1–16). Banco Interamericano de Desarrollo, Washington D.C.
- Jasso, G. (1988). Principles of Theoretical Analysis. *Sociological Theory*, 6(1), 1–20.
- Jensen, G.F., Erickson, M.L., & Gibbs, J.P. (1978). Perceived Risk of Punishment and Self-Reported Delinquency. *Social Forces*, 57(1), 57–78.
- Johnson, R., & Raphael, S. (2012). How Much Crime Reduction Does the Marginal Prisoner Buy? *Journal of Law and Economics*, 55(2), 275–310.
- Junger-Tas, J., Ribeaud, D., & Cruyff, M. (2004). Juvenile Delinquency and Gender. *European Journal of Criminology*, 1(3), 333–375.
- Junta Nacional de Drogas. (2011a). *5ta Encuesta Nacional sobre Consumo de Drogas en Estudiantes de Enseñanza Media 2011. Entre placer y displacer: los adolescentes en su laberinto. Comportamiento de riesgo y uso de drogas en adolescentes escolarizados*. Montevideo.
- Junta Nacional de Drogas. (2011b). *Sobre ruido y nueces. Consumo de drogas legales e ilegales en la adolescencia*. Montevideo.
- Kahan, D. (1997). Between Economics and Sociology: The New Path of Deterrence. *Michigan Law Review*, 95(8), 2477–2497.
- Kahn, R.E., Frick, P.J., Youngstrom, E. a, Kogos Youngstrom, J., Feeny, N.C., & Findling, R.L. (2013). Distinguishing primary and secondary variants of callous-unemotional traits among adolescents in a clinic-referred sample. *Psychological Assessment*, 25(3), 966–78.
- Kaina, V. (2008). Legitimacy, trust and procedural fairness: Remarks on Marcia Grimes' study. *European Journal of Political Research*, 47(4), 510–521.
- Kanazawa, S. (1998). In Defense of Unrealistic Assumptions. *Sociological Theory*, 16(2), 193–204.
- Kane, R. J. (2005). Compromised police legitimacy as a predictor of violent crime in structurally disadvantaged communities. *Criminology*, 43(2), 469–497.
- Karstedt, S. (2001). Comparing cultures, comparing crime: Challenges, prospects and problems for a global criminology. *Crime Law and Social Change*, 36, 285–308.
- Katyal, N.K. (1997). Deterrence's Difficulty. *Michigan Law Review*, 95(8), 2385–2476.
- Katz, J. (1988). *Seductions of Crime: Moral and Sensual Attractions in Doing Evil*. New York: Basic Books.
- Katz, L., Levitt, S., & Shustorovich, E. (2003). Prison Conditions, Capital Punishment, and Deterrence. *American Law and Economics Review*, 5(2),

318–343.

- Kaztman, R. (1996). *Marginalidad e Integración Social en Uruguay*. CEPAL, Montevideo.
- Kennedy, D.M. (2010). *Deterrence and Crime Prevention: Reconsidering the prospect of sanction*. London: Routledge.
- Kessler, D., & Levitt, S.D. (1999). Using Sentence Enhancements to Distinguish Between Deterrence and Incapacitation. *The Journal of Law and Economics*, 42, 343-363.
- Kessler, G. (2014). Movilidad laterales. Delito, cuestión social y experiencia urbana en las periferias de Buenos Aires. *Revista de Ciencias Sociales*, 31, 59 – 78.
- Kiesner, J., Kerr, M., & Stattin, H. (2004). “Very Important Persons” in adolescence: Going beyond in-school, single friendships in the study of peer homophily. *Journal of Adolescence*, 27(5), 545–560.
- Kimonis, E.R., Frick, P. J., Munoz, L. C., & Aucoin, K.J. (2008). Callous-unemotional traits and the emotional processing of distress cues in detained boys: Testing the moderating role of aggression, exposure to community violence, and histories of abuse. *Development and Psychopathology*, 20(2), 569–589.
- Kincaid, H. (1995). Can Neoclassical Economics Be Defended on Grounds of Explanatory Power? *The Southern Journal of Philosophy*, 34(1), 155–177.
- Kincaid, H. (1996). Can Neoclassical Economics Be Defended on Grounds of Explanatory Power. *The Southern Journal of Philosophy*, 34, 155–179.
- King, G. (2003). The Future of Replication. *International Studies Perspectives*, 4(1), 100–105.
- Kirk, D.S., & Matsuda, M. (2011). Legal Cynicism, Collective Efficacy, And The Ecology Of Arrest. *Criminology*, 49(2), 443–472.
- Kirk, D. S., & Papachristos, A. V. (2011). Cultural mechanisms and the persistence of neighborhood violence. *American Journal of Sociology*, 116(4), 1190–1233.
- Kleck, G., Sever, B., L.S., & Gertz, M. (2005). The missing link in general deterrence research. *Criminology*, 43, 623-660.
- Klepper, S., & Nagin, D. (1989). the Deterrent Effect of Perceived Certainty and Severity of Punishment Revisited\*. *Criminology*, 27(4), 721–746.
- Kline, P. (2000). *The handbook of psychological testing*. London: Routledge.
- Kornhauser, R. (1978). *Social Sources of Delinquency. An Appraisal of Analytical Approaches*. University of Chicago Press, Chicago, IL.
- Korsgaard, C.M. (2009). Morality and Distinctiveness of Human Action, in S. Macedo & J. Ober (eds.) *Primates and Philosophers*’ (pp. 98–119). Princeton: Princeton University Press.
- Krettenauer, T., Malti, T., & Sokol, B.W. (2008). The development of moral emotion

- expectancies and the happy victimizer phenomenon: A critical review of theory and application. *European Journal of Developmental Science*, 2(3), 221–235.
- Krisch, M., Eisner, M., Mikton, C., & Butchart, A. (2015). *Global Strategies to Reduce Violence by 50% in 30 Years: Findings from the WHO and University of Cambridge Global Violence Reduction Conference 2014*. University of Cambridge. Retrieved from <http://www.falcon.csx.cam.ac.uk/site/CRIMVRC>, accessed 24 October 2016
- Kroneberg, C., Heintze, I., & Mehlkop, G. (2010). The interplay of moral norms and instrumental incentives in crime causation. *Criminology*, 48(1), 259–294.
- Lappi-Seppala, T., & Lehti, M. (2014). Cross-Comparative Perspectives on Global Homicide Trends. *Crime and Justice*, 43(1), 135–230.
- Lawson, T. (2008). What has realism got to do with it?, in D. Hausman (ed.) *The Philosophy of Economics. An Anthology* (pp. 439-454). Cambridge: Cambridge University Press.
- Lee, D.S., & McCrary, J. (2009). *The Deterrent Effect of Prison: Dynamic Theory and Evidence*. Princeton, NJ: University of Princeton.
- Legge, J.S.J., & Park, J. (1994). Policies to Reduce Alcohol-Impaired Driving: Evaluating Elements of Deterrence. *Social Science Quarterly*, 75, 594–606.
- Lemerise, E.A., & Arsenio, W.F. (2000). An Integrated Model of Emotion Processes and Cognition in Social Information Processing. *Child Development*, 71(1), 107–118.
- Levitt, S.D. (1996). The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation. *The Quarterly Journal of Economics*, 111(2), 319–351.
- Levitt, S.D. (1997). Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime. *American Economic Review*, 87(3), 270–290.
- Levitt, S.D. (1998). The Relationship Between Crime Reporting and Police: Implications for the Use of Uniform Crime Reports. *Journal of Quantitative Criminology*, 14(1), 61–82.
- Levitt, S.D., & Dubner, S.J. (2005). *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything*. Penguin Books Ltd.
- Levitt, S.D., & List, J.A. (2007). What Do Laboratory Experiments Measuring Social Preferences Reveal About the Real World? *Journal of Economic Perspectives*, 21(2), 153–174.
- Levitt, S.K. (1998). Why Do Increased Arrest Rates Appear to Reduce Crime: Deterrence, Incapacitation, or Measurement Error? *Economic Inquiry*, 36, 353–372.
- List, J.A. (2009). Social preferences: Some thoughts from the field. *Annual Review of Economics*, 1(1), 563–579.
- Little, D. (1991). *Varieties of Social Explanation An Introduction to the Philosophy*

- of *Social Science*. Boulder, CO: Westview Press.
- Little, D. (1995). Introduction: Current Issues in the Philosophy of Economics, in Little, D. (ed.) *On the Reliability of Economic Models. Essays in the Philosophy of Economics* (pp. 1–9). New York City: Springer.
- Little, D. (2009). The Heterogenous Social: New Thinking About the Foundations of the Social Sciences, In C. Mantzavinos (ed.) *Philosophy of the Social Sciences: Philosophical Theory and Scientific Practice*. Cambridge: Cambridge University Press.
- Lochner, L. (2007). Individual perceptions of the criminal justice system. *American Economic Review*, 97(1), 444–460.
- Lochner, L., & Moretti, E. (2004). The effect of education on crime: Evidence from prison inmates, arrests, and self-reports. *American Economic Review*, 94(1), 155–189.
- Loeber, R., & Farrington, D.P. (eds.) (2012). *From Juvenile Delinquency to Adult Crime: Criminal Careers, Justice Policy and Prevention*. Oxford: Oxford University Press.
- Loewenstein, G. (1996). Out of Control: Visceral Influence on Behavior. *Organizational Behavior and Human Decision Processes*, 65(3), 272–292.
- Loewenstein, G.F., & Lerner, J. (2003). The role of affect in decision making, in R. Davidson, H. Goldsmith & K. Scherer (eds.) *Handbook of Affective Science* (pp. 619-642). Oxford: Oxford University Press.
- Loewenstein, G.F., Weber, E. U., Hsee, C.K., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin*, 127(2), 267–286.
- Loewenstein, G., Nagin, D., & Paternoster, R. (1997). The Effect of Sexual Arousal on Expectations of Sexual Forcefulness. *Journal of Research in Crime and Delinquency*, 34, 443-473.
- Loewenstein, G., Rick, S., & Cohen, J.D. (2008). Neuroeconomics. *Annual Review of Psychology*, 59, 647–72.
- Londoño, J.L., & Guerrero, R. (1998). *Violencia en América Latina Epidemiología y Costos. Violencia en América Latina Epidemiología y Costos*. Working Paper R-375, Interamerican Development Bank, Washington, DC.
- Longshore, D. (1998). Self-Control and Criminal Opportunity: A Prospective Test of the General Theory of Crime. *Social Problems*, 45, 102-113.
- Longshore, D., Chang, E., & Messina, N. (2005). Self-control and social bonds: A combined control perspective on juvenile offending. *Journal of Quantitative Criminology*, 21(4), 419–437.
- Longshore, D., & Turner, S. (1998). Self-control and criminal opportunity. Cross-sectional test of the general theory of crime. *Criminal Justice and Behavior*, 25, 81–98.
- Longshore, D., Turner, S., & Stein, J.A. (1996). Self-control in a criminal sample:

- An examination of construct validity. *Criminology*, 34, 209–228.
- Lopez, A., & Palumbo, J. (2013). *Delincuencia Juvenil en la ciudad de Montevideo*. Observatorio del Poder Judicial. Montevideo: Fundación Justicia y Derecho.
- Lopez Gallego, L., & Padilla, A. (2013). Responsabilidad adolescente y prácticas psi. Relaciones peligrosas, in C. González, S. Leopold, L. López & P. Martinis (eds.) *Los sentidos del castigo. El debate uruguayo sobre la responsabilidad en la infracción adolescente*. CSIC - Trilce. Montevideo.
- Loughran, T.A., Paternoster, R., Chalfin, A., & Wilson, T. (2016). Can rational choice be considered a general theory of crime? Evidence from individual-level panel data. *Criminology*, 54(1), 86–112.
- Loughran, T.A., Paternoster, R., & Weiss, D. (2012). Hyperbolic Time Discounting, Offender Time Preferences and Deterrence. *Journal of Quantitative Criminology*, 28(4), 607–628.
- Loughran, T.A., Pogarsky, G., Piquero, A.R., & Paternoster, R. (2012). Re-Examining the Functional Form of the Certainty Effect in Deterrence Theory. *Justice Quarterly*, 29(5), 712–741.
- Lozano, F., Gimenez, A., Cabrera, J. M., Fernandez, A., Lewy, E., Salas, F., ... Olivera, V. (2011). Violencia: Caracterización de la población adolescente de instituciones educativas de la región oeste de Montevideo-Uruguay en relación a la situación de violencia en que viven. *Biomedicina*, 1, 18-40.
- Lu, Y.F., Yu, Y.C., Ren, L., & Marshall, I.H. (2012). Exploring the Utility of Self-Control Theory for Risky Behavior and Minor Delinquency Among Chinese Adolescents. *Journal of Contemporary Criminal Justice*, 29(1), 32–52.
- MacDonald, J.M., & Lattimore, P.K. (2010). Count Models in Criminology, in A. Piquero & D. Weisburd (eds.) *Handbook of quantitative criminology* (pp. 683-698). New York: Springer.
- Maciel, G., & Ventura, O. (2015). *Uruguay, un país abrumado por la inseguridad*. Serie de Reportes periodicos No. 12. FUNDAPRO, Montevideo, Uruguay. Retrieved from <http://seguridad.observatoriodfundapro.com/wp-content/uploads/2012/09/Fundapro-Reporte-Nº-121.pdf>, accessed 14 October 2016.
- Maguire, E.R., King, W.R., Johnson, D., & Katz, C.M. (2010). Why homicide clearance rates decrease: evidence from the Caribbean. *Policing and Society*, 20(4), 373–400.
- Maguire, M. (2008). Crime data and statistics, in M. Maguire & R. Reiner (eds.) *The Oxford Handbook of Criminology* (pp. 241-301). 4<sup>th</sup> Edition. Oxford: Oxford University Press.
- Maimon, D., Antonaccio, O., & French, M.T. (2012). Severe Sanctions, Easy Choice? Investigating The Role Of School Sanctions In Preventing Adolescent Violent Offending. *Criminology*, 50(2), 495–524.

- Makkai, T., & Braithwaite, J. (1994). The Dialectics of Corporate Deterrence. *Journal of Research in Crime and Delinquency*, 31, 347-373.
- Malby, S. (2010). Homicide, in S. Harrendorf, M. Heiskanen, S. Malby (eds.) *International Statistics on Crime and Justice* (pp. 7–20). Helsinki, HEUNI and Vienna: United Nations Office on Drugs and Crime.
- Malti, T., Colasante, T., Zuffianò, A., & de Bruine, M. (2016). The physiological correlates of children's emotions in contexts of moral transgression. *Journal of Experimental Child Psychology*, 142, 372–381.
- Malti, T., Gasser, L., & Buchmann, M. (2009). Aggressive and prosocial children's emotion attributions and moral reasoning. *Aggressive Behavior*, 35(1), 90–102.
- Malti, T., Gasser, L., & Gutzwiller-Helfenfinger, E. (2010). Children's interpretive understanding, moral judgments, and emotion attributions: relations to social behaviour. *The British Journal of Developmental Psychology*, 28, 275–292.
- Malti, T., Gummerum, M., Keller, M., & Buchmann, M. (2009). Children's moral motivation, sympathy, and prosocial behavior. *Child Development*, 80(2), 442–460.
- Malti, T., & Keller, M. (2009). The relation of elementary-school children's externalizing behaviour to emotion attributions, evaluations of consequences, and moral reasoning. *European Journal of Developmental Psychology*, 6, 592–614.
- Malti, T., & Krettenauer, T. (2013). The Relation of Moral Emotion Attributions to Prosocial and Antisocial Behavior: A Meta-Analysis. *Child Development*, 84(2), 397–412.
- Malti, T., & Latzko, B. (2010). Children's moral emotions and moral cognition: Towards an integrative perspective, in T. Malti, & B. Latzko (eds.) *Children's moral emotions and moral cognition: Developmental and educational perspectives*. *New Directions for Child and Adolescent Development* (pp. 1–10). San Francisco, CA: Jossey Bass.
- Malti, T., & Ongley, S.F. (2013). The development of moral emotions and moral reasoning, in M. Killen & J. Smetana (eds.) *Handbook of moral development* (pp. 163–183). New York, NY: Psychology Press.
- Marcus, B. (2003). An Empirical Examination of the Construct Validity of Two Alternative Self-Control Measures. *Educational and Psychological Measurement*, 63, 674-706.
- Marshall, I.H., & Enzmann, D. (2012). The Generalizability of self control, in J. Junger – Tas, I.H. Marshall, D. Enzmann, M. Killias, M. Steketee & B. Gruszczynska (eds.) *The Many Faces of Youth Crime. Contrasting Theoretical Perspectives on Juvenile Delinquency across Countries and Cultures* (pp. 285-325). Dodrecht: Springer.
- Martens, E.P., Pestman, W.R., de Boer, A., Belitser, S.V, & Klungel, O.H. (2006).



- Instrumental variables: application and limitations. *Epidemiology*, 17(3), 260–267.
- Martinez, F., & Moyano, L. (2013). Los nenes con los nenes. Las nenas con las nenas. Análisis de las lógicas institucionales de los centros de privación de libertad para adolescentes en Uruguay desde la perspectiva de género. *Jóvenes, instituciones y delito*, 3, 45-62.
- Martinis, P., & Flous, C. (2013). Una mirada pedagógica sobre algunas discusiones en torno a la responsabilidad penal adolescente, in C. González, S. Leopold, L. López & P. Martinis (eds.) *Los sentidos del castigo. El debate uruguayo sobre la responsabilidad en la infracción adolescente*. CSIC - Trilce. Montevideo.
- Marvell, T.B., & Moody, C.E. (1996). Specification problems, police levels, and crime rates. *Criminology*, 34(4), 609–646.
- Matsueda, R.L. (2013a). Rational Choice Research in Criminology: A Multi-Level Framework, in R. Wittek, T. Snijders, & V. Nee. (eds.) *The Handbook of Rational Choice Social Research* (pp. 283–321). Stanford, CA: Stanford University Press.
- Matsueda, R.L. (2013b). The Macro-Micro Problem in Criminology Revisited. *The Criminologist*, 38(1), 1–7.
- Matsueda, R.L., Kreager, D.A., & Huizinga, D. (2006). Detering Delinquents: A Rational Choice Model of Theft and Violence. *American Sociological Review*, 71, 95-122.
- Matsueda, R., Piliavin, I., & Gartner, R. (1988). Economic Assumptions versus Empirical Research: Reply Author. *American Sociological Review*, 53(2), 305–309.
- Matthews, R. (2014). *Realist Criminology*. Basingstoke: Palgrave Mcmillan.
- Matthews, S.K., & Agnew, R. (2008). Extending deterrence theory: Do delinquent peers condition the relationship between perceptions of getting caught and offending? *Journal of Research in Crime and Delinquency*, 45(2), 91–118.
- Matus, J.-P. (2005). Por qué no bajan las tasas de criminalidad en Chile? *Revista de Derecho de La Pontificia Universidad Católica de Valparaíso XXVI*, Semestre I, 67–92.
- Maxson, C.L., Matsuda, K.N., & Hennigan, K. (2011). “Deterrability” Among Gang and Nongang Juvenile Offenders: Are Gang Members More (or Less) Deterrable Than Other Juvenile Offenders? *Crime & Delinquency*, 57(4), 516-543.
- Mazerolle, L., Bennett, S., Davis, J., Sargeant, E. & Manning, M. (2013). *Legitimacy in policing: A systematic review*. Campbell Systematic Reviews, 9(1).
- Mazur, M. (2010). *Dinámica Bullying y Rendimiento académico en adolescentes*. Degree Dissertation, Department of Psychology, University UCUDAL.

- McCarthy, B. (2002). New Economics of Sociological Criminology. *Annual Review of Sociology*, 28(1), 417–442.
- McCord, J. (2003). Cures That Harm: Unanticipated Outcomes of Crime Prevention Programs. *The ANNALS of the American Academy of Political and Social Science*, 587, 16-30.
- McCrary, J. (2002). Using Electoral Cycles in Police Hiring To Estimate the Effect of Police on Crime: Comment. *American Economic Review*, 92, 1236–43.
- McNeely, S., & Warner, J.J. (2015). Replication in criminology: A necessary practice. *European Journal of Criminology*, 8(1), 1–17.
- Mehlkop, G., & Graeff, P. (2010). Modelling a rational choice theory of criminal action: Subjective expected utilities, norms, and interactions. *Rationality and Society*. 22(2), 189-222.
- Meier, R. F. (1995). Review of The Generality of Deviance. *Social Forces*, 73(4), 627–629.
- Mendonça, M.J.C. (2002). Violência e Criminalidade no Brasil: uma abordagem empírica e teórica. *Brazilian Journal of Business Economics*, 2(1), 33–49.
- Menese, R. (2009). *A cross-cultural test of social learning, self-control, social bonding and general strain theories of crime and deviance*. PhD dissertation, University of Florida, US.
- Menese, R., & Akers, R. (2011). A Comparison of Four General Theories of Crime and Deviance: Marijuana Use Among American and Bolivian University Students. *International Criminal Justice Review*, 21(4), 333–352.
- Merk, W., de Castro, B.O., Koops, W., & Matthys, W. (2005). The distinction between reactive and proactive aggression: Utility for theory, diagnosis and treatment? *European Journal of Developmental Psychology*, 2(2), 197–220.
- Miguez, D. (2008). *Delito y Cultura. Los códigos de la ilegalidad en la juventud marginal urbana*. Buenos Aires, Editorial Biblos.
- Ministerio del Interior-EQUIPOS/MORI. (2011). *Encuesta de opinión pública sobre niveles de victimización, percepciones de inseguridad y grados de confianza institucional en el Uruguay*. Ministerio del Interior: Montevideo.
- Mocan, H.N., Billups, S.C., & Overland, J. (2005). A dynamic model of differential human capital and criminal activity. *Economica*, 72(288), 655–681.
- Mocan, H.N., & Gittings, R.K. (2006). *The Impact of Incentives on Human Behavior: Can We Make it Disappear? The Case of the Death Penalty*. NBER working paper 12631. National Bureau of Economic Research.
- Mocan, N., & Tekin, E. (2010). Ugly Criminals. *Review of Economics and Statistics*, 92, 15-30.
- Moll, J., & de Oliveira-Souza, R. (2007). Moral judgments, emotions and the utilitarian brain. *Trends in Cognitive Sciences*, 11, 319-321.
- Moll, J., de Oliveira-Souza, R., Eslinger, P.J., Bramati, I.E., Mourão-Miranda, J.,

- Andreiuolo, P.A., & Pessoa, L. (2002). The neural correlates of moral sensitivity: A functional magnetic resonance imaging investigation of basic and moral emotions. *The Journal of Neuroscience*, 22(7), 2730–6.
- Monahan, K.C., Steinberg, L., & Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and antisocial behavior during the transition to adulthood. *Developmental Psychology*, 45(6), 1520–1530.
- Monin, B., Pizarro, D.A., & Beer, J.S. (2007). Deciding versus reacting: Conceptions of moral judgment and the reason-affect debate. *Review of General Psychology*, 11(2), 99–111.
- Monson, R. (1990). *Occupational Epidemiology*. Second Edition. Boca Raton, Florida: CRC Press Inc.
- Moras, L.E. (1992). *Los hijos del Estado. Fundación y crisis del modelo del modelo de protección – control de menores en Uruguay*. Montevideo: Departamento de Sociología - SERPAJ. Uruguay.
- Morrillo, S., Birkbeck, C., & Crespo, F. (2011). Autocontrol y conducta desviada: una exploración con datos venezolanos. *CENIPEC*, 30, 171–203.
- Müller, M.-M. (2012). The rise of the penal state in Latin America. *Contemporary Justice Review*, 15(1), 57–76.
- Muñoz-Reyes, J.A., Gil-Burmann, C., Fink, B., & Turiegano, E. (2012). Physical strength, fighting ability, and aggressiveness in adolescents. *American Journal of Human Biology*, 24(5), 611–617.
- Munyo, I. (2013). *Youth Crime in Latin America: Key Determinants and Effective Public Policy Responses*. Brooking Institution Report, Washington DC, USA.
- Munyo, I. (2015). The Juvenile Dilemma. *Review of Economic Dynamics*, 18, 201–211.
- Murphy, K. (2005). Regulating more effectively: The relationship between procedural justice, legitimacy, and tax non-compliance. *Journal of Law and Society*, 32, 562-589.
- Murphy, K., & Cherney, A. (2012). Understanding cooperation with police in a diverse society. *British Journal of Criminology*, 52(1), 181–201.
- Murphy, K., Tyler, T.R., & Curtis, A. (2009). Nurturing regulatory compliance: Is procedural justice effective when people question the legitimacy of the law? *Regulation and Governance*, 3(1), 1–26.
- Murray, J. (2014). *Universal Risk Factors for Violence? Evidence from Low- and Middle-Income Countries in the WHO and University of Cambridge Global*. Paper presented in the WHO and University of Cambridge Global Violence Reduction Conference 2014. Cambridge.
- Murray, J., Hallal, P. C., Mielke, G.I., Raine, A., Wehrmeister, F.C., Anselmi, L., & Barros, F.C. (2016). Low resting heart rate is associated with violence in late adolescence: A prospective birth cohort study in Brazil. *International Journal of Epidemiology*, 45(2), 491–500.

- Murray, J., Menezes, A. M., Hickman, M., Maughan, B., Gallo, E.A., Matijasevich, A., Goncalves, H., Anselmi, L., Assuncao, M.C., Barros, F.C., Victora, C.G. (2015). Childhood behaviour problems predict crime and violence in late adolescence: Brazilian and British birth cohort studies. *Soc Psychiatry Psychiatr Epidemiol*, 50(4), 579–89.
- Nado, J., Kelly, D., & Stich, S. (2009). Moral judgment, in J. Symons & P. Calvo (eds.) *The Routledge companion to philosophy of psychology* (pp. 621–633). New York: Routledge.
- Nagin, D.S., & Paternoster, R. (2000). Population Heterogeneity and State Dependence: State of the Evidence and Directions for Future Research. *Journal of Quantitative Criminology*, 16, 117–144.
- Nagin, D.S., & Pogarsky, G. (2003). An experimental investigation of deterrence: Cheating, self-serving bias, and impulsivity. *Criminology*, 41(1), 167–194.
- Nagin, D.S. (1998). Criminal Deterrence Research at the Outset of the Twenty-First Century. *Crime and Justice*, 23, 1-42.
- Nagin, D.S. (2013a). Deterrence: A Review of the Evidence by a Criminologist for Economists. *Annual Review of Economics*, 5(1), 83–105.
- Nagin, D. S. (2013b). Deterrence in the Twenty-First Century, *Crime and Justice*, 42(1), 199–263.
- Nagin, D.S., & Paternoster, R. (1993). Enduring individual differences and rational choice theories of crime. *Law & Society Review*, 27(3), 467–496.
- Nagin, D.S., & Paternoster, R. (1994). Personal capital and social control: The deterrence implications of a theory of individual differences in criminal offending. *Criminology*, 32(4), 581–606.
- Nagin, D.S., & Pogarsky, G. (2001). Integrating celerity, impulsivity, and extralegal sanction threats into a model of general deterrence: Theory and evidence. *Criminology*, 39(4), 865–892.
- Nagin, D.S., & Pogarsky, G. (2004). Time and punishment: Delayed consequences and criminal behavior. *Journal of Quantitative Criminology*, 20(4), 295–317.
- Neapolitan, J.L. (1994). Cross-National Variation in Homicides: The Case of Latin America. *International Criminal Justice Review*, 4, 4-22.
- Nelken, D. (2010). *Comparative Criminal Justice: Making Sense of Difference*. Thousand Oaks, CA: Sage.
- Nelson, J.R., Smith, D.J., & Dodd, J. (1990). The moral reasoning of juvenile delinquents: A meta-analysis. *Journal of Abnormal Child Psychology*, 18(3), 231–239.
- Nelson, R.R., & Winter, S.G. (1982). *An evolutionary theory of economic change*. Harvard University Press, Cambridge, MA, USA.
- Nisbett, R.E., & Cohen, D. (1996). *Culture of honor: The psychology of violence in the South*. *Culture of honor: The psychology of violence in the South*. Boulder,

CO: Westview.

- Nivette, A. (2016). Institutional ineffectiveness, illegitimacy, and public support for vigilantism in latin america. *Criminology*, 54(1), 142–175.
- Nivette, A., & Eisner, M. (2013). Do legitimate polities have fewer homicides? A cross-national analysis. Nivette, A. E., & Eisner, M. (2013). *Do Legitimate Polities Have Fewer Homicides? A Cross-National Analysis*. *Homicide Studies*, 17(1), 3–26.
- Núñez, J., Rivera, J., Villavicencio, X., & Molina, O. (2003). Determinantes socioeconomicos y demograficos del crimen en chile. Evidencia desde un panel de datos de las regiones chilenas. *Estudios de Economía*, 30(1–junio), 55–85.
- Obando, N., & Ruiz, C. (2007). *Determinantes Socio Economicos de la Delincuencia: una primera aproximacion al problema a nivel provincial*. Informe de Investigacion Final, ACIDI - IDRC. Lima, Peru.
- Ogilvie, J., & Stewart, A. (2010). The Integration of Rational Choice and Self-Efficacy Theories: A Situational Analysis of Student Misconduct. *Australian and New Zealand Journal of Criminology*, 43(1), 130-155.
- Oliveira, C.A. de. (2005). Criminalidade e o tamanho das cidades brasileiras : um enfoque da economia do crime. *Anais Do XXXIII Encontro Nacional de Economia*, 1–23.
- OPP-MIDES. (2013). *Reporte Social 2013*. Oficina de Planeamiento y Presupuesto. Montevideo.
- Orobio de Castro, B., Veerman, J. W., Koops, W., Bosch, J.D., & Monshouwer, H.J. (2002). Hostile attribution of intent and aggressive behavior: a meta-analysis. *Child Development*, 73(3), 916–934.
- Ortiz, J., & Raine, A. (2004). Heart rate level and antisocial behavior in children and adolescents: A meta-analysis. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43(2), 154–162.
- Osgood, D.W., & Chambers, J.M. (2000). Social Disorganization Outside the Metropolis: an Analysis of Rural Youth Violence. *Criminology*, 38(1), 81–116.
- Osgood, D.W., Finken, L.L., & McMorris, B.J. (2002). Analyzing Multiple-item Measures of Crime and Deviance II: Tobit Regression Analysis of Transformed Scores. *Journal of Quantitative Criminology*, 18(4), 319–347.
- Osgood, D.W., Wilson, J.K., Malley, P.M.O., Bachman, J.G., Johnston, L.D., O'Malley, P. M., ... Johnston, L. D. (1996). Routine Activities and Individual Deviant Behavior. *American Sociological Review*, 61(4), 635–655.
- Ozbay, O., & Köksoy, O. (2009). Is low self-control associated with violence among youths in Turkey? *International Journal of Offender Therapy and Comparative Criminology*, 53(2), 145–167.
- Palummo, J. (2008). *Privados de Libertad: La Voz de los Adolescentes*. Montevideo: Movimiento Nacional Gustavo Volpe. UNICEF.

- Palummo, J. (2010). *Justicia Penal Juvenil. Realidad, perspectivas y cambios en el marco de la aplicación del Código de la Niñez y la Adolescencia en Maldonado, Montevideo, Paysandú y Salto*. Fundación Justicia y Derecho. Montevideo.
- Palummo, J. (2006). *Discurso y Realidad. Informe de Aplicación del Código de la Niñez y la Adolescencia en Maldonado*. Montevideo y Salto. UNICEF. Montevideo.
- Palummo, J. (2009). *Discurso y Realidad. Segundo Informe de Aplicación del Código de la Niñez y la Adolescencia en Maldonado, Montevideo y Salto*. Fondo de las Naciones Unidas para la Infancia. UNICEF. Montevideo.
- Papachristos, A., Meares, T., & Fagan, J. (2012). Why do criminals obey the law? The influence of legitimacy and social networks on active gun offenders. *The Journal of Criminal Law & Criminology*, 102(2), 397–440.
- Paternain, R. (2012). La hegemonía conservadora en el campo de la seguridad. Una interpretación del caso uruguayo. *Crítica Contemporánea. Revista de Teoría Política*, 2, 83–100.
- Paternain, R. (2008). *Panorama de la violencia, la criminalidad y la inseguridad en el Uruguay*. Montevideo: PNUD - Ministerio del Interior.
- Paternoster, R. (1985). Assessments of risk and behavioral experience: an explanatory study of change. *Criminology*, 23, 417 – 436.
- Paternoster, R. (1987). The deterrent effect of the perceived certainty and severity of punishment: A review of the evidence and issues. *Justice Quarterly*, 4, 173-217.
- Paternoster, R. (1989a). Absolute and restrictive deterrence in a panel of youth: Explaining the onset, persistence/desistance, and frequency of delinquent offending. *Social Problems*, 36, 289-309.
- Paternoster, R. (1989b). Decisions to Participate in and Desist from Four Types of Common Delinquency: Deterrence and the Rational Choice Perspective. *Law & Society Review*, 23(1), 7–40.
- Paternoster, R. (2010). How Much Do We Really Know About Criminal Deterrence? *The Journal of Criminal Law and Criminology*, 100(3), 765–824.
- Paternoster, R., Brame, R., Bachman, R., & Sherman, L.W. (1997). Do fair procedures matter? The effect of procedural justice on spouse assault. *Law & Society Review*, 31(2), 163–204.
- Paternoster, R., & Piquero, A. (1995). Reconceptualizing Deterrence: An Empirical Test of Personal and Vicarious Experiences. *Journal of Research in Crime and Delinquency*, 32, 251-286.
- Paternoster, R., & Pogarsky, G. (2009). Rational choice, agency and thoughtfully reflective decision making: The short and long-term consequences of making good choices. *Journal of Quantitative Criminology*, 25(2), 103–127.
- Paternoster, R., Saltzman, L.E., Waldo, G.P., Theodore, G., & Chiricos, T.G.

- (1983). Perceived risk and social control: do sanctions really deter? *Law & Society Review*, 17(3), 457–480.
- Paternoster, R., & Simpson, S. (1993). A rational choice theory of corporate crime, in R.V. Clarke & M. Felson (eds.) *Routine activity and rational choice. Advances in Criminological Theory Vol. 5* (pp. 37-58). New Brunswick, NJ: Transaction.
- Paternoster, R., & Simpson, S.S. (1996). Sanction threats and appeals to morality: Testing a rational choice model of corporate crime. *Law & Society Review*, 30(3), 549-583.
- Pauwels, L., Weerman, F., Bruinsma, G., & Bernasco, W. (2011). Perceived sanction risk, individual propensity and adolescent offending: Assessing key findings from the deterrence literature in a Dutch sample. *European Journal of Criminology*, 8, 368-400.
- Pedernera, L., & Silva Balerio, D. (2004). La Construcción del Enemigo. Apuntes Para un Ensayo Sobre Adolescentes, Exclusiones e Infracciones. *Revista Nosotros*, 13–14, 41–46.
- Perez Algorta, G. (2004). Dinámica Bullying y Psicopatología en Adolescentes. *Revista de La Sociedad de Psiquiatría Biológica Del Uruguay*, 3, 15–25.
- Perlbach, I., Gonzalez, R., Calderon, M., & Rios Rolla, M. (2007). Delincuencia: efectos disuasión e impacto del entorno socioeconómico en Mendoza, presented in XLII Reunion Anual de la Asociación Argentina de Economía. Bahia Blanca, Argentina. Retrieved from <http://imd.uncuyo.edu.ar/upload/perlbach.pdf>, accessed 10 October 2016.
- Pettit, P. (2002). *The Common Mind: An Essay on Psychology, Society and Politics*. New York: Oxford University Press.
- Piliavin, I., Gartner, R., Thornton, C., & Matsueda, R.L. (1986). Crime, Deterrence, and Rational Choice. *American Sociological Review*, 5, 101-119.
- Pinker, S. (2011). *The Better Angels of our Nature*. New York: Viking.
- Piquero, A., Fagan, J., Mulvey, E., & Steinberg, L. (2005). Developmental Trajectories of Legal Socialization among Serious Adolescent Offenders. *The Journal of Criminal Law and Criminology*, 96(1), 267 – 298.
- Piquero, A., & Paternoster, R. (1998). An Application of Stafford and Warr's Reconceptualization of Deterrence to Drinking and Driving. *Journal of Research in Crime and Delinquency*, 35(1), 3–39.
- Piquero, A., Bouffard, J.A., Piquero, N.L., & Craig, J.M. (2016). Does Morality Condition the Deterrent Effect of Perceived Certainty Among Incarcerated Felons? *Crime & Delinquency*, 62(1), 3–25.
- Piquero, A., Gomez-Smith, Z., & Langton, L. (2004). Discerning unfairness where others may not: low self-control and unfair sanction perceptions. *Criminology*, 42(3), 699–734.
- Piquero, A., Paternoster, R., Pogarsky, G., & Loughran, T. (2011). Elaborating the

- Individual Difference Component in Deterrence Theory. *Annual Review of Law and Social Science*, 7, 335-360.
- Piquero, A., & Pogarsky, G. (2002). Beyond Stafford and Warr's Reconceptualization of Deterrence: Personal and Vicarious Experiences, Impulsivity, and Offending Behavior. *Journal of Research in Crime and Delinquency*, 39, 153-186.
- Piquero, A., & Rosay, A. (1998). The reliability and validity of Grasmick et al.'s self-control scale: a comment on Longshore et al. *Criminology*, 36(1), 157–174.
- Piquero, A., & Tibbetts, S. (1996). Specifying the direct and indirect effects of low self-control and situational factors in offenders' decision making: Toward a more complete model of rational offending. *Justice Quarterly*, 13, 481-510.
- Pizarro, D. a, & Bloom, P. (2003). The intelligence of the moral intuitions: comment on Haidt (2001). *Psychological Review*, 110(1), 193-196-198.
- Podaná, Z., & Buriánek, J. (2013). Does Cultural Context Affect the Association Between Self-Control and Problematic Alcohol Use Among Juveniles? A Multilevel Analysis of 25 European Countries. *Journal of Contemporary Criminal Justice*, 29(1), 70–87.
- Poder Judicial. (2013a). *Anuarios Estadísticos 2012*. Montevideo
- Poder Judicial. (2013b). *Procedimientos infraccionales de adolescentes: indicadores sobre procesos concluidos en el año 2012*. Montevideo.
- Pogarsky, G. (2002). Identifying “deterable” offenders: Implications for research on deterrence. *Justice Quarterly*, 19, 431-452.
- Pogarsky, G. (2007). Deterrence and individual differences among convicted offenders. *Journal of Quantitative Criminology*, 23(1), 59–74.
- Pogarsky, G. (2009). Deterrence and Decision Making: Research Questions and Theoretical Refinements, in M. Krohn, A.J. Lizotte & G.P. Hall (eds.) *Handbook of Crime and Deviance* (pp. 241–258). New York: Springer.
- Pogarsky, G., & Piquero, A.R. (2003). Can Punishment Encourage Offending? Investigating The “resetting” Effect. *Journal of Research in Crime and Delinquency*, 40, 95-120.
- Pogarsky, G., & Piquero, A.R. (2004). Studying the reach of deterrence: Can deterrence theory help explain police misconduct? *Journal of Criminal Justice*, 32(4), 371–386.
- Posada, R., & Wainryb, C. (2008). Moral development in a violent society: Colombian children's judgments in the context of survival and revenge. *Child Development*, 79(4), 882–898.
- Pratt, T.C., & Cullen, F.T. (2000). The empirical status of Gottfredson and Girschi's general theory of crime: A meta-analysis. *Criminology*, 38, 931–964.
- Pratt, T.C., & Cullen, F.T. (2005). Assessing macro-level predictors and theories of crime: A Meta-analysis. *Crime & Justice*, 32(2005), 373–450.



- Pratt, T.C., Cullen, F.T., Blevins, K.R., Daigle, L.E., & Madensen, T.D. (2006). The empirical status of deterrence theory: A meta-analysis, in F.T. Cullen, J. Wright, & K. Blevins (eds.) *Taking stock. The status of criminological theory - Advances in Criminological Theory Vol. 15* (pp. 367–395). New Brunswick, NJ: Transaction.
- Pratt, T.C., Turner, M.G., & Piquero, A.R. (2004). Parental Socialization and Community Context: A Longitudinal Analysis of the Structural Sources of Low Self-Control. *Journal of Research in Crime and Delinquency*, 41(3), 219–243.
- Pryor, A., Dalenberg, D., McCorkle, D., Reardon, J., & Wicks, J. (2008). Buy or burn?: Empirical tests of models of crime using data from a general population. *Social Science Journal*, 45(1), 95–106.
- Rai, T.S., & Fiske, A.P. (2012). Beyond harm, intention, and dyads: Relationship regulation, virtuous violence, and metarelational morality. *Psychological Inquiry*, 23(2), 189–193.
- Raine, A. (2013). *The anatomy of violence: The biological roots of crime*. New York, NY: Random House.
- Raine, A., & Yang, Y. (2006). Neural foundations to moral reasoning and antisocial behavior. *Social Cognitive and Affective Neuroscience*, 1(3), 203-213.
- Ramirez, L. (2014). Crimen y Economía: Análisis de la Tasa de Homicidio en México a partir de variables económicas (2000, 2005, 2010). *Estudios Sociológicos*, XXXII(96), 505–540.
- Ravela, P. (2004). *Primer informe nacional PISA 2003*. Gerencia de Investigación y Evaluación - Programa PISA. Montevideo.
- Rebellon, C.J., Piquero, N.L., Piquero, A.R., & Tibbetts, S.G. (2010). Anticipated shaming and criminal offending. *Journal of Criminal Justice*, 38(5), 988–997.
- Reid, K. (2005). The causes, views and traits of school absenteeism and truancy. *Research in Education*, (74), 59–82.
- Reisig, M.D., Bratton, J., & Gertz, M.G. (2007). The Construct Validity and Refinement of Process-Based Policing Measures. *Criminal Justice and Behavior*, 34(8), 1005-1028.
- Reisig, M.D., & Lloyd, C. (2008). Procedural Justice, Police Legitimacy, and Helping the Police Fight Crime: Results From a Survey of Jamaican Adolescents. *Police Quarterly*, 12(1), 42-62.
- Reisig, M.D., & Pratt, T.C. (2013). Low self-control and imprudent behavior revisited. *Deviant Behavior*, 32(7), 589–625.
- Reisig, M.D., Wolfe, S.E., & Holtfreter, K. (2011). Legal Cynicism, Legitimacy, and Criminal Offending: The Nonconfounding Effect of Low Self-Control. *Criminal Justice and Behavior*, 38(12), 1265-1279.
- Ribeaud, D., & Eisner, M. (2006). The “Drug-Crime Link” from a Self-Control Perspective: An Empirical Test in a Swiss Youth Sample. *European Journal of Criminology*, 3:33-67.

- Ribeiro, E., Borges, D., & Cano, I. (2015). *Calidad de los Datos de Homicidio en America Latina*. Laboratorio de Analisis de la Violencia, Universidad do Estado do Rio Janeiro. Retrieved from <http://conferenciahomicidiosbogota2015.org/wp-content/uploads/2015/08/Calidad-de-los-Datos-de-Homicio-FINAL-ESPA%C3%91OL.pdf>, accessed 10 october 2016.
- Rivera, J. (1978). *Latin America: A sociocultural Interpretation*. New York, Irvington Publishers.
- Rivera, M. (2016). The sources of social violence in Latin America: An empirical analysis of homicide rates, 1980–2010. *Journal of Peace Research*, 53(1), 84–99.
- Robertson, D., Snarey, J., Ousley, O., Harenski, K., Bowman, F.D., Gilkey, R., & Kilts, C. (2007). The neural processing of moral sensitivity to issues of justice and care. *Neuropsychologia*, 45(4), 755–766.
- Rodriguez, A. (2014). Desarrollo Economico y Disparidades Territoriales en Uruguay. *Cuadernos sobre Desarrollo Humano No 03*, PNUD Uruguay.
- Rodriguez, E. (2002). Cultura juvenil y cultura escolar en la enseñanza media del Uruguay de hoy: un vínculo a construir. *Revista Última Década*, 16, 53–94.
- Rodriguez, E. (2014). Convivencia en Centros educativos medios: situación, desafíos y propuestas. In *INJU-MIDES. Plan de Acción de Juventudes 2015-2025. Estudios* (INJU-MID). Montevideo.
- Rodríguez, E. (2007). Jóvenes y violencias en América Latina: Priorizar la prevención con enfoques integrados. *Rev.latinoam.cienc.soc.niñez Juv*, 5(2), 539–571.
- Rodriguez, J.A. (2011). Conducta antisocial en grupo: una aproximación mediante ecuaciones estructurales. *CENIPEC*, 30, 237–264.
- Rodríguez, J.A. (2010). Bajo Autocontrol y Conducta Antisocial. En perspectiva de género. *CENIPEC*, 29, 213–240.
- Rodríguez, J.A., Pérez-Santiago, N., & Birkbeck, C. (2015). Surveys as cultural artefacts: Applying the International Self- Report Delinquency Study to Latin American adolescents. *European Journal of Criminology*, 12(4), 420–436.
- Roman, M., & Murillo, F.J. (2011). América Latina: violencia entre estudiantes y desempeño escolar. *Revista CEPAL*, 104, 37–54.
- Romero, G. (2012). *Crimen y Castigo: Efectos de la Privación de la Libertad sobre la Reincidencia*. Mphil dissertation, Universidad de los Andes.
- Rosenberg, A. (1992). *Economics: Mathematical politics or Science of Diminishing Returns?* University of Chicago Press, Chicago.
- Rosenberg, A. (2008). *Philosophy of Social Sciences*. Boulder, CO: Westview Press.
- Ross, D. (2012). The Economic Agent. Not human, but Important, in U. Mäki (ed.)

- Philosophy of Economics* (pp. 691–735). Amsterdam: Elsevier.
- Rupp, T. (2008). *Meta Analysis of Crime and Deterrence. A Comprehensive Review of the Literature*. Ph.D. Dissertation, Darmstadt University of Technology.
- Sain, M. (2010). *La reforma policial en América Latina. Una mirada crítica desde el progresismo*. Prometeo Libros. Buenos Aires.
- Salatino-Oliveira, A., Murray, J., Kieling, C., Genro, J.P., Polanczyk, G., Anselmi, L., Wehrmeister, F., de Barros, F., Menezes, A., Rohgde, L., & Hutza, M.. (2016). COMT and prenatal maternal smoking in associations with conduct problems and crime: the Pelotas 1993 birth cohort study. *Scientific Reports*, 6.
- Saltzman, L., Paternoster, R., Waldo, G.P., & Chiricos, T. G. (1982). Deterrent and Experiential Effects: the Problem of Causal Order in Perceptual Deterrence Research. *Journal of Research in Crime and Delinquency*, 19:172-89.
- Sampson, R.J. (2010). Gold Standard Myths: Observations on the Experimental Turn in Quantitative Criminology. *Journal of Quantitative Criminology*, 26(4), 489–500.
- Sampson, R.J. (2011). Neighborhood effects, causal mechanisms and the social structure of the city, in P. Demeulenaere (Ed.) *Analytical Sociology and Social Mechanisms* (pp. 227-250). Cambridge and New York: Cambridge University Press.
- Sampson, R.J., & Bartusch, D.J. (1998). Legal cynicism and (subcultural?) Tolerance of deviance: The neighborhood context of racial differences. *Law & Society Review*, 32(4), 777–804.
- Sampson, R.J., & Laub, J.H. (1996). Socioeconomic Achievement in the Life Course of Disadvantaged Men: Military Service as a Turning Point, Circa 1940-1965. *American Sociological Review*, 61(3), 347-367.
- Sampson, R.J., & Laub, J.H. (1993). *Crime in the Making: Pathways and Turning Points Trough Life*. Cambridge, MA: Harvard University Press.
- Samuelson, P. (1938). A note on the pure theory of consumer's behaviour: an addendum. *Economica*, 5, 61–71.
- Sandoval, L.E. (2014). Trancision demografica, condicion económica y tasa de homicidio. El caso de Colombia, 1990-2013. *Ecos de Economia*, 18(39), 97–111.
- Sanfey, A.G., Loewenstein, G., McClure, S.M., & Cohen, J.D. (2006). Neuroeconomics: Cross-currents in research on decision-making. *Trends in Cognitive Sciences*, 10(3), 108-116.
- Sao Pedro, M.A., Baker, R.S.J.D., & Gobert, J.D. (2012). *Improving construct validity yields better models of systematic inquiry, even with less information*. Proceedings of the 20th International Conference on User Modeling, Adaptation and Personalization (UMAP 2012), 249–260.
- Schoepfer, A., & Piquero, A. R. (2006). Self-control, moral beliefs, and criminal

- activity. *Deviant Behavior*, 27, 51–71.
- Schuberth, M. (2013). Challenging the Weak States Hypothesis: Vigilantism in South Africa and Brazil. *Peace, Conflict & Development*, (20), 38–51.
- Seipel, C., & Eifler, S. (2010). Opportunities, Rational Choice, and Self-Control: On the Interaction of Person and Situation in a General Theory of Crime. *Crime & Delinquency*, 8, 167-197.
- Sell, A., Bryant, G.A., Cosmides, L., Tooby, J., Sznycer, D., von Rueden, von Rueden, C. & Gurven, M. (2010). Adaptations in humans for assessing physical strength from the voice. *Proceedings of the Royal Society of Biological Sciences*, 277(1699), 3509–3518.
- Sell, A., Eisner, M., & Ribeaud, D. (2016). Bargaining power and adolescent aggression: The role of fighting ability, coalitional strength, and mate value. *Evolution and Human Behavior*, 37(2), 105–116.
- Sell, A., Hone, L.S.E., & Pound, N. (2012). The Importance of Physical Strength to Human Males. *Human Nature*, 23, 30–44.
- Sell, A., Tooby, J., & Cosmides, L. (2009). Formidability and the logic of human anger. *Proceedings of the National Academy of Sciences of the United States of America*, 106(35), 15073–15078.
- Sen, A. (1973). Behaviour and the Concept of Preference. *Economica*, 40(159), 241–259.
- Sen, A. (1977). Rational Fools: A Critique of the Behavioral Foundations of Economic Theory. *Philosophy & Public Affairs*, 6(4), 317–344.
- Sen, A. (1982). *Choice, welfare and measurement*. Oxford: Basil Blackwell.
- Serrano, A. (2010). *Preliminary findings from a partial test of situational action theory with cross-sectional data from youngsters in Cali, Colombia*, presented at the 10th European Society of Criminology Conference, Liege, Belgium
- Shadish, W.R., Cook, T.D., & Campbell, D.T. (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin.
- Sherman, L.W. (1993). Defiance, Deterrence, and Irrelevance: A Theory of the Criminal Sanction. *Journal of Research in Crime and Delinquency*, 30, 445 - 473.
- Sherman, L.W. (2009). Evidence and liberty: The promise of experimental criminology. *Criminology and Criminal Justice*, 9(1), 5 -28.
- Sherman, L.W., Gottfredson, D.C., MacKenzie, D.L., Eck, J., Reuter, P., & Bushway, S.D. (1998). *Preventing crime: What works, what doesn't, what's promising*. National Institute of Justice Research in Brief. Washington D.C.
- Siegel, J.Z., & Crockett, M.J. (2013). How serotonin shapes moral judgment and behavior. *Annals of the New York Academy of Sciences*, 1299(1), 42-51.

- Silberman, M. (1976). Toward a Theory of Criminal Deterrence. *American Sociological Review*, 49, 261-272.
- Sitren, A.H., & Applegate, B.K. (2007). Testing the Deterrent Effects of Personal and Vicarious Experience with Punishment and Punishment Avoidance. *Deviant Behavior*, 28, 29-55.
- Sitren, A.H., & Applegate, B.K. (2012). Testing Deterrence Theory with Offenders: The Empirical Validity of Stafford and Warr's Model. *Deviant Behavior*, 33(6), 492-506.
- Slovic, P., Finucane, M.L., Peters, E., & MacGregor, D.G. (2004). Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk, and Rationality. *Risk Analysis*, 24, 1-12.
- Smelser, N.J., & Swedberg, R. (2005). Introducing Economic Sociology, in Smelser, N.J. & Swedberg, R. (eds.) *Handbook of Economic Sociology* (pp. 3-25). Princeton University Press, Princeton.
- Smith, N.C., Simpson, S.S., & Huang, C. (2007). Why managers fail to do the right thing: An empirical study of unethical and illegal conduct. *Business Ethics Quarterly*, 17(4), 633-667.
- Smith, T.W. (2004). Developing and Evaluating Cross-National Survey Instruments, in S. Presser, J. Rothgeb & M. Couper (eds.) *Methods for Testing and Evaluating Survey Questionnaires* (pp. 431-452). Hoboken, NJ: John Wiley & Sons.
- Smithmyer, C.M., Hubbard, J. A., & Simons, R.F. (2000). Proactive and reactive aggression in delinquent adolescents: relations to aggression outcome expectancies. *Journal of Clinical Child Psychology*, 29(1), 86-93.
- Snijders, T., & Bosker, R. (2012). *Multilevel analysis: An introduction to basic and advanced multilevel modelling*. 2nd edition. Sage Publications London.
- Soares, R., & Naritomi, J. (2010). Understanding High Crime Rates in Latin America: The Role of Social and Policy Factors, in E. Di Tella & E. Schargrodsky (eds.) *The Economics of Crime: Lessons for and from Latin America* (pp. 19 - 55). University of Chicago Press.
- Sommer, T. (2012). *Relative Justice: Cultural Diversity, Free Will, and Moral Responsibility*. Princeton University Press.
- Sozzo, M. (2005). Policia, violencia y democracia. Nota genealogica, in M. Sozzo (ed.) *Policia, Violencia y Democracia. Ensayos Sociologicos* (161-208). Santa Fe, Universidad Nacional del Litoral.
- Spinelli, H., Macías, G., & Darraidou, V. (2008). Procesos macroeconómicos y homicidios. Un estudio ecológico en los partidos del Gran Buenos Aires (Argentina) entre los años 1989 y 2006. *Salud Colectiva*, 4(3), 283-299.
- Stafford, M. C., & Warr, M. (1993). A Reconceptualization of General and Specific Deterrence. *Journal of Research in Crime and Delinquency*, 30(2), 123-135.
- Stamatel, J.P. (2009). Contributions of cross-national research to criminology at

- the beginning of the the 21st Century, in M.D. Krohn, A.J. Lizotte & G.P. Hall (eds.) *Handbook on Crime and Deviance* (pp. 3–22). New York, NY: Springer.
- Stams, G.J., Brugman, D., Deković, M., van Rosmalen, L., van der Laan, P., & Gibbs, J.C. (2006). The moral judgment of juvenile delinquents: a meta-analysis. *Journal of Abnormal Child Psychology*, *34*(5), 697–713.
- Steketee, M., Junger, M., & Junger-Tas, J. (2013). Sex Differences in the Predictors of Juvenile Delinquency: Females Are More Susceptible to Poor Environments; Males Are Influenced More by Low Self- Control. *Journal of Contemporary Criminal Justice*, *29*(1), 88–105.
- Stigler, G. (1984). Economics – The Imperial Science. *Scandinavian Journal of Economics*, *86*, 301–313.
- Stigler, G.J., & Becker, G. (1977). De Gustibus Non Est Disputandum. *The American Economic Review*, *67*(2), 76–90.
- Stinchcombe, A. (1986). Rationality and Social Structure, *In A.L. Stinchcombe Stratification and organization: Selected papers* (ed.) (pp. 1–29). Cambridge, UK: Cambridge University Press.
- Streiner, D.L. (2002). Breaking Up is Hard to do: The Heartbreaker of Dichotomizing Continuous Data. *Can J. Psychiatry*, *47*(3), 262–266.
- Sugden, R. (2000). Credible worlds: The status of theoretical models in economics. *Journal of Economic Methodology*, *7*, 1-31.
- Sugden, R. (2009). Credible worlds, capacities and mechanisms. *Erkenntnis*, *70*(1), 3–27.
- Sunshine, J., & Tyler, T.R. (2003). The Role of Procedural Justice and Legitimacy in Shaping Public Support for Policing. *Law and Society Review*, *37*(3), 513–548
- Svensson, R. (2015). An Examination of the Interaction Between Morality and Deterrence in Offending: A Research Note. *Crime & Delinquency*, *61*(611), 3–18.
- Swanson, K. (2013). Zero Tolerance in Latin America: Punitive Paradox in Urban Policy Mobilities. *Urban Geography*, *34*(7), 972–988.
- Swedberg, R. (1990). *Economics and Sociology: On Redefining Their Boundaries. Conversations with Economists and Sociologists*. Princeton, Princeton University Press.
- Sweeten, G., Bushway, S. D., & Paternoster, R. (2009). Does dropping out of school mean dropping into delinquency? *Criminology*, *47*(1), 47–91.
- Tangney, J.P., Dearing, R.L., Wagner, P.E., & Gramzow, R.H. (2000). *The Test of Self- Conscious Affect- 3 (TOSCA-3)*. Fairfax, VA: George Mason University.
- Tangney, J.P., Stuewig, J., & Mashek, D.J. (2007). Moral emotions and moral behavior. *Annual Review of Psychology*, *58*, 345–372.
- Tankebe, J. (2009a). Public cooperation with the police in Ghana: Does procedural

- fairness matter? *Criminology*, 47(4), 1265–1293.
- Tankebe, J. (2009b). Self-help, policing, and procedural justice: Ghanaian vigilantism and the rule of law. *Law & Society Review*, 43(2), 245-269.
- Tankebe, J. (2013). Viewing things differently: The dimensions of public perceptions of police legitimacy. *Criminology*, 51(1), 103 – 135.
- Tellez, E., & Medellin, S. (2014). Dependencia espacial de la delincuencia en Monterrey, Mexico. *Ecos de Economía*, 18(38), 63–92.
- Tenenbaum, G. (2011). La discusión legislativa de la edad de imputabilidad en los anales de la recuperación democrática. Cualquier semejanza con la actualidad NO es pura coincidencia. *Revista de Ciencias Sociales*, 24(28), 127–147.
- Thomas, K.J., Loughran, T.A., & Piquero, A.R. (2013). Do Individual Characteristics Explain Variation in Sanction Risk Updating Among Serious Juvenile Offenders? Advancing the Logic of Differential Deterrence. *Law and Human Behavior*, 37(1), 10-21.
- Thornberry, T. (1989). Reflections on the advantages and disadvantages of theoretical integration, In A.E. Liska, M.D. Krohn, & S.F. Messner (Eds.) *Theoretical integration in the study of deviance and crime: Problems and prospects* (pp. 51–60). Albany: SUNY Press.
- Thornberry, T., & Krohn, M. (2000). The self-report method for measuring Delinquency and crime, in D. Duffee (Ed.) *Criminal Justice 2000 volume 4: Measurement and analysis of crime and justice* (pp. 33–83). Washington, DC.
- Thornberry, T. (1987). Toward an interactional theory of delinquency. *Criminology*, 25, 863–891.
- Thornberry, T., Krohn, M., Lizotte, A., Smith, C., & Tobin, K. (2003). *Gangs and delinquency in developmental perspective*. New York: Cambridge University Press.
- Tibbetts, S.G., & Herz, D.C. (1996). Gender differences in factors of social control and rational choice. *Deviant Behavior*, 17(2), 183-208.
- Tittle, C.R. (1995). *Control Balance: Toward a General Theory of Deviance*. Boulder, CO: Westview.
- Tittle, C.R., Antonaccio, O., Botchkovar, E., & Kranidioti, M. (2010). Expected utility, self-control, morality, and criminal probability. *Social Science Research*, 39, 1029–1046.
- Tittle, C.R., Antonaccio, O., Botchkovar, E., & Kranidioti, M. (2010). Expected utility, self-control, morality, and criminal probability. *Social Science Research*, 39(6), 1029–1046.
- Tittle, C.R., Botchkovar, E.V., & Antonaccio, O. (2011). Criminal Contemplation, National Context, and Deterrence. *J Quant Criminol*, 27, :225–249.
- Tittle, C.R., & Botchkovar, E.V. (2005a). Self-control, criminal motivation and

- deterrence: An investigation using Russian respondents. *Criminology*, 43, 307-354.
- Tittle, C.R., & Botchkovar, E.V. (2005b). The generality and hegemony of self-control theory: A comparison of Russian and US adults. *Social Science Research*, 34, 703-731.
- Tittle, C.R., & Rowe, A.R. (1973). Moral Appeal, Sanction Threat, and Deviance: An Experimental Test. *Social Problems*, 20, 488-498.
- Tittle, C.R., Ward, D.A., & Grasmick, H.G. (2003). Self-control and crime/deviance: Cognitive vs. behavioral measures. *Journal of Quantitative Criminology*, 19, 333-366.
- Tonry, M. (2015). Is cross-national and comparative research on the criminal justice system useful? *European Journal of Criminology*, 12(4), 505–516.
- Trajtenberg, N. (2004). *Uvas amargas. La situación de los adolescentes privados de libertad en el Uruguay*. Fundación Konrad Adenauer - SERPAJ, Montevideo.
- Trajtenberg, N., & Eisner, M. (2014). *Hacia una política de prevención de la violencia en Uruguay*. Editorial Susana Aliano Casales, Montevideo.
- Trasler, G. (2004). Conscience, opportunity, rational choice and crime, in R. Clarke, & M.Felson (eds.) *Routine activity and rational choice. Advances in Criminological Theory Vol. 5* (pp. 305–322). New Brunswick, NJ: Transaction Publishers.
- Turiel, E. (1983). *The development of social knowledge: Morality and convention*. New York, NY: Cambridge University Press.
- Turillo, C.J., Folger, R., Lavelle, J.J., Umphress, E.E., & Gee, J.O. (2002). Is virtue its own reward? Self-sacrificial decisions for the sake of fairness. *Organizational Behavior and Human Decision Processes*, 89(1), 839-865.
- Tyler, T.R. (1990). *Why people obey the law*. New Haven: Yale University Press.
- Tyler, T.R. (2003). Procedural justice, legitimacy, and the effective rule of law, in M. Tonry (Ed.) *Crime and justice: A review of research* (Vol. 30, pp. 431–505). Chicago: University of Chicago Press.
- Tyler, T.R. (2008). Psychology and institutional design. *Review of Law and Economics (Symposium Issue on Law and Social Norms)*, 4(3), 801–887.
- Tyler, T.R. (2009). Legitimacy and criminal justice: The benefits of self-regulation. *Ohio St. J. Crim. L.*, 7, 307–360.
- Tyler, T.R. (2011). *Why people cooperate. The role of social motivations*. Princeton, NJ: Princeton University Press.
- Tyler, T.R., & Fagan, J. (2006). Legitimacy and Cooperation: Why Do People Help the Police Fight Crime in Their Communities? *SSRN Electronic Journal*, 231–275.
- Tyler, T.R., & Fagan, J. (2008). Legitimacy and cooperation: Why do people help



- the police fight crime in their communities. *Ohio State Journal of Criminal Law*, 6(1), 231-275.
- Tyler, T.R. (2006). Psychological perspectives on legitimacy and legitimation. *Annual Review of Psychology*, 57, 375–400.
- Tyler, T.R. (2007). *Psychology and the design of legal institutions*. Nijmegen: Wolf Legal Publishers.
- Tyler, T.R. (2011). Trust and legitimacy: Policing in the USA and Europe. *European Journal of Criminology*, 8, 254-266.
- Tyler, T.R., & Blader, S. L. (2005). Can businesses effectively regulate employee conduct? The antecedents of rule following in work settings. *Academy of Management Journal*, 48, 1143-1158.
- Tyler, T.R., & Huo, Y. J. (2002). *Trust in the law: Encouraging public cooperation with the police and courts*. Russell Sage Foundation series on trust, vol. 5. New York: Russell Sage Foundation.
- Tyler, T.R., Schulhofer, S., & Huq, A. Z. (2010). Legitimacy and Deterrence Effects in Counterterrorism Policing: A Study of Muslim Americans. *Law and Society Review*, 44(2), 365–402.
- Tyler, T.R., Sherman, L., Strang, H., Barnes, G. C., & Woods, D. (2007). Reintegrative shaming, procedural justice, and recidivism: The engagement of offenders' psychological mechanisms in the Canberra RISE drinking-and-driving experiment. *Law and Society Review*, 41(3), 553–586.
- Uggen, C., & Kruttschnitt, C. (1998). Crime in the Breaking: Gender Differences in Desistance. *Law & Society Review*, 32(2), 339–366.
- UNICEF. (2013). *Construcción de una caja de herramientas y análisis de legislación y políticas públicas Para la protección de los niños, niñas y adolescentes contra todo tipo de violencias en las escuelas*. UNICEF. Retrieved from [http://www.unicef.org/lac/Toolkit\\_violencia\\_CASTELLANO.pdf](http://www.unicef.org/lac/Toolkit_violencia_CASTELLANO.pdf), accessed 12 October 2016.
- UNODC. (2010). *La relación delito y droga en adolescentes infractores de la ley. Quinto informe Conjunto. Sistema Subregional de Información e Investigación sobre Drogas en Argentina, Bolivia, Chile, Colombia, Ecuador, Peru y Uruguay*. Naciones Unidas, Oficina contra la droga y el delito. Retrieved from [http://www.unodc.org/documents/peruandecuador/Publicaciones/La\\_Relacion\\_Droga.pdf](http://www.unodc.org/documents/peruandecuador/Publicaciones/La_Relacion_Droga.pdf), accessed 11 October 2016.
- UNODC. (2011). *Global Study on Homicide*. United Nations publication, Retrieved from [https://www.unodc.org/documents/congress/background-information/Crime\\_Statistics/Global\\_Study\\_on\\_Homicide\\_2011.pdf](https://www.unodc.org/documents/congress/background-information/Crime_Statistics/Global_Study_on_Homicide_2011.pdf), accessed 10 October 2016
- UNODC. (2014). *UNODC Global Study on Homicide 2013*. United Nations publication, Sales No. 14.IV.1.
- Uriarte, C. (1999). *Control institucional de la niñez adolescencia en infracción*. Un

*programa mínimo de contención y límites jurídicos al sistema penal juvenil.*  
Ediciones Carlos Alvarez, Montevideo.

- Van Vugt, E., Gibbs, J., Stams, G.J., Bijleveld, C., Hendriks, J., & van der Laan, P. (2011). Moral development and recidivism: A meta-analysis. *International Journal of Offender Therapy and Comparative Criminology*, 55(8), 1234–1250.
- Vandello, J.A., & Cohen, D. (2003). Male honor and female fidelity: implicit cultural scripts that perpetuate domestic violence. *Journal of Personality and Social Psychology*, 84(5), 997–1010.
- Varese, F. (2001). *Altruism and the Theory of Rational Choice: an Empirical Exploration*. Working paper in collaboration with Meir Yaish. Retrieved from [http://www.nyu.edu/gsas/dept/politics/seminars/varese\\_altruism.pdf](http://www.nyu.edu/gsas/dept/politics/seminars/varese_altruism.pdf), accessed 10 October 2016.
- Vazsonyi, A.T., & Belliston, L. M. (2007). The family -> Low self-control -> Deviance: A cross-cultural and cross-national test of self-control theory. *Criminal Justice and Behavior*, 34(4), 505-530.
- Vazsonyi, A., Wittekind, J., Belliston, L., & Loh, T. (2004). Extending the general theory of crime to “The East”: Low self-control in Japanese late adolescents. *Journal of Quantitative Criminology*, 20, 189–216.
- Vernazza, L. (2013). *Adolescencia y delito: seis contra argumentos al aumento del castigo*. Espacio Abierto, Centro de Investigación de Estudios Judiciales (CIEJ-AFJU).
- Vigna, A. (2008). *Género y delito: Reflexiones en torno a la criminalidad femenina en el Uruguay*. Degree Dissertation, Department of Sociology, University Udelar.
- Vigna, A. (2012). Cuán universal es la curva de edad del delito? Reflexiones a partir de las diferencias de género y del tipo de ofensa. *Revista de Ciencias Sociales*, 31, 13–36.
- Viscardi, N. (2003). Enfrentando la violencia en las escuelas: Un Informe de Uruguay, in J. Werthein, C. Braslavsky, J.C. Tedesco, A. Ouane, & C. Da Cunha (eds.) *Violência na Escola: América Latina e Caribe* (pp. 153-205). UNESCO, Brasilia.
- Viscardi, N. (2006). Delitos, trayectorias de vida y procesos socializadores de jóvenes vinculados a Programas de Rehabilitación. Puertas cerradas, vida hacia adentro. *Revista de Ciencias Sociales*, XIX(23), 45–62.
- Viscardi, N. (2007). Trayectorias delictivas y rehabilitación: caminos laberínticos de la configuración de futuro en jóvenes infractores, in Mazzei, E. (ed.). *El Uruguay desde la Sociología IV* (pp. 293-325). DS-FCS-UDELAR, Montevideo.
- Viscardi, N. (2008a). Violencia en las aulas: práctica educativa, conflicto escolar y exclusión social, in R. Paternain & R. Sanseviero, (eds.) *Violencia, inseguridad y miedos en Uruguay: ¿Qué tienen para decir las ciencias*

- sociales?* (pp. 143–158). FESUR, Montevideo.
- Viscardi, N. (2008b). Violencia y educación en Uruguay: ni tan nueva, ni tan violenta, in R. Paternain, (ed.) *Panorama de la violencia, la criminalidad y la inseguridad en el Uruguay* (pp. 54-66). Impresos Días. Montevideo.
- Viscardi, N. (2011). *Juventud, violencia y ciudadanía en el Uruguay del siglo XXI. Medios, justicia y educación*. Montevideo: FESUR.
- Viscardi, N. (2012). Adolescentes infractoras. El lado femenino de la exclusión, in R. Paternain, & A. Rico (eds.) *Uruguay. Inseguridad, Delito y Estado*. Montevideo, Uruguay. Ediciones Trilce.
- Viscardi, N., & Alonso, N. (2013). *Gramática(s) de la convivencia: un examen a la cotidianidad escolar y la cultura política en la Educación Primaria y Media en Uruguay*. Montevideo: ANEP.
- Viscardi, N., & Barbero, M. (2010). Políticas para menores infractores en Uruguay: tendencias sociales e institucionales en base al papel desempeñado por el Poder Judicial, la Policía y la prensa. *O Público e o Privado*, 15(Janeiro/Junho), 153-172.
- Von Hirsch, A. (1998). Proportionate Sentences: A Desert Perspective, in A. Ashworth, A. Von Hirsch, A. & J. Roberts, (eds.) *Principled Sentencing* (pp. 115–125). Oxford: Hart.
- Wacquant, L. (2009). *Punishing the poor. The neoliberal government of social insecurity*. Durham: Duke University Press.
- Wang, G.T., Qiao, H., Hong, S., & Zhang, J. (2002). Adolescent social bond, self-control, and deviant behavior in China. *Int. J. Contemp. Soc.*, 39, 52–68.
- Ward, D.A., Stafford, M. C., Gray, L.N., & Menke, B.A. (1994). Deterrence, opportunity, and choice. *Journal of Applied Social Psychology*, 24(20), 1777–1793.
- Ward, D., Stafford, M.C., & Gray, L.N. (2006). Rational Choice, Deterrence, and Theoretical Integration. *Journal of Applied Social Psychology*, 36(3), 571–585.
- Ward, J.T., Gibson, C.L., Boman, J., & Leite, W.L. (2010). Assessing the Validity of the Retrospective Behavioral Self-Control Scale: Is the General Theory of Crime Stronger Than the Evidence Suggests? *Criminal Justice and Behavior*, 37, 336-357.
- Waters, H., Hyder, A., Rajkotia, Y., Basu, S., Rehwinkel, J., & Butchart, A. (2004). *The economic dimensions of interpersonal violence*. Department of Injuries and Violence Prevention, World Health Organization, Geneva. Retrieved from <http://apps.who.int/iris/bitstream/10665/42944/1/9241591609.pdf>, accessed 10 October 2016
- Weber, M. (1951). *Economy and Society*. University of California Press, Berkley and Los Angeles.
- Weisburd, D., Einat, T., & Kowalski, M. (2008). The miracle of the cells: An experimental study of interventions to increase payment of court-ordered

- financial obligations. *Criminology & Public Policy*, 7(1), 9–36.
- Wenzel, M. (2004a). An analysis of norm processes in tax compliance. *Journal of Economic Psychology*, 25(2), 213–228.
- Wenzel, M. (2004b). The social side of sanctions: Personal and social norms as moderators of deterrence. *Law and Human Behavior*, 28(5), 547–567.
- Wikström, P.-O.H. (2010). Explaining crime as moral action. In S. Hitlin & S. Vaisey (Eds.), *Handbook of the sociology of morality* (pp. 211-239). New York, NY: Springer Verlag.
- Wikström, P.-O.H., Oberwittler, D., Treiber, K., & Hardie, B. (2012). *Breaking Rules: The Social and Situational Dynamics of Young People's Urban Crime*. Oxford University Press, Oxford.
- Wikström, P.-O.H., & Svensson, R. (2010). When does self-control matter? The interaction between morality and self-control in crime causation. *European Journal of Criminology*, 7, 1–16.
- Wikström, P.-O.H., & Treiber, K. (2007). The Role of Self-Control in Crime Causation: Beyond Gottfredson and Hirschi's General Theory of Crime. *European Journal of Criminology*, 4, 237–264.
- Wikström, P.-O.H., Tseloni, A., & Karlis, D. (2011). Do people comply with the law because they fear getting caught? *European Journal of Criminology*, 8, 401-420.
- Wikström, P.-O.H., & Sampson, R. (2006). 'Introduction: Toward a unified approach to crime and its explanation', in P.-O. Wikström, R. Sampson, (eds.), *The Explanation of Crime: Context, Mechanisms and Development* (pp. 1–7). Cambridge: Cambridge University Press.
- Wikström, P.-O.H. (2006). Individuals, settings and acts of crime: situational mechanisms and the explanation of crime, in P.-O. Wikström, R. Sampson, (eds.), *The Explanation of Crime: Context, Mechanisms and Development* (pp. 61–107). Cambridge: Cambridge University Press.
- Wikström, P.-O.H. (2007). Deterrence and Deterrence Experiences: Preventing crime through the Threat of punishment, in S. G. Shoham, O. Beck, & M. Kett (Eds.), *International handbook of penology and criminal justice* (pp. 345-378). Boca Raton, FL: CRC Press.
- Wikström, P.-O.H., Treiber, K., Hardie, B., & Oberwittler, D. (2015). Felson's Review of "Breaking Rules": Smoke and Mirrors. *Journal of Criminal Justice Education*, 26(1), 115–116.
- Williams, B. (1985). *Ethics and the Limits of Philosophy*. Cambridge, Harvard University Press.
- Williams, K.R., & Hawkins, R. (1986). Perceptual Research on General Deterrence: A Critical Review. *Law & Society Review*, 20(4), 545–572.
- Williams, K.R., & Hawkins, R. (1989). The meaning of arrest for wife assault. *Criminology*, 27, 163–181.

- Willis, C.L., Evans, T.D., & LaGrange, R.L. (1999). "Down home" criminology. *Journal of Criminal Justice*, 27(3), 227–238.
- Wooldridge, J.M. (2003). *Introductory Econometrics: A Modern Approach*. Australia: South-Western College Pub.
- Wright, B.R.E., Caspi, A., Moffitt, T.E., & Paternoster, R. (2004). Does the Perceived Risk of Punishment Deter Criminally Prone Individuals? Rational Choice, Self-Control, and Crime. *Journal of Research in Crime and Delinquency*, 41, 180-213.
- Yamagishi, T., Li, Y., Takagishi, H., Matsumoto, Y., & Kiyonari, T. (2014). In Search of Homo economicus. *Psychological Science*, 25(9), 1699–1711.
- Young, J. (2004). Voodoo Criminology and the Numbers Game, in J. Ferrell, K. Hayward W. Morrison and M. Presdee (eds) *Cultural Criminology Unleashed* (pp. 13-28). London: GlassHouse.
- Young, J. (2007). *Vertigo of Late Modernity*. London: SAGE Publications.
- Young, J. (2011). *The Criminological Imagination*. Cambridge: Polity.
- Yun, I., & Walsh, A. (2011). The stability of self-control among South Korean adolescents. *International Journal of Offender Therapy and Comparative Criminology*, 55(3), 445–459.
- Zavaleta, A., Kessler, G., Alvarado, A., & Zaverucha, J. (2016). Una aproximación a las relaciones entre policías y jóvenes en América Latina. *Política Y Gobierno*, XXIII(1), 195–222.
- Zimbardo, P. (2007). *The Lucifer Effect*. New York: The Random House.
- Zimmerman, G.M. (2008). Beyond Legal Sanctions: The Correlates of Self-imposed and Socially Imposed Extralegal Risk Perceptions. *Deviant Behavior*, 29(2), 157–190.
- Zimring, F.E., & Hawkins, G. J. (1973). *Deterrence: The Legal Threat in Crime Control*. Chicago: University of Chicago Press.
- Zuniga - Jara, S., Ruiz - Campo, S., & Soria - Barreto, K. (2014). Determinantes del Crimen en Chile. *Proceedings Del XXX Encuentro Nacional de Facultades de Administración Y Economía*, 7, 146–166.



## IX. Appendixes

Table 54: Correlations among variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>1. Crime &amp; deviance</b>	1															
<b>2. Theft</b>	.577 (***)	1														
<b>3. Violence</b>	.593 (***)	.312 (***)	1													
<b>4. Sex</b>	-.181 (***)	-.109 (***)	-.196 (***)	1												
<b>5. Age</b>	.123 (***)	.073 (**)	.138 (***)	-.058 (**)	1											
<b>6. Parental education</b>	.023 (n.s.)	.051 (*)	-.036 (n.s.)	.011 (n.s.)	-.214 (***)	1										
<b>7. Biological parents</b>	-.023 (n.s.)	.016 (n.s.)	-.041 (.)	-.022 (n.s.)	-.091 (***)	.124 (***)	1									
<b>8. Large family</b>	.027 (n.s.)	.000 (n.s.)	.041 (n.s.)	-.001 (n.s.)	.155 (***)	-.130 (***)	-.056 (*)	1								
<b>9. Teenage mother</b>	-.003 (n.s.)	.008 (n.s.)	.031 (n.s.)	.010 (n.s.)	.074 (**)	-.078 (***)	-.191 (***)	.0612 (**)	1							
<b>10. Extra age</b>	.113 (***)	.056 (**)	.115 (***)	-.060 (**)	.700 (***)	-.194 (***)	-.084 (***)	.131 (***)	.077 (**)	1						
<b>11. Sch. type</b>	.012 (n.s.)	-.022 (n.s.)	.069 (**)	-.042 (*)	.278 (***)	-.407 (***)	-.135 (***)	.168 (***)	.091 (***)	-.299 (***)	1					
<b>12. Rationality I</b>	.322 (***)	.168 (***)	.278 (***)	-0.291 (***)	.201 (***)	-.122 (***)	-.021 (n.s.)	.057 (**)	.043 (n.s.)	.173 (***)	.228 (***)	1				
<b>13. Rationality II</b>	.36 (***)	.257 (***)	.238 (***)	-0.195 (***)	0.138 (***)	-.046 (*)	.007 (n.s.)	.022 (n.s.)	.027 (n.s.)	.116 (***)	.101 (***)	.554 (***)	1			
<b>14. Morality</b>	-.38 (***)	-.271 (***)	-.283 (***)	0.103 (***)	-0.117 (***)	-.002 (n.s.)	.059 (**)	-.013 (n.s.)	-.014 (n.s.)	-.079 (***)	-.045 (*)	-.397 (***)	-.433 (***)	1		
<b>15. Legitimacy</b>	-.29 (***)	-0.144 (***)	-.189 (***)	0.032 (n.s.)	-.108 (***)	.073 (**)	.035 (n.s.)	.002 (n.s.)	-.027 (n.s.)	-.089 (***)	-.083 (***)	-.236 (***)	-.198 (***)	.254 (***)	1	
<b>16. Self-control</b>	.38 (***)	.205 (***)	.225 (***)	-0.038 (.)	.075 (**)	.000 (n.s.)	-.039 (n.s.)	.006 (n.s.)	-.022 (n.s.)	.021 (***)	-.028 (n.s.)	.286 (***)	.258 (***)	-.299 (***)	-.144 (***)	1

\*\*\*'p < 0.001; '\*\*'p < 0.01 '\*'p < 0.05 '.' p < 0.1 (two-tailed tests)

*Table 55: Variance inflation and tolerance*

<b>Variables</b>	<b>VIF</b>	<b>TOL</b>	<b>VIF</b>	<b>TOL</b>
	1.09	.919	1.04	0.961
<b>Sex</b>	2.01	.497	2.00	0.499
<b>Age</b>	1.25	.803	1.25	0.800
<b>Parental education</b>	1.07	.937	1.07	0.939
<b>Biological parents</b>	1.05	.953	1.05	0.953
<b>Large family</b>	1.05	.955	1.05	0.955
<b>Teenage mother</b>	2.00	.501	1.99	0.502
<b>Extra age</b>	1.38	.726	1.34	0.748
<b>Sch. type</b>	1.46	.687	-	-
<b>Rationality I (aggres.)</b>	-	-	1.33	0.755
<b>Rationality II (shoplif.)</b>	1.29	.772	1.34	0.746
<b>Morality</b>	1.11	.902	1.10	0.909
<b>Legitimacy</b>	1.16	.859	1.15	0.873
<b>Self-control</b>	1.09	.919	1.04	0.961



*Proyecto Montevideo para el desarrollo social  
de niños y adolescentes (m-proso)*

---

m-proso

*Encuesta de jóvenes 2013*






## Acá tenés unas preguntas generales sobre vos y tu familia

P100. Fecha de nacimiento:	__ de _____ de 19 __ __ (por ejemplo: 7 de junio de 1997)
P101. Sexo:	<input type="radio"/> hombre <input type="radio"/> mujer
P102. Estatura:	Mido 1, __ m (por ejemplo: 1,63 m)
P103. Peso:	Peso __ kg
P104. En que barrio vivís:	Vivo en el Barrio _____ (si vivís en más de un hogar y están ubicados en dos barrios diferentes, poné el que dormís la mayor parte de la semana)

Ahora hablemos de tu hogar, es decir, el lugar donde vivís, dormís y comés (de vuelta, si vivís en dos hogares, hablá de la casa en que dormís la mayor parte de la semana). Primero nos gustaría saber quién vive con vos.

P105. ¿Cuántos <b>hermanos/as</b> u otros niños y adolescentes viven con vos?	1. Cuántas <b>hermanas/niñas</b> : ____ por favor, escribe aquí el número 2. Cuántos <b>hermanos/niños</b> : ____ por favor, escribe aquí el número
-------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------

P106. ¿Vivís con tu <b>madre, madrastra, abuela, novia de tu padre o con otra mujer adulta que se ocupa de vos?</b> <i>Por favor, marcar lo que mejor corresponda (¡sólo una respuesta!)</i>	<p>1. <input type="radio"/> No ⇒ Saltea las próximas preguntas y sigue en <b>pregunta 110</b>  <b>1</b></p> <p>2. <input type="radio"/> Sí: es... ↓</p> <table style="width: 100%;"> <tr> <td><input type="radio"/> mi madre biológica</td> <td><input type="radio"/> mi abuela</td> </tr> <tr> <td><input type="radio"/> mi madre adoptiva</td> <td><input type="radio"/> mi responsable del grupo en el hogar infantil o juvenil</td> </tr> <tr> <td><input type="radio"/> mi tutora</td> <td><input type="radio"/> otra persona, es decir: _____</td> </tr> <tr> <td><input type="radio"/> mi madrastra</td> <td></td> </tr> <tr> <td><input type="radio"/> la novia de mi padre</td> <td></td> </tr> </table>	<input type="radio"/> mi madre biológica	<input type="radio"/> mi abuela	<input type="radio"/> mi madre adoptiva	<input type="radio"/> mi responsable del grupo en el hogar infantil o juvenil	<input type="radio"/> mi tutora	<input type="radio"/> otra persona, es decir: _____	<input type="radio"/> mi madrastra		<input type="radio"/> la novia de mi padre	
<input type="radio"/> mi madre biológica	<input type="radio"/> mi abuela										
<input type="radio"/> mi madre adoptiva	<input type="radio"/> mi responsable del grupo en el hogar infantil o juvenil										
<input type="radio"/> mi tutora	<input type="radio"/> otra persona, es decir: _____										
<input type="radio"/> mi madrastra											
<input type="radio"/> la novia de mi padre											

P107. ¿Tu <b>madre</b> o la mujer que se ocupa de vos en casa <b>trabaja?</b>	<p>1. <input type="radio"/> <b>No...</b> ⇒ <input type="radio"/> es ama de casa  <input type="radio"/> está desempleada y recibe un subsidio por desempleo  <input type="radio"/> está desempleada y recibe asignaciones familiares  <input type="radio"/> está enferma/discapacitada y recibe una pensión por invalidez  <input type="radio"/> está jubilada y recibe una jubilación</p> <p>2. <input type="radio"/> <b>Sí</b> ⇒ ¿Trabaja a tiempo parcial o a tiempo completo?  ⇒ <input type="radio"/> A tiempo completo (8 horas de lunes a viernes o más)  <input type="radio"/> A tiempo parcial (menos de 8 horas de lunes a viernes)</p> <p>3. En qué trabaja? _____</p> <p>4. Nombra dos tareas o actividades que hace en el trabajo  a. _____  b. _____</p>
-------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><b>P108. ¿Cuál fue el nivel de estudios más alto alcanzado por tu madre o la mujer que se ocupa de vos en casa?</b>          Por favor, marcar lo que mejor corresponda (sólo una respuesta!)</p>	<input type="radio"/> 1. Ninguno <input type="radio"/> 2. Escuela Primaria <input type="radio"/> 3. Curso Técnico de la UTU <input type="radio"/> 4. Ciclo Básico (tercer año de liceo) <input type="radio"/> 5. Bachillerato Secundaria <input type="radio"/> 6. Escuela Departamental (Policía/Bomberos) <input type="radio"/> 7. Escuela de Oficiales (Fuerzas Armadas / Policía) <input type="radio"/> 8. Magisterio/Profesorado <input type="radio"/> 9. Universidad <input type="radio"/> 10. Posgrados Universitarios
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><b>P109. ¿ Cuántos años tiene tu madre o la mujer que se ocupa de vos en casa?</b></p>	Edad _____
-------------------------------------------------------------------------------------------	------------

**¡Sigamos!**

<p><b>P110. ¿Vivís con tu padre, padrastro, abuelo, novio de mi madre o con otro hombre adulto que se ocupa de vos?</b>          Por favor, marcar lo que mejor corresponda (sólo una respuesta!)</p>	<p>1. <input type="radio"/> No ⇒ Saltea las próximas preguntas y sigue en <b>pregunta 114</b>  2</p> <p>2. <input type="radio"/> Sí: es... ↓</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="radio"/> mi padre biológico</td> <td style="width: 50%;"><input type="radio"/> mi abuelo</td> </tr> <tr> <td><input type="radio"/> mi padre adoptivo</td> <td><input type="radio"/> el responsable del grupo en el hogar infantil o juvenil</td> </tr> <tr> <td><input type="radio"/> mi tutor</td> <td><input type="radio"/> otra persona, es decir: _____</td> </tr> <tr> <td><input type="radio"/> mi padrastro</td> <td></td> </tr> <tr> <td><input type="radio"/> el novio de mi madre</td> <td></td> </tr> </table>	<input type="radio"/> mi padre biológico	<input type="radio"/> mi abuelo	<input type="radio"/> mi padre adoptivo	<input type="radio"/> el responsable del grupo en el hogar infantil o juvenil	<input type="radio"/> mi tutor	<input type="radio"/> otra persona, es decir: _____	<input type="radio"/> mi padrastro		<input type="radio"/> el novio de mi madre	
<input type="radio"/> mi padre biológico	<input type="radio"/> mi abuelo										
<input type="radio"/> mi padre adoptivo	<input type="radio"/> el responsable del grupo en el hogar infantil o juvenil										
<input type="radio"/> mi tutor	<input type="radio"/> otra persona, es decir: _____										
<input type="radio"/> mi padrastro											
<input type="radio"/> el novio de mi madre											

<p><b>P111. ¿Tu padre o el hombre que se ocupa de vos en casa trabaja?</b></p>	<p>1. <input type="radio"/> No...⇒</p> <ul style="list-style-type: none"> <li><input type="radio"/> es amo de casa</li> <li><input type="radio"/> está desempleado y recibe un subsidio por desempleo</li> <li><input type="radio"/> está desempleado y recibe asignaciones familiares</li> <li><input type="radio"/> está enfermo/discapacitado y recibe una pensión por invalidez</li> <li><input type="radio"/> está jubilado y recibe una jubilación</li> </ul> <p>2. <input type="radio"/> Sí ⇒ ¿Trabaja a tiempo parcial o a tiempo completo?</p> <ul style="list-style-type: none"> <li><input type="radio"/> A tiempo completo (8 horas de lunes a viernes o más)</li> <li><input type="radio"/> A tiempo parcial (menos de 8 horas de lunes a viernes)</li> </ul> <p>3. En qué trabaja? _____</p> <p>4. Nombra dos tareas o actividades que hace en el trabajo</p> <p>a. _____</p> <p>b. _____</p>
--------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><b>P112. ¿Cuál fue el nivel de estudios más alto alcanzado por tu padre o el hombre que se ocupa de vos?</b>          Por favor, marcar lo que mejor corresponda (sólo una respuesta!)</p>	<input type="radio"/> 1. Ninguno <input type="radio"/> 2. Escuela Primaria <input type="radio"/> 3. Curso Técnico de la UTU <input type="radio"/> 4. Ciclo Básico (tercer año de liceo) <input type="radio"/> 5. Bachillerato Secundaria <input type="radio"/> 6. Escuela Departamental (Policía/Bomberos) <input type="radio"/> 7. Escuela de Oficiales (Fuerzas Armadas / Policía) <input type="radio"/> 8. Magisterio/Profesorado <input type="radio"/> 9. Universidad <input type="radio"/> 10. Posgrados Universitarios
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><b>P113. ¿Cuántos años tiene tu padre o el hombre que se ocupa de vos?</b></p>	Edad _____
-----------------------------------------------------------------------------------	------------

P114. ¿Hay otros adultos viviendo en tu casa? ¡Los hermanos adultos <b>no</b> cuentan aquí!	<input type="radio"/> No <input type="radio"/> Sí, hay ____ adultos más (ej. abuelos, gente con la que compartimos apartamento) <i>Escribir arriba el número de adultos adicionales</i>
---------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

P115. ¿Contándote a vos, cuántas personas viven en tu casa?	Contándome a mí hay en total ____ personas
-------------------------------------------------------------	--------------------------------------------

## Separación de los padres biológicos

P116. Tus padres <i>biológicos</i> , ¿se separaron o divorciaron?	<input type="radio"/> No <input type="radio"/> Sí, desde que yo tenía ____ años. <input type="radio"/> Sí, desde antes que yo naciera, o sea, mis padres nunca vivieron juntos conmigo.
-------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## Reparto de tareas en el hogar

Las familias tienen diferentes formas de repartirse las tareas del hogar, ¿cuál te parece que sería la mejor manera? Marca qué tan de acuerdo estás con las siguientes frases

	totalmente en desacuerdo	en desacuerdo	de acuerdo	totalmente de acuerdo
P117. Las mujeres deberían ser las principales responsables de las tareas de la casa (limpiar la casa, lavar la ropa y los platos, preparar la comida, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P118. La principal responsabilidad de los hombres es conseguir el dinero para mantener el hogar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P119. Las mujeres deberían tomar la mayoría de las decisiones sobre cómo criar a los hijos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P120. Si existen desacuerdos en una pareja, el hombre debería tener la última palabra	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Raza y religión

P121.Cuál de estas palabras describe mejor tu raza? <i>(¡sólo una respuesta!)</i>	<input type="radio"/> Afro o negra <input type="radio"/> Blanca <input type="radio"/> Mestizo (negra y blanca / indígena y blanca)	<input type="radio"/> Asiático/amarillo <input type="radio"/> Indígena <input type="radio"/> Otra _____
--------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

P122.Cuál de estas palabras describe mejor tu orientación religiosa? <i>(¡sólo una respuesta!)</i>	<input type="radio"/> no pertenezco a ninguna religión <input type="radio"/> cristiana evangélica <input type="radio"/> musulmana <input type="radio"/> hinduista	<input type="radio"/> católica romana <input type="radio"/> judía <input type="radio"/> budista <input type="radio"/> Otra _____
-------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------

Acá tenés una breve historia que podría sucederte a vos. ¡Leéla con cuidado y respondé las preguntas!

Imaginate que estás en tu centro de estudios y que otro estudiante de tu **mismo sexo** se te acerca y dice bien fuerte, para que lo puedan oír los demás: "¡Salí de acá, imbecil!" Vos no soportás eso y le pegas con el puño en la cara. Se cae, se le rompe la ropa y le sangra mucho la nariz. A vos no te pasa nada. Nadie más se mete.

	nunca	raras veces	algunas veces	(casi) todos los días
P200. Primero, tratá de recordar el último mes. ¿Cuántas veces se te pasó por la cabeza golpear a alguien que se portó mal con vos? <b>No importa si después lo hiciste de verdad.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	muy improbable	bastante improbable	bastante probable	muy probable
P201. ¿Cuán probable te parece que hagas algo así en los próximos 12 meses?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Imaginate que golpeás de verdad a otro estudiante, como en la historia.**

	me sentiría muy mal	me sentiría bastante mal	me sentiría bastante bien	me sentiría muy bien
P202. ¿Te sentirías bien por eso?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no me parecería nada grave	me parecería poco grave	me parecería bastante grave	me parecería muy grave
P203. ¿Te parecería grave hacer algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	muy improbable	bastante improbable	bastante probable	muy probable
P204. ¿Cuán probable sería que después el otro estudiante al que le pegaste te hiciera algo a vos por eso?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no me parecería nada grave	me parecería poco grave	me parecería bastante grave	me parecería muy grave
P205. Y ¿cuán grave sería para vos que el otro estudiante al que le pegaste te hiciera algo después?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Ahora pensá en tus mejores amigos.**

	muy improbable	bastante improbable	bastante probable	muy probable
P206. ¿Cuán probable es que tus mejores amigos se enteren o descubran que hiciste algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Imaginate que tus mejores amigos se enteran de lo que hiciste.**

	no me admirarían nada	me admirarían poco	me admirarían bastante	me admirarían mucho
P207. ¿Tus mejores amigos te admirarían por ello?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no les parecería nada grave	les parecería poco grave	les parecería bastante grave	les parecería muy grave
P208. A tus mejores amigos, ¿les parecería algo grave?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no me avergonzaría nada	me avergonzaría poco	me avergonzaría bastante	me avergonzaría mucho
P209. ¿Eso haría que te <i>avergüences</i> ante tus mejores amigos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no tendría consecuencias graves	tendría consecuencias poco graves	tendría consecuencias bastante graves	tendría consecuencias muy graves
P210. ¿Tendría <i>consecuencias graves</i> para vos que tus mejores amigos se enteraran?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Ahora pensá en tus padres** ("los padres" son los adultos que se ocupan de vos en tu hogar).

	muy improbable	bastante improbable	bastante probable	muy probable
P211. ¿Cuán probable es que tus padres se enteren o descubran algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Imaginate que tus padres se enteran de lo que hiciste.**

	no me admirarían nada	me admirarían poco	me admirarían bastante	me admirarían mucho
P212. ¿Tus padres te <i>admirarían</i> por eso?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no les parecería nada grave	les parecería poco grave	les parecería bastante grave	les parecería muy grave
P213. A tus padres, ¿les parecería algo <i>grave</i> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no me avergonzaría nada	me avergonzaría poco	me avergonzaría bastante	me avergonzaría mucho
P214. ¿Eso haría que te <i>avergüences</i> ante tus padres?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no tendría consecuencias graves	tendría consecuencias poco graves	tendría consecuencias bastante graves	tendría consecuencias muy graves
P215. ¿Tendría <i>consecuencias graves</i> para vos que tus padres se enteraran?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Ahora hablemos de la policía.**

	muy improbable	bastante improbable	bastante probable	muy probable
P216. ¿Cuán probable es que la policía se <i>entere</i> o descubra algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no tendría consecuencia graves	tendría consecuencias poco graves	tendría consecuencias bastante graves	tendría consecuencias muy graves
P217. ¿Tendría <i>consecuencias graves</i> para vos que la policía se entere?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Vos y tus padres

**Marcá si lo que se menciona abajo sucede en tu casa *nunca*, *raras veces*, *algunas veces* o *a menudo*. "Los padres" son los adultos que se ocupan de vos en tu hogar.**

	nunca	raras veces	algunas veces	a menudo/ siempre
P300. Cuando hacés algo bueno tus padres te lo reconocen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P301. Tus padres juegan o hacen actividades contigo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P302. Tus padres son muy estrictos con vos cuando no hacés exactamente lo que ellos te dicen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P303. Tenés que decirles a tus padres con quién te juntás en tu tiempo libre.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P304. Cuando hacés algo bueno tus padres te dan un premio.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P305. Tus padres están peleados entre ellos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P306. Cuando salís tus padres te dicen a qué hora tenés que volver a casa.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P307. Cuando estás triste, tu madre o tu padre te abrazan para hacerte sentir mejor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P308. Tus padres te dan órdenes todo el tiempo y no te permiten protestar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P309. Tus padres pasaron mucho tiempo sin hablarse después de una pelea entre ellos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P310. Tus padres te preguntan por las cosas que hacés en tu tiempo libre.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P311. Tus padres te muestran que ellos son los que mandan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P312. Tus padres se interesan por las cosas que hacés.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P313. Cuando salís en tu tiempo libre, tus padres te preguntan dónde vas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P314. Tus padres se ofendieron o insultaron entre ellos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P315. Tus padres te felicitan cuando te va especialmente bien en la escuela, en los deportes o en tus pasatiempos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P316. Cuando tenés problemas, podés contárselos a tus padres.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Cuando hacés algo mal o desobedecés, ¿qué hacen tus padres?**

**¿Tus padres hacen con vos las cosas mencionadas abajo *nunca*, *raras veces*, *algunas veces* o *a menudo*?**

**"Los padres" son los adultos que se ocupan de vos en tu casa/hogar.**

	nunca	raras veces	algunas veces	a menudo/ siempre
P317. Tus padres te gritan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P318. Lográs convencer a tus padres de que no te castiguen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P319. Tus padres amenazan con castigarte, pero luego no lo hacen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P320. Tus padres te dan una cachetada.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P321. Tus padres reducen el castigo que te habían puesto inicialmente ( <i>ej. te permiten volver a ver televisión o salir antes de lo acordado.</i> )	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P322. Tus padres te golpean con un cinturón u otro objeto.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P323. Tus padres te tiran de las orejas o del pelo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## ¿Cómo lo ves?

Acá tenés varias cosas que pueden hacer los adolescentes. Señalá cuán grave te parece que los adolescentes de tu edad hagan algo así, siendo uno (1) nada grave y (7) muy grave.

¿Cuán grave es que alguien de tu edad...	nada grave (1)	(2)	(3)	(4)	(5)	(6)	muy grave (7)
P400...mienta a sus padres, profesores u otros adultos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P401...se ratee de la escuela a propósito?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P402... por la noche vuelva a casa más tarde de lo acordado?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P403...golpee y lastime a otro/a porque lo/la insultó?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P404...robe algo que sale menos de 200 pesos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P405...robe algo que sale 1000 pesos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P406...destruya intencionalmente cosas que no le pertenecen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P407...ataque a otra persona con un arma con intenciones de herirlo seriamente?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P408...use un arma o la fuerza para obligar a otra persona a que le dé su dinero o sus cosas?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P409...venta marihuana?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P410...venta drogas duras como cocaína, éxtasis, etc.?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P411...consume marihuana?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P412...consume drogas duras como cocaína, éxtasis, etc.?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P413...ofenda e insulte a otros adolescentes que no le caen bien?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

¿Qué te parecen las siguientes afirmaciones? ¿Estás totalmente en desacuerdo, en desacuerdo, de acuerdo, o totalmente de acuerdo con ellas?

	totalmente en desacuerdo	en desacuerdo	de acuerdo	totalmente de acuerdo
P414. Un hombre tiene que poder golpear si lo ofenden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P415. La violencia resuelve muchos problemas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P416. Está bien golpear a alguien que no respeta a tu grupo de amigos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P417. Algunos jóvenes hay que asustarlos, para que aprendan una lección.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P418. Puedes hablar mal de otros, porque otros también hablan mal de ti.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P419. Cuando alguien actúa como un idiota está bien tratarlo/a mal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P420. A veces está bien molestar/acosar a otros.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P421. Está bien pelear físicamente con alguien para defender los derechos de uno.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P422. Un hombre puede golpear a su esposa/compañera cuando no hace lo que él quiere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P423. Cuando molestan/acosan a alguien que no te cae bien, está bien sumarse.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P424. A algunos jóvenes los molestan/acosan porque se lo merecen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P425. A veces las personas necesitan que les den una paliza.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P426. Hay que lastimar a otros antes de que te lastimen a vos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P427. Sólo los cobardes salen corriendo antes de quedarse a pelear.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Las cosas que hacés y como te sentís

Señalá si alguna de estas cosas te pasaron en los últimos 12 meses (es decir, desde julio de 2012). Marcá nunca, raras veces, algunas veces, a menudo o muy a menudo según corresponda.

	nunca	raras veces	algunas veces	a menudo	muy a menudo
P500. Estabas inquieto y te costó quedarte sentado.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P501. Te costó concentrarte en una tarea.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P502. Cuando alguien estaba triste o dolido, te sentiste mal por él/ella.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P503. Estuviste desatento / distraído.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P504. Cuando alguien se lastimó físicamente, trataste de ayudarlo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P505. Te has sentido inquieto y nervioso.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P506. Cuando alguien estaba triste o dolido, trataste de consolarlo/a.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P507. Cuando viste que a otro le iba mal, sentiste compasión por él/ella.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P508. Cuando viste que a otro lo molestaban/acosaban, sentiste compasión por él.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P509. Necesitaste llorar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P510. Te sentiste infeliz.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P511. Te sentiste solo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P512. Estuviste preocupado.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Apariencia y salud

Las próximas preguntas hacen referencia a cómo te ves vos en comparación con otras personas de tu edad y de tu **mismo sexo**. Decí cuánto te valorás a vos mismo, de 0 a 100.

*Ejemplo: Te preguntan por tu estatura. Si considerás que tenés una estatura promedio, indicá "50".*

*Si te parece que sos el más alto entre los de tu edad, indicá "100", y si sos el más bajo, decí "0".*

P600. De cada 100 varones/mujeres de mi edad, soy más alto/a que \_\_\_\_ (de 0 a 100)

P601. De cada 100 varones/mujeres de mi edad, soy más fuerte físicamente que \_\_\_\_ (de 0 a 100)

P602. De cada 100 varones/mujeres de mi edad, en una pelea cuerpo a cuerpo, yo ganaría a \_\_\_\_ (de 0 a 100)

¿Tenés *problemas de salud regularmente* que te impiden hacer las mismas cosas que otros adolescentes de tu edad? Pueden ser problemas en la vista (ver mal incluso con lentes), en el oído (oir mal aún con audífono), vinculados con caminar, con los brazos/manos, o incluso de aprendizaje, memoria o concentración

	Sí	No
P603. Tengo alguno de estos problemas	<input type="radio"/>	<input type="radio"/>

## Reglas, leyes y policía

Más abajo se mencionan varias afirmaciones sobre cómo la gente piensa en las reglas, las leyes y la policía.

¿Cuán de acuerdo estás vos con ellas?



	totalmente en desacuerdo	en desacuerdo	de acuerdo	totalmente de acuerdo
P700. Está bien hacer lo que uno tenga ganas, siempre que no lastime a nadie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P701. El que respeta las normas suele tener problemas por eso.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P702. Uno se siente bien cuando se rompen las reglas sin que lo descubran.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P703. A veces simplemente es necesario no respetar las reglas y las leyes y hacer lo que uno quiere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P704. No hay caminos correctos ni equivocados para ganar dinero, sólo los hay fáciles y difíciles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P705. Las leyes están para romperlas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P706. La policía trata a la gente con dignidad y respeto.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P707. Uno puede confiar en que la policía hace bien su trabajo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P708. La policía siempre aplica las leyes a todos por igual.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P709. La policía actúa en forma adecuada y justa cuando decide a quien detener, interrogar o arrestar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P710. La policía es amable y trata de ayudar a las personas con sus problemas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P711. Hay que hacer caso a lo que dice la policía aunque uno no este de acuerdo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P712. Hay que hacer caso a lo que dice la policía aunque a uno no le guste la manera en que te tratan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P713. Rara vez esta justificado desobedecer a la policía.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P714. La mayoría de los policías son honestos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P715. La policía es efectiva manteniendo la ley y el orden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P716. En mi barrio la gente que comete delitos suele salirse con la suya y rara vez los agarra la policía.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P717. En mi barrio cuando tenés un problema, la policía es poco útil y las cosas las tiene que resolver uno por su cuenta.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Violencia, bullying y acoso

Las próximas preguntas tienen que ver con si fuiste víctima de la violencia *en el último año*, es decir, **desde julio de 2012**. Algo así puede pasarle a uno en diversos lugares, por ejemplo, en la calle, en la escuela o en casa con sus hermanos. El ofensor puede estar solo o en grupo.




Más abajo describimos algunas formas de violencia. Queremos saber si alguna de ellas te pasó alguna vez.

Estas preguntas no refieren a situaciones donde vos intencionalmente tenés una pelea con amigos sólo para divertirte.

	1. ¿Alguna vez ésto te ocurrió?	2. ¿Cuántas veces en los últimos 12 meses?	3. ¿En cuántos de estos incidentes hiciste una denuncia a la policía?
<b>P800. Alguien te quitó algo, por ejemplo, un bolso, tu bicicleta o dinero, con violencia o amenazándote con usar la violencia.</b>	<input type="radio"/> Sí ⇒ <i>pasá a las preguntas a la derecha</i> <input type="radio"/> No ⇒ <i>(pregunta 802)</i>  3	<input type="radio"/> nunca <i>(pregunta 802)</i>  3 ___ veces	<input type="radio"/> nunca ___ veces




### P801. Ahora pensá en la última vez que ésto te pasó en el último año

1. ¿Dónde ocurrió?	2. ¿Cuál era tu relación con el ofensor (o el ofensor principal en caso de ser más de uno)?	3. ¿Cuántos ofensores había?	4. ¿Cuál era el sexo del ofensor (o del ofensor principal en caso de ser más de uno)?	5. Estabas vos o el ofensor (o el ofensor principal en caso de ser más de uno) bajo los efectos del alcohol o las drogas?
<input type="radio"/> mi casa <input type="radio"/> casa de un amigo/conocido <input type="radio"/> liceo/UTU <input type="radio"/> espacio público (calle, shopping, etc.) <input type="radio"/> otro cuál_____	<input type="radio"/> pareja <input type="radio"/> padres/adultos responsables <input type="radio"/> otros adultos que conozco <input type="radio"/> ex pareja <input type="radio"/> compañero de liceo/UTU <input type="radio"/> un adolescente que conozco <input type="radio"/> un adolescente desconocido <input type="radio"/> un adulto desconocido	<input type="radio"/> 1 <input type="radio"/> varios, es decir___	<input type="radio"/> hombre <input type="radio"/> mujer	<input type="radio"/> si, el ofensor y yo <input type="radio"/> si, el ofensor <input type="radio"/> si, yo <input type="radio"/> no, ninguno

 3	1. ¿Alguna vez esto te ocurrió?	2. ¿Cuántas veces en los últimos 12 meses?	3. ¿En cuántos de estos incidentes hiciste una denuncia a la policía?
<b>P802. Alguien te golpeó tan fuerte que te causó lesiones (ej. heridas sangrantes o un ojo morado).</b>	<input type="radio"/> Sí ⇒ <i>pasá a las preguntas a la derecha</i> <input type="radio"/> No ⇒ <i>(pregunta 804)</i>  4	<input type="radio"/> nunca <i>(pregunta 804)</i>  4 ___ veces	<input type="radio"/> nunca ___ veces

**P803. Ahora pensá en la última vez que ésto te pasó en el último año**

1. ¿Dónde ocurrió?	2. ¿Cuál era tu relación con el ofensor (o el ofensor principal en caso de ser más de uno)?	3. ¿Cuántos ofensores había?	4. ¿Cuál era el sexo del ofensor (o del ofensor principal en caso de ser más de uno)?	5. ¿Estabas vos o el ofensor (o el ofensor principal en caso de ser más de uno) bajo los efectos del alcohol o las drogas?
<input type="radio"/> mi casa <input type="radio"/> casa de un amigo/conocido <input type="radio"/> liceo/UTU <input type="radio"/> espacio público (calle, shopping, etc.) <input type="radio"/> otro cuál _____	<input type="radio"/> pareja <input type="radio"/> padres/adultos responsables <input type="radio"/> otros adultos que conozco <input type="radio"/> ex pareja <input type="radio"/> compañero de liceo/UTU <input type="radio"/> un adolescente que conozco <input type="radio"/> un adolescente desconocido <input type="radio"/> un adulto desconocido	<input type="radio"/> 1 <input type="radio"/> varios, es decir ___	<input type="radio"/> hombre <input type="radio"/> mujer	<input type="radio"/> si, el ofensor y yo <input type="radio"/> si, el ofensor <input type="radio"/> si, yo <input type="radio"/> no, ninguno

 4	1. ¿Alguna vez ésto te ocurrió?	2. ¿Cuántas veces en los últimos 12 meses?	3. ¿En cuántos de estos incidentes hiciste una denuncia a la policía?
<b>P804. Alguien te obligó con violencia o con una amenaza de utilizar la violencia a realizar actos sexuales o soportar actos sexuales que vos no querías.</b>	<input type="radio"/> Sí ⇒ <i>pasá a las preguntas a la derecha</i> <input type="radio"/> No ⇒ <i>(pasa pagina 14)</i>  5	<input type="radio"/> nunca <i>(pasá pagina 14)</i>  5 ___ veces	<input type="radio"/> nunca ___ veces

**P805. Ahora pensá en la última vez que ésto te pasó en el último año**

1. ¿Dónde ocurrió?	2. ¿Cuál era tu relación con el ofensor (o el ofensor principal en caso de ser más de uno)?	3. ¿Cuántos ofensores había?	4. ¿Cuál era el sexo del ofensor (o del ofensor principal en caso de ser más de uno)?	5. Estabas vos o el ofensor (o el ofensor principal en caso de ser más de uno) bajo los efectos del alcohol o las drogas?
<input type="radio"/> mi casa <input type="radio"/> casa de un amigo/conocido <input type="radio"/> liceo/UTU <input type="radio"/> espacio público (calle, shopping, etc.) <input type="radio"/> otro cuál _____	<input type="radio"/> pareja <input type="radio"/> padres/adultos responsables <input type="radio"/> otros adultos que conozco <input type="radio"/> ex pareja <input type="radio"/> compañero de liceo/UTU <input type="radio"/> un adolescente que conozco <input type="radio"/> un adolescente desconocido <input type="radio"/> un adulto desconocido	<input type="radio"/> 1 <input type="radio"/> varios, es decir ___	<input type="radio"/> hombre <input type="radio"/> mujer	<input type="radio"/> si, el ofensor y yo <input type="radio"/> si, el ofensor <input type="radio"/> si, yo <input type="radio"/> no, ninguno



Ⓢ Ahora hablemos de **bullying, maltrato o acoso**. A veces, los adolescentes pueden tratarse bastante mal unos a otros. ¿Cómo es tu experiencia? ¿Sufriste abusos por parte de otros adolescentes en el último año, es decir, **desde julio de 2012**? *Por ejemplo puede haberte pasado en la escuela, camino de la escuela, cuando salís, en casa o también en Internet.*

¿Cuántas veces <b>desde julio de 2012</b> otros adolescentes...	nunca	de 1 a 2 veces	de 3 a 10 veces	alrededor de una vez por mes	alrededor de una vez por semana	(casi) todos los días
P806...te ignoraron o te excluyeron a propósito?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P807...se rieron de vos, te insultaron o se burlaron de vos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P808...te golpearon, mordieron, patearon o tiraron del pelo?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P809...te quitaron, rompieron o escondieron cosas a propósito?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P810...te acosaron sexualmente (ej. piropos sexuales ofensivos, te manosearon)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

¿Y vos? ¿Acosaste o maltrataste a otros adolescentes en el último año, es decir, **desde julio de 2012**? *Puede haber pasado por ejemplo en la escuela, camino de la escuela, cuando salís, en casa o también en Internet.*

¿Cuántas veces <b>desde julio de 2012</b> ...	nunca	de 1 a 2 veces	de 3 a 10 veces	alrededor de una vez por mes	alrededor de una vez por semana	(casi) todos los días
P811...ignoraste o excluiste a propósito a otro adolescente?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P812...te reíste, insultaste o te burlaste de otro adolescente?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P813...golpeaste, mordiste, pateaste o tiraste del pelo a otro adolescente?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P814...quitaste, rompiste o escondiste cosas a propósito a otro adolescente?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P815...acosaste sexualmente a otro adolescente (ej. piropos sexuales ofensivos, lo/la manoseaste)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Alcohol, drogas, etc.

Acá tenés una lista con algunas drogas, estupefacientes y otras sustancias. ¿Probaste o usaste alguna vez algo así y, si es el caso, cuántas veces en los últimos 12 meses (es decir, desde julio de 2012)?

	1. ¿Probaste alguna vez algo así?		2. ¿Cuántos años tenías cuando lo probaste por primera vez?	3. ¿Cuántas veces lo consumiste en los últimos 12 meses?						4. ¿Cuántas veces tuviste problemas por eso con la policía?
	No	Sí		nunca	una vez	de 2 a 5 veces	de 6 a 12 veces (todos los meses)	de 13 a 52 veces (todas las semanas)	de 53 a 365 veces (a diario)	
P900. Cigarrillos, tabaco, pipa de agua	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P901. Cerveza, vino, tragos	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P902. Tequila, vodka, whisky, ron	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P903. cannabis, marihuana, hierba, hachís	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P904. Éxtasis, MDMA	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P905. Anfetaminas, bebidas energizantes, ice, cristal, metanfetaminas	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P906. Cocaína	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P907. Pasta base, crack	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P908. LSD, tripa, hongos alucinógenos	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces
P909. Medicamentos como ansiolíticos, anti depresivos, ritalina, etc. (no incluyas nada que estes tomando recetado por un doctor)	<input type="radio"/>	<input type="radio"/> ⇒	___ años	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> nunca ___ veces

Imagínate que quisieras conseguir drogas, ¿cuán difícil crees que sería?

	muy difícil	difícil	ni difícil ni fácil	fácil	muy fácil
P910. Si vos intentaras conseguir un porro de marihuana, ¿cuán difícil creés que sería?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P911. Y en los lugares donde conseguirías marihuana, ¿cuán difícil te sería conseguir también otras drogas duras (cocaína, éxtasis, etc.)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Casi todos los adolescentes hicieron alguna vez cosas no permitidas, por ejemplo, robar o romper cosas. Otros adolescentes se pelearon a propósito con alguien y le causaron heridas. ¿Cómo fue tu experiencia en los **últimos 12 meses**, es decir, **desde julio de 2012**?

<i>Desde julio de 2012, ¿alguna vez...</i>		Si te pasó: <i>¿cuántas veces desde julio de 2012?</i>	<i>¿Cuántas de esas veces tuviste problemas con la policía?</i>
P1000. ... te rateaste a propósito toda una clase?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces	
P1001. ...utilizaste un trencito o copiaste en una prueba en la escuela?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces	
P1002. ...robaste algo de tu centro de estudios?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1003. ...te fugaste de tu casa?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1004. ...robaste algo de tu casa?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1005. ...robaste en un negocio o un kiosco algo que salía <i>menos</i> de 800 pesos?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1006. ...robaste en un negocio o un kiosco algo que salía <i>más</i> de 800 pesos?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1007. ...robaste una bicicleta u otro vehículo?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1008. ...manejaste un vehículo a motor (auto, moto) sin tener libreta de chofer?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1009. ...subiste o bajaste a propósito datos <i>ilegales</i> de Internet (ej. música, imágenes, software)? <i>Si la respuesta es sí, ¿cuántos <u>archivos</u> aproximadamente (canciones, películas, imágenes, software)?</i>	<input type="radio"/> no <input type="radio"/> sí ⇨	___ archivos⇨	<input type="radio"/> nunca ___ veces
P1010. ...forzaste un auto o forzaste la entrada a un edificio (ej. vivienda, negocio) para robar algo?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1011. ...vendiste droga (ej. marihuana, cocaína, éxtasis)?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1012. ...utilizaste el ómnibus sin tener boleto ni abono?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1013. ...graffiteaste o escribiste algo en la pared de una casa o en un medio de transporte público?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1014. ...causaste daños a propósito en ventanas, alumbrado público, contenedores de basura, asientos del ómnibus u otras cosas similares?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1015. ...llevaste con vos un arma u otro objeto peligroso para protegerte o para amenazar o atacar a otros? <i>Si la respuesta es sí, ¿cuántos <u>días</u> aproximadamente durante el último año?</i>	<input type="radio"/> no <input type="radio"/> sí ⇨	___ días ⇨	<input type="radio"/> nunca ___ veces
P1016. ...forzaste a una persona a participar contra su voluntad en actos sexuales en los que se tocaron sus órganos sexuales o los tuyos?	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1017. ...amenazaste a alguien con recurrir a la violencia para obtener dinero o cosas? <i>Podés haberlo hecho solo o en grupo. Pueden haberse utilizado también armas.</i>	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1018. ...quitaste a alguien dinero o cosas con violencia? <i>Podés haberlo hecho solo o en grupo. Pueden haberse utilizado también armas.</i>	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces
P1019. ...golpeaste, pateaste o cortaste a propósito a alguien causándole lesiones? <i>Puede haber sido por ejemplo un adolescente en la escuela, en una cancha deportiva o durante una salida, pero también alguien en casa, como tus hermanos o padres.</i>	<input type="radio"/> no <input type="radio"/> sí ⇨	___ veces ⇨	<input type="radio"/> nunca ___ veces



En la **última pregunta**, ¿marcaste que **golpeaste, pateaste o cortaste** a propósito a alguien causándole lesiones?

Si la respuesta es **sí** ⇒ seguir con la pregunta siguiente

Si la respuesta es **no** ⇒ saltea las proximas preguntas y sigue en pagina 18  

Tratá de recordar la **última vez desde julio de 2012** que golpeaste, pateaste o cortaste a propósito a alguien causándole lesiones.

<p>P1020. ¿<b>Dónde</b> sucedió eso? ¡Marcar sólo una respuesta!</p>	<p> <input type="radio"/> En casa  <input type="radio"/> En otra vivienda  <input type="radio"/> Centro de estudios/patio  <input type="radio"/> Camino de la escuela  <input type="radio"/> Parque infantil/lugar de juegos  <input type="radio"/> En otro lugar: _____  <i>Describe arriba el lugar <b>donde</b> sucedió.</i> </p> <p> <input type="radio"/> Cancha deportiva (ej., una cancha de fútbol)  <input type="radio"/> Parada  <input type="radio"/> Ómnibus  <input type="radio"/> Calle/plaza/parque  <input type="radio"/> Shopping         </p>
<p>P1021. ¿Lo hiciste <b>solo</b> o en <b>grupo</b>?</p>	<p> <input type="radio"/> Lo hice solo.  <input type="radio"/> Lo hice con otros, éramos ____ personas (ingresar el número de personas)         </p>
<p>P1022. La persona que lastimaste, ¿estaba <b>sola</b> o en <b>grupo</b>?</p>	<p> <input type="radio"/> Estaba sola.  <input type="radio"/> Estaba en un grupo de ____ personas. (ingresar el número de personas)         </p>
<p>P1023. La persona que lastimaste, ¿era <b>mujer</b> u <b>hombre</b>?</p>	<p> <input type="radio"/> mujer  <input type="radio"/> hombre         </p>
<p>P1024. ¿Qué <b>edad</b> tenía la persona que lastimaste?</p>	<p>Tenía alrededor de ____ años. (Por favor, ingresar la edad aproximada.)</p>
<p>P1025. ¿<b>Quién</b> era la persona que lastimaste? Marcá con una cruz <b>todo</b> lo que sea aplicable.</p>	<p> <input type="radio"/> Novio/a  <input type="radio"/> Ex novio/a  <input type="radio"/> Un/a amigo/a  <input type="radio"/> Un adolescente de mi clase  <input type="radio"/> Un adolescente de mi liceo  <input type="radio"/> Un adolescente de mi barrio         </p> <p> <input type="radio"/> Un adolescente que no conocía  <input type="radio"/> Una persona adulta que no conocía  <input type="radio"/> Mi hermano/a  <input type="radio"/> Mi madre/mi padre  <input type="radio"/> Otra persona, es decir: _____  <i>Describe quién era la persona.</i> </p>



## 6 ¡Sigamos todos!

### Cómo te ves vos

Ahora volvemos a tener unas cuantas preguntas generales. Primero, hablemos de cómo te ves a vos mismo. Marcá que tan de acuerdo estás vos con estas oraciones.

	totalmente en desacuerdo	en desacuerdo	de acuerdo	totalmente de acuerdo
P1100. Casi siempre actúo sin pensar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1101.trato de conseguir lo que quiero, incluso cuando eso les trae problemas a otros.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1102. Me gusta asumir riesgos solo porque me divierte.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1103. Prefiero salir y hacer algo a quedarme en casa leyendo o pensando.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1104. Cuando otros se enfadan por cosas que hice yo, problema de ellos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1105. Pierdo el control bastante rápido.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1106. Prefiero hacer cosas físicas más que de pensar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1107. Siempre hago lo que tengo ganas de hacer en el corto plazo, sin pensar en las consecuencias que podría tener a largo plazo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1108. Para mí la emoción y la aventura son más importantes que la seguridad.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1109. No pierdo tiempo ni esfuerzo planificando mi futuro.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1110. Nunca miento.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1111. Hago siempre lo que quiero en el momento, aún sabiendo que por actuar así pierdo oportunidades en el futuro.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1112. Cuando no estoy de acuerdo con alguien, se me hace muy difícil hablar sobre eso sin enojarme.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1113. Cuando estoy muy enojado, es mejor que la gente se aleje de mí.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1114. Cuando estoy enojado con la gente, tengo más ganas de lastimarlos que de hablar con ellos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1115. Cuando otra persona tiene problemas, me cuesta ponerme en su lugar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1116. Pienso primero en mis intereses, aún cuando le traiga problemas a los demás.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1117. Me gusta probarme haciendo cosas riesgosas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1118. A veces me divierte hacer cosas que me pueden meter en líos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1119. Cuando las cosas se complican, abandono.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1120. Tiendo a evitar las tareas difíciles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1121. Mis compañeros de clase cuando contestan esta encuesta mienten en las respuestas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1122. Las cosas que más me gustan son las más fáciles de hacer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1123. No me gusta hacer tareas difíciles que me exigen ir al límite de mis habilidades.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1124. Me siento mejor cuando estoy haciendo cosas que cuando me quedo quieto.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1125. Tengo más energía y necesidad de hacer cosas que la mayoría de la gente de mi edad.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## La escuela

¿Cómo te va en el centro de estudios?

Señalá cuánto se aplican estas afirmaciones a vos en *tu centro de estudios actual*.

Si tenés varios profesores, tratá de hacer una evaluación general.

	totalmente en desacuerdo	en desacuerdo	de acuerdo	totalmente de acuerdo
P1300. Me gusta ir al centro de estudios.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1301. Mi profesor/a es justo/a conmigo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1302. Tenemos un grupo muy bueno en mi clase.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1303. Cometo muchos errores en la tarea/deberes que hago en casa.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1304. Me gustaría tener un trabajo interesante más adelante, y ahora trato de hacer todo lo que puedo para conseguirlo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1305. Me gusta hacer la tarea domiciliaria.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1306. Me llevo bien con mi profesor/a.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1307. Me llevo bien con la gente de mi clase.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1308. A menudo tengo malas notas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1309. En el centro de estudios me esfuerzo para poder tener un buen trabajo después.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1310. Creo que estudiar no sirve para nada.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1311. Cuando es necesario, mi profesor/a me ayuda.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1312. La gente de mi clase se porta bien conmigo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1313. A menudo tengo dificultad para seguir la clase.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1314. Para mí es muy importante que me vaya bien en los estudios.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1315. En mi centro de estudios todos los alumnos somos tratados en forma justa.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1316. Los alumnos violentos que se aprovechan de otros suelen salirse con la suya y generalmente no les pasa nada.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1317. En mi centro de estudios los profesores, funcionarios y autoridades son efectivos manteniendo el orden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1318. Los profesores, funcionarios y autoridades actúan de una forma coherente con lo que yo creo que está bien y está mal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1319. Hay que hacer caso a los profesores, funcionarios y autoridades aunque uno esté en desacuerdo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1320. La mayoría de los profesores, funcionarios y autoridades de centro de estudios hacen bien su trabajo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1321. Confío en los profesores, funcionarios y autoridades.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1322. En mi centro de estudios las sanciones y castigos se hacen en forma justa.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1323. A algunos alumnos se los trata mejor que a otros.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1324. Rara vez esta justificado desobedecer a los profesores, funcionarios y autoridades del centro de estudios.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

P1325. Un día normal de clases: ¿Cuánto tiempo le dedicas en promedio a la tarea domiciliaria?

nada	menos de 15 minutos	15 a 30 minutos	30 minutos a 1 hora	1 a 2 horas	2 a 3 horas	más de 3 horas
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Tu conducta ante las peleas

Acá tenés varias cosas que los adolescentes pueden hacer cuando se pelean con otros. Señalá *cuán a menudo* hacés algo así cuando te peleás con alguien. ¿*Nunca, raras veces, algunas veces, a menudo o muy a menudo*?

	nunca	raras veces	algunas veces	a menudo	muy a menudo
P1400. Amenazo con golpear.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1401. Me pongo furioso y le grito al otro.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1402. Escucho con mucha atención para que no haya malentendidos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1403. Golpeo para que me respeten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1404. Trato de controlar mi ira y mi enojo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1405. Digo que algo no me gusta sin gritar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## TV, computadora y celular

Las próximas preguntas son sobre la TV, la computadora, el celular y otros aparatos de ese tipo. Cuando pensás en los **últimos 12 meses**, es decir, desde julio de 2012, ¿cuántas veces hiciste lo siguiente?

	nunca	de 1 a 2 veces	de 3 a 12 veces	varias veces al mes	una vez a la semana	varias veces por semana	a diario
P1500. Mirar películas de terror "para mayores de 18 años".	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1501. Mirar películas porno "para mayores de 18 años".	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1502. Mirar otras películas "para mayores de 18 años" (thrillers, de acción).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1503. Buscar en Internet cosas violentas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1504. Buscar en Internet contenidos pornográficos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1505. Ver en el celular videos violentos y compartirlos con amigos/compañeros.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1506. Grabar tú mismo con el celular escenas violentas (ej. cómo alguien recibe una paliza).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1507. Jugar en la computadora o consola a juegos que son "para mayores de 18 años", en los que hay que matar de manera realista a los oponentes o que contienen escenas sangrientas (los juegos de "Mortal Kombat", "Call of duty", etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

¿Cuáles son ahora mismo tus juegos de computadora o consola preferidos?

P1508 ¿A qué dos juegos de computadora o consola jugás más ahora mismo?	a) 1 <sup>er</sup> juego: _____ b) 2 <sup>o</sup> juego: _____  <input type="radio"/> No juego en la computadora ni en la consola.
-------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------

*Si no jugás a juegos de este tipo, marcá acá* ⇒

## Tu tiempo libre en casa

¿A qué hora te vas normalmente a la cama?

P1600. **Si al día siguiente tengo clases normalmente** me voy a la cama a las \_\_\_\_:\_\_\_\_ hs (por ejemplo: 22:00 o 01:15)

P1601. **Un viernes o sábado normalmente** me voy a la cama a las \_\_\_\_:\_\_\_\_ hs (por ejemplo: 22:00 o 01:15)

¿Cuántos pesos recibís de tus padres **como mensualidad** para tu tiempo libre?

P1602. Recibo \_\_\_\_\_ pesos al mes. (Por favor, escribir cuántos pesos al mes. Si no tenés mensualidad pone 0)

Muchos adolescentes no sólo reciben plata de sus padres sino que ganan un poco más o consiguen dinero de otra manera. Además de la mensualidad que recibís de tus padres, ¿cuánto dinero **más** en pesos tenés a tu disposición **cada mes** para tu tiempo libre?

P1603. **Además** de mi mensualidad, dispongo de \_\_\_\_\_ pesos adicionales por mes.  
(Por favor, escribir cuántos pesos adicionales al mes.)


## Tu tiempo libre fuera de casa

¿Qué hacés en tu tiempo libre cuando no estás en casa? ¿Cada cuánto hacés las siguientes cosas?

	nunca	un par de veces al año	alrededor de una vez por mes	alrededor de una vez por semana	de 2 a 3 veces por semana	(casi) todos los días
P1700. Encontrarte con tus compañeras y compañeros <b>a la noche</b> y hacer algo con ellos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1701. Encontrarte con tus amigos y pelear con otros adolescentes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1702. Jugar al aire libre <b>a la tarde</b> con otros adolescentes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1703. Encontrarte con amigos y hacer algo que está prohibido, por diversión.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1704. Encontrarte con amigos y fumar cigarrillos, tomar alcohol o fumar marihuana.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1705. Encontrarte con compañeras y compañeros en una casa donde no hay adultos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1706. Encontrarte con amigos y robar algo en un kiosco o un negocio.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1707. Ir a una fiesta o festejo de tarde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1708. Ir a una fiesta o festejo con tus amigos <b>por la noche</b> .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1709. Tener una cita.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1710. Encontrarte con tus amigos en un café o restaurant (ej. McDonald's).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1711. Ir con tus amigos <b>a la noche</b> a un bar o un boliche.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1712. Divertirte con tus amigos <b>por la tarde</b> en un parque, en un shopping.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1713. Divertirte con tus amigos <b>por la noche</b> en un parque, en un shopping.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Tus amigos y compañeros

Las próximas preguntas se refieren a los amigos y compañeros con los que pasás tu tiempo libre. Los adolescentes suelen tener un grupo de amigos o una barra que se reúne con regularidad para hacer cosas o simplemente para estar juntos.

P1800. ¿Vos formás parte de un grupo de ese tipo?	<input type="radio"/> Sí	<input type="radio"/> No ⇒ Seguir en  7			
P1801. ¿Cuánta gente, incluido vos, hay en este grupo?	<input type="radio"/> 2 personas	<input type="radio"/> 11 a 20 personas	<input type="radio"/> 51 a 100 personas		
	<input type="radio"/> 3 a 10 personas	<input type="radio"/> 21 a 50 personas	<input type="radio"/> más de 100 personas		
P1802. ¿Cuál es el promedio aproximado de edad?	<input type="radio"/> menos de 12 años	<input type="radio"/> entre 12 y 15 años	<input type="radio"/> entre 16 y 18 años	<input type="radio"/> entre 19 y 25 años	<input type="radio"/> más de 25 años
P1803. ¿Quién pertenece a tu grupo de amigos? ¿Son sobre todo varones o mujeres?	<input type="radio"/> son todos varones	<input type="radio"/> la mayoría son varones	<input type="radio"/> la mayoría son mujeres	<input type="radio"/> son todas mujeres	<input type="radio"/> aproximadamente las mismas mujeres que varones
P1804. ¿Cuánto tiempo hace que existe tu grupo?	<input type="radio"/> menos de 3 meses	<input type="radio"/> de 3 meses a 1 año	<input type="radio"/> de 1 a 4 años	<input type="radio"/> más de 4 años	
P1805. En tu grupo, ¿está bien hacer cosas ilegales?	<input type="radio"/> Sí	<input type="radio"/> No			
P1806. Los de tu grupo, ¿hacen cosas ilegales juntos? (ej. drogarse, robar en los negocios, destruir cosas juntos)	<input type="radio"/> Sí	<input type="radio"/> No			
P1807. Alguno de tu grupo, tuvo problemas con la policía?	<input type="radio"/> Sí	<input type="radio"/> No			

¿Cada cuánto hacen las siguientes cosas en tu grupo o tu barra?	nunca	raras veces	algunas veces	a menudo
P1808. Amenazar a la gente, dar palizas o pelear con otros.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1809. Robar cosas o entrar ilegalmente en casas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1810. Robar a otras personas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1811. Cobrar dinero por protección extorsiva.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1812. Vender droga (ej. marihuana, cocaína, éxtasis).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1813. Llevar armas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1814. Graffitear o destruir cosas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1815. Consumir alcohol o drogas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1816. Otras cosas ilegales, es decir: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Ahora vienen algunas preguntas sobre tus amigas, amigos y conocidos. Pueden ser por ejemplo adolescentes de tu clase o tu barrio. *Acá no cuentan los amigos que viven en el extranjero o los que viven lejos, ni los amigos que conocés sólo a través de Internet.*

¿Cuántos amigos/as o conocidos/as tuyos/as han hecho estas cosas en los últimos 12 meses?

Numero de amigos/as o conocidos/as que...	ninguno	1	2	3 – 5	más de 5
P1817. han robado algo de una tienda.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1818. han atacado o lastimado físicamente a alguien.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1819. han vendido drogas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1820. han consumido drogas duras (cocaína, heroína, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P1821. Han tenido problemas con la policía a raíz de un delito.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Acá tenés una breve historia que podría sucederte a vos. ¡Leéla con cuidado y respondé las preguntas!

Imagínate que es de noche y has entrado a un pequeño supermercado a comprar unas pilas. Te das cuenta de que están por cerrar y que no tenés dinero suficiente para la compra. Es fácil esconder las pilas en tus bolsillos y comprar un chicle para no despertar sospechas. El único empleado de la tienda no te puede ver y esta distraído leyendo el diario detrás del mostrador. Así que te guardás las pilas en el bolsillo, comprás un chicle y te vas.

	nunca	raras veces	algunas veces	(casi) todos los días
P1900. Primero, tratá de recordar el último mes. ¿Cuántas veces se te pasó por la cabeza llevarte algo de un supermercado sin pagar? <b>No importa si después lo hiciste de verdad.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	muy improbable	bastante improbable	bastante probable	muy probable
P1901. ¿Cuán probable te parece que hagas algo así en los próximos 12 meses?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Imagínate que de verdad te llevás las pilas sin pagar de la tienda, como en la historia.**

	me sentiría muy mal	me sentiría bastante mal	me sentiría bastante bien	me sentiría muy bien
P1902. ¿Te sentirías bien por eso?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no me parecería nada grave	me parecería poco grave	me parecería bastante grave	me parecería muy grave
P1903. ¿Te parecería grave hacer algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	muy improbable	bastante improbable	bastante probable	muy probable
P1904. ¿Cuán probable sería que después el empleado o el dueño del supermercado se enterasen y te fueran a buscar por eso?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no me parecería nada grave	me parecería poco grave	me parecería bastante grave	me parecería muy grave
P1905. Y ¿cuán grave sería para vos que el empleado o el dueño del supermercado te fueran a buscar por eso?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Ahora pensá en tus mejores amigos.**

	muy improbable	bastante improbable	bastante probable	muy probable
P1906. ¿Cuán probable es que tus mejores amigos se enteren o descubran que hiciste algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Imagínate ahora que tus mejores amigos se enteran de lo que hiciste.**

	no me admirarían nada	me admirarían poco	me admirarían bastante	me admirarían mucho
P1907. ¿Tus mejores amigos te admirarían por ello?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no les parecería nada grave	les parecería poco grave	les parecería bastante grave	les parecería muy grave
P1908. A tus mejores amigos, ¿les parecería grave?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	no me avergonzaría nada	me avergonzaría poco	me avergonzaría bastante	me avergonzaría mucho
P1909. ¿Eso haría que te <i>avergüences</i> ante tus mejores amigos?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no tendría consecuencias graves	tendría consecuencias poco graves	tendría consecuencias bastante graves	tendría consecuencias muy graves
P1910. ¿Tendría <i>consecuencias graves</i> para vos que tus mejores amigos se enteraran?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Ahora pensá en tus padres** ("los padres" son los adultos que se ocupan de vos en tu hogar).

	muy improbable	bastante improbable	bastante probable	muy probable
P1911. ¿Cuán probable es que tus padres se enteren o descubran algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Imagínate ahora que tus padres se enteran de lo que hiciste.**

	no me admirarían nada	me admirarían poco	me admirarían bastante	me admirarían mucho
P1912. ¿Tus padres te <i>admirarían</i> por eso?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no les parecería nada grave	les parecería poco grave	les parecería bastante grave	les parecería muy grave
P1913. A tus padres, ¿les parecería <i>grave</i> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no me avergonzaría nada	me avergonzaría poco	me avergonzaría bastante	me avergonzaría mucho
P1914. ¿Eso haría que te <i>avergüences</i> ante tus padres?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no tendría consecuencias graves	tendría consecuencias poco graves	tendría consecuencias bastante graves	tendría consecuencias muy graves
P1915. ¿Tendría <i>consecuencias graves</i> para vos que tus padres se enteraran?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Ahora hablemos de la policía.**

	muy improbable	bastante improbable	bastante probable	muy probable
P1916. ¿Cuán probable es que la policía se <i>entere</i> o <i>descubra</i> algo así?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	no tendría consecuencias graves	tendría consecuencias poco graves	tendría consecuencias bastante graves	tendría consecuencias muy graves
P1917. ¿Tendría <i>consecuencias graves</i> para vos que la policía se <i>entere</i> ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**¡Bárbaro!**  
**¡Lo lograste!**  
**¡Gracias por participar!**

Si hay alguna cosa más que te gustaría contarnos, podés escribirla acá:

---

---

---

---

---

