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What Causes Juvenile Crime? A Case-Control Study

Cosa Causa la Criminalità Giovanile? Uno Studio Caso-Controllo

Elena Dalla Chiara and Federico Perali¹

Abstract This work analyses the causes of juvenile crime within a case-control study undertaken in the Italian regions of Veneto and Sicily. We show that family background matters. Parents' education and family income have no effect on crime rates in the Veneto region but are significant risk factors in Sicily. Dropping out of school substantially increases the probability that an adolescent is involved in crime activities. Poor parental relations with children or living in a broken family significantly raises the odds to be in conflict with the law.

Abstract *Questo lavoro analizza le cause della criminalità minorile con uno studio caso-controllo condotto nelle regioni italiane del Veneto e della Sicilia. Lo studio dimostra che il background familiare è importante. L'istruzione dei genitori e il reddito familiare non hanno effetto sui tassi di criminalità nella regione Veneto, ma sono fattori di rischio significativi in Sicilia. L'abbandono scolastico aumenta di molto la probabilità che un adolescente sia coinvolto in attività criminali. Relazioni dei genitori con i figli non buone o il vivere in una famiglia disgregata aumenta significativamente la probabilità che un minore sia in conflitto con la legge.*

Key words: case-control study, juvenile crime, multi-dimensional poverty, single parent

1 Introduction

This research studies the causes of juvenile crime in Italy. We are interested in learning how the income dimension of poverty and other non-material dimensions of

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poverty (Dalla Chiara and Perali, 2021) can have a causal role in explaining youth offending. We also inquire whether the identified risk and protective factors may contribute to aggravating or alleviating the incidence of juvenile crime after the occurrence of critical events such as a perduring economic crisis or a pandemic emergency (Brandford Wilcox *et al.*, 2021; McCarthy *et al.*, 2021).

Our young people are leaving the health emergency behind with educational deficits and heavy relational problems within the family. Loneliness, often due to an improper use of social networks, and fear of the other may have affected the personality traits of minors in a delicate developmental phase (Nobili, 2020) thus exposing our young people to the risk of engaging in criminal activities. In general, the crisis has been accompanied by greater poverty and serious gaps in parental control, especially in single parent households, that may transform juvenile crime in a serious public health problem. It is then urgent to design evidence-based policies that may prove effective in preventing and curing juvenile crime in Italy.

To this end, we collected individual and household level data in 2010 about young people who committed an offence before the age of 18 and were still serving their sentences under the supervision of the Juvenile Social Service Offices (USSM), that helped identifying a priori the subjects who had problems with the law, in Veneto and Sicily as representative regions of the social and economic situations in the North and South of Italy. These cases have been compared with a control sample with similar design to better understand what causes juvenile crime in Italy.

2 Methodology

One of the main epidemiological questions that we investigate, controlling for potential confounders, is whether “poverty” causes the risk that young people become offenders, where income or other non-monetary forms of poverty is the exposure and offending is the outcome.

We undertake a case-control study because, differently from, for example, the United States where panel data such as the National Longitudinal Survey of Youth (NLSY) have been collected since 1979 (Levitt and Lochner, 2001), no cohort studies sufficiently large to record the occurrence of a public health problem, such as juvenile crime, is available. Further, the case-control approach allows us to investigate a wide range of exposures. In case-control studies of juvenile crime a group of young offenders (‘cases’) and a suitable group of subjects without the condition of having experienced problems with the law (‘controls’) are selected and their exposure to risk factors is ascertained. If the level of exposure among cases and controls is different, it is possible to infer that the exposure may be associated with an increased or decreased occurrence of the outcome of interest.

We administered a questionnaire to young offenders and one to their families to form a sample of 138 cases in Veneto and 178 cases in Sicily to implement a north-south comparison of general policy interest. Though official statistics about population features related to the prevalence of juvenile crime by type of offence are not available, on the basis of sampling statistics typical of rare target populations, as

is the case for the population of young offenders, we maintain that the subsample of young subjects in custody at the Juvenile Social Service Offices (USSM) is representative. The questionnaires have a socio-ecological design collecting information about socio-economic and psychological characteristics, relational aspects and social capital, consumption, income and wealth, intra-household distribution of resources, and time use. We record a wide range of questions relevant to criminal activity, including theft, drug sales, use of force, causing injury to someone or causing property damage. We aggregated these activities in property crimes and crimes of violence that are likely to be determined by social and economic factors accounting also for the fact that youth engaged in one criminal activity are also likely to be involved in other illegal activities.

The integrated design of the sample of cases requires an integrated control sample constructed matching three ISTAT surveys (living standard, consumption and time use surveys) and the Survey on Family Conditions and Social Capital conducted by CISF for the same year of collection of the cases (Dalla Chiara, Menon and Perali, 2019). As control sample we selected families with at least a family member aged 0-19 years with a representative sample of 888 and 313 controls in Veneto and Sicily respectively. The variables in both questionnaires have a common definition.

The socio-ecological design has the objective to identify the causal importance of social factors such as individual characteristics, traits and responsibilities, family background, quality of parenting and their relations with the children, female-headed households, education, youth, and community circumstances along with the degree of “social control” exerted by a community, and economic factors such as income, unemployment, and poverty (Becker, 1968). It was not possible to evaluate some putative factors recorded for the cases such as the cognitive and noncognitive abilities of the young offenders because it was not available in the controls.

The analysis places special emphasis on potential sources of selection bias, confounding and reverse causality. We first analyze odds ratios and then we pose our attention to the estimation of conditional causal odds ratios using logistic regression after adjusting for potential confounding variables (Borgan *et al.*, 2018).

The odds ratio is an index defining the cause-effect ratio between two factors. It is defined as the odds of the social problem (disease) between exposed subjects divided by the odds of the problem among non-exposed subjects. If $OR=1$, the odds of the exposed cases is equal to the odds of the exposed in the control, that is the risk factor does not affect the occurrence of the problem, if $OR>1$ the risk factor can be a cause of the problem, while if $OR<1$ the risk factor is a protective factor against the problem. Under the assumption that all members of each group have a comparable risk of becoming an offender, the estimated odds ratio is an average causal effect (Holland and Rubin, 1987) because of the assumed within groups homogeneity. All potential risk factors are analyzed as dummies where 1 is the exposure.

3 Results

Table 1 shows that the estimated odds ratios for the association between crime and potential risk factors vary substantially in the Veneto and Sicily groups. The employment condition of the parents whether they are jointly employed, or only the father or the mother works are significant protection factors, especially in Sicily. The working status is highly associated with the level of education and family income. A low level of parents' education is a risk factor, especially high in Sicily, affecting also children's school attendance and performance as signalled by the OR levels of the variables "dropout" and "low parents' education and dropout" in both regions. Being a single parent (90% in the case sample are mothers as compared to 85% of single parent in the control sample) is also a critical risk factor.

Income poverty is a significant risk factor for all types of crime (violent, property, drug) in both regions. Social capital in the form of trust relations with family members (bonding) is significantly more important than the bridging type of social capital based on the quality of relationships outside the family in both regions. The poor quality of parental relations with children and the scarcity of time spent together is a strong risk factor only for the Veneto region.

Table 1: Odds ratios (OR)

<i>Risk factor</i>	<i>Veneto</i>			<i>Sicily</i>		
	<i>OR</i>	<i>95% CI</i>	<i>p</i>	<i>OR</i>	<i>95% CI</i>	<i>p</i>
<i>Parents' occupation</i>						
Parents working full time	0.86	(0.58, 1.26)	0.424	0.42	(0.25, 0.71)	0.000
Working father	0.22	(0.15, 0.33)	0.155	0.16	(0.10, 0.24)	0.000
Working mother	0.73	(0.50, 1.08)	0.589	0.59	(0.38, 0.90)	0.012
<i>Education</i>						
Low parents' education	1.56	(1.06, 2.32)	0.021	5.05	(3.10, 8.42)	0.000
Children's dropout	10.36	(6.48, 16.55)	0.000	8.38	(5.10, 13.91)	0.000
Low parents' educ. & dropout	12.19	(7.25, 20.49)	0.000	11.55	(6.85, 19.74)	0.000
<i>Single parenthood</i>						
Single or no parents	4.28	(2.81, 6.46)	0.000	5.24	(3.02, 9.26)	0.000
<i>Income poverty</i>						
Low family income	4.75	(2.95, 7.56)	0.000	5.10	(3.36, 7.74)	0.000
Violent crime & low income	4.22	(1.45, 10.83)	0.004	5.45	(2.67, 11.42)	0.000
Property crime & low income	6.18	(3.26, 11.38)	0.000	5.09	(2.97, 8.77)	0.000
Drug & low income	3.89	(1.63, 8.56)	0.001	6.82	(2.38, 22.02)	0.000
<i>Social capital & quality of relations</i>						
Trust - Bonding	6.68	(4.31, 10.28)	0.000	9.85	(4.82, 21.64)	0.000
Trust - Bridging	1.77	(1.18, 2.70)	0.004	2.24	(1.46, 3.47)	0.000
Relational WB - Children	12.69	(7.91, 20.29)	0.000	1.72	(1.01, 2.92)	0.036
Relational WB - Time	3.71	(2.50, 5.47)	0.000	1.66	(1.05, 2.60)	0.025

Logistic regression provides the modelling framework to adjust for confounding factors. We select the variables with the most relevant influence in explaining the odds to be in conflict with the law. Table 2 presents the marginal effects computed as discrete changes from the base level for all crime types and property crimes only

for both Veneto and Sicily. We place a special emphasis on property crime because it has the highest prevalence in both regions. Controlling for potential confounding reveals that living in a broken home significantly raises the probability of involvement for all crime types and property crimes. The marginal effect is relatively higher in Sicily. Parents' education and family income have no effect on either general or property crime rates in the Veneto region. This result is consistent with the findings of Levitt and Lochner (2001) for the United States. On the other hand, these factors significantly raise participation rates for both general and property crimes in Sicily. Dropping out of school substantially increases the probability that an adolescent, mainly male, participates both in all crime types and property crime in both regions, as evinced by the coefficients on dropout. Interestingly, poor relations with children significantly raises the probability to be involved in both general and property crime only in the Veneto region. The quality of time spent together does not play a significant role neither in Veneto nor in Sicily.

A few important considerations can be drawn from this logit regression. First, family background matters. Adolescents raised in families where both parents are present are much less likely to engage in crime. This conclusion agrees with the evidence from the US NLSY (Brandford Wilcox *et al.*, 2021; Levitt and Lochner 2001), though we can further qualify that the low quality of relations may cause greater criminal involvement as is the case of the Veneto region where families seem to be relatively more fragile. Parents' education has a significant effect on criminal involvement only in Sicily. Adolescents who drop out of school, a factor that increased dramatically during the pandemic, are significantly more exposed to the risk of getting involved with crime.

Table 2: Logistic regression (marginal effects)

<i>Risk factor</i>	<i>All crime types</i>		<i>Property crime</i>	
	<i>Veneto</i>	<i>Sicily</i>	<i>Veneto</i>	<i>Sicily</i>
Single or no parents	0.115 (0.031)	0.264 (0.062)	0.071 (0.023)	0.219 (0.072)
Low family income	0.061 (0.032)	0.159 (0.042)	0.042 (0.023)	0.106 (0.040)
Low parents' education	0.001 (0.018)	0.166 (0.044)	-0.015 (0.014)	0.182 (0.039)
Children's dropout	0.319 (0.048)	0.375 (0.051)	0.243 (0.047)	0.292 (0.056)
Relational WB - Children	0.300 (0.051)	0.101 (0.060)	0.190 (0.048)	0.061 (0.059)
Relational WB - Time	0.049 (0.023)	0.016 (0.047)	0.032 (0.017)	0.028 (0.044)
Adjusted R ²	0.328	0.301	0.417	0.315

* p<0.05, ** p<0.01, *** p<0.001

4 Conclusions

The successful development of young people requires that we protect and nurture a set of interrelated physiological, cognitive, and socio-emotional systems especially during enduring critical events such as the pandemic. What happens to children in early life and adolescents can have long-term consequences and may carry over to the next generation. Depending on the timing, transmission mechanisms, and context, the consequences for children's physical, cognitive, and socio-emotional development may be costly and irreversible. The health crisis, accompanied by a reduction in public expenditures for social services, can affect an adolescent through a variety of settings, including the individual, the family, the school, and the community.

In the recovery from the pandemic will then be crucial for communities to invest on household support programs encouraging positive developments of adolescents and healthier parent-child relationships, especially in the North of Italy. Also, target investments in schools or community programs, where many adolescents at risk of dropping out of school can be reached to mitigate some of the negative effects experienced within the family, are strongly recommended. These programs should offer services of multi-systemic therapy involving family, school, and peers, and functional family therapy aiming at reducing risk factors and recidivism. Diversion policies with the objective of rebuilding family and community ties would have a very positive impact on the child, the victim, and the community. Because diversion is cost-effective, it is non-stigmatising and reduces the likelihood of children reoffending, it should have a high priority in the social agenda of the recovery plan.

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