1. The changing nature of economics of crime

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1. INTRODUCTION

In 1968 Gary Becker published “Crime and Punishment: An Economic Approach” in the *Journal of Political Economy* (Becker, 1968). This is considered the seminal paper of the way modern economics conceptualizes criminal and illegal behavior, and so it gave birth to the field of “economics of crime.” Becker applied, for the first time, the formal analytical elements of rational choice and utility maximization to the individual choice between committing a crime or work in the legal sector. Under this framework, criminal actions are not irrational or determined by mental illness but rather a choice that results from a rational cost-benefit analysis. The returns of crime are compared to the expected punishment (weighted by the probability of being caught) and to the opportunity cost of crime. Thus Becker highlighted the economic motives that tilt the balance for potential criminals toward either illegal or productive activities. Five years later, Isaac Ehrlich complemented Becker’s insights with additional theoretical considerations as well as with an empirical test of these insights for the U.S. (Ehrlich, 1973).

The field started by Becker and Ehrlich has grown very rapidly over time, gaining prominence and recognition. In a recent review paper on the literature on crime and economic incentives, Draca and Machin (2015) estimate that the number of economics of crime papers published in prominent economics journals grew, on average, 4.5 percent per year between the 1950s and the 2000s. More recently, Jennifer Doleac has compiled a thorough public repository of crime-related papers published in top general interest and top field journals, dating back to 1990. Figure 1.1 plots the evolution of the number of published crime papers from 1990 to 2020, according to Doleac’s repository. While the 1990s average was just over 5 papers per year, that of the 2010s was almost 40 papers. During this period, the number of published papers grew on average by 27 percent per year.
What explains this remarkable trend? As argued by Cook et al. (2013), by offering a simple normative economic framework to evaluate crime-reduction policies, the Becker/Ehrlich model has surely contributed to it. These authors also highlight the role of two additional factors: the availability of more and better data from a variety of sources and the development of modern statistical tools to unveil causal relationships regarding the determinants of crime and to evaluate the impact of crime control policies.

On the availability of data, our own in-depth review of the crime papers published in top five economics journals in the last decade—using as a filter the Journal of Economic Literature (JEL) code of the area “Law and Economics,” K—suggests that 85 percent of them use administrative data (instead of, for instance, self-collected survey data). Indeed, the increasing awareness of policymakers and public officials that accessible anonymized administrative information can help the design and evaluation of better policies has largely benefited all fields of applied microeconomics, not only the
economics of crime. Moreover, the role of large-N datasets from other sources such as credit-card transactions or remote-sensing information and the use of statistical techniques to analyze such datasets have also contributed to the growth of the field.

The development of causal inference methodologies has also largely contributed to the growing attention that applied economists have placed on crime-related research topics. In 2010 Joshua Angrist and Jörn-Steffen Pischke coined the term “credibility revolution” to refer to the growing use of natural experiments in empirical economics to answer causal questions regarding key policy debates (Angrist and Pischke, 2010). A key example, which is still a source of policy and academic debate today, is whether a higher minimum wage affects employment levels.

Since the late 1980s the conjunction of natural experiments and research designs that address selection on unobservables—such as instrumental variables (IV), difference-in-differences (DiD) and regression discontinuity design (RDD)—has therefore improved the credibility of empirical economics and has boosted the publication share of empirical papers as a byproduct. Further boosted by the growth of randomized control trials (RCT), since then hundreds of experimental and quasi-experimental impact evaluations on criminal justice and crime-reducing policies ranging from cash transfers and therapy to policing and incarceration have been produced. Our review of crime papers published in top five economics journals in the last decade suggests that, excluding papers that rely on structural estimation (15 percent of the total), 55 percent of the applied econometric papers identify causal effects using IV, DiD, RDD or RCT.

Before the credibility revolution, in the 1970s and 1980s, empirical economics was largely based on either time series or cross-sectional correlations, with limited attention to longitudinal variation in panel data models and little validity for policy design. Indeed, the development of new methods and tools coincided with Edward Leamer’s view that economics lacked empirical credibility and that applied econometrics was largely leading to conclusions that could easily change by making small changes in models’ specifications or parameters (Leamer, 1983). Incidentally, Leamer’s critique is closely related to the early developments in the economics of crime. Indeed, to illustrate his point, Leamer challenged Isaac Ehrlich’s conclusion that capital punishment in the U.S. deterred crime (Ehrlich, 1975, 1977). This finding proved to be driven by observations from the 1960, and thus was sensitive to changes in the sample period, as well as to the inclusion of controls and to changes in the model’s functional form (Angrist and Pischke, 2010).

In addition to the causes highlighted by Cook et al. (2013), we propose three additional explanations of the boost experienced by the economics of crime literature. First, the increasing cross-fertilization of economics and
other social sciences that have been traditionally interested in the incidence of crime and violence, such as criminology, sociology and political science. This spillover goes both ways, with sister disciplines providing research topics, policy debates and conceptual insights, and economics bringing its empirical toolkit. For instance, many studies now combine quantitative analysis with ethnographic work to understand the underlying determinants of criminal behavior in detail. If we were to include journals in other disciplines in our searches of economics of crime articles, the levels reported in Figure 1.1 would be substantially higher and the upward trend perhaps even more marked. This interdisciplinarity is also evident in the variety of topics addressed by the papers published in economics. Our in-depth reading of those published in top five journals over the last decade reveals themes as diverse and policy relevant as recidivism, racial bias, immigration, education, trial and sentencing, incapacitation, deterrence, policing, peer effects and rehabilitation, to mention just a few.

The second reason is the expansion of international academic workshops on the economics of crime. For at least a decade, venues such as the America Latina Crime and Policy Network (AL CAPONE) and Transatlantic Workshop on the Economics of Crime, have facilitated the integration and exchange of researchers from the Americas and Europe, and have increasingly witnessed participation of scholars from other parts of the world.

The third and final reason comes from the observation that, today, crime and violence levels worldwide are remarkably like those observed three decades ago. There might be many reasons for the lack of sustained progress in curtailing crime, but most probably one of them is that, in most of the developing world, crime-reducing policies continue to be disassociated from empirical evidence. Even more worrisome, crime policy is perhaps one of the most vulnerable policy instruments to punitive populism. For example, legislators and policymakers around the world insist on increasing prison length, even in the presence of overcrowded systems. We hypothesize that this is perhaps one reason why economists are increasingly attracted to undertake research on crime-related topics. Economics has a lot to say about understanding criminal markets and developing and testing policies to reduce crime and violence.

Interestingly, many of these topics are being studied with analytical tools outside the static Beckerian framework, which suggests that the evolution of the field is concomitant with new theoretical insights. This is in part what motivated us to edit this volume on the new approaches to the economics of crime. In it, our goal is to highlight the variety of topics, conceptual frameworks and empirical approaches that the field is currently using. Many of these continue to be shaped, 50 years later, by the insightful idea that criminal behavior responds to incentives, but some others go beyond it.
Some of the most prolific contributors of the economics of crime literature have generously accepted our invitation and joined our effort. We are thrilled and honored to have such a diverse group—or should we say “gang” in agreement with the book’s topic—of young scholars based in North America, Europe, Latin America and Australia who share their expertise.

2. THIS BOOK

The book is divided into four parts. As criminals’ apprehension is a necessary premise for punishment or resocialization efforts, the first part starts by investigating the role of the police and its effectiveness against crime. In Chapter 2, Federico Masera reviews recent developments in the economics of policing and shows that the most credible estimates of the elasticity of crime to the size of police forces fall in the range −0.9 to −1.3 for violent crime and −0.3 and −0.8 for property crime. Masera also discusses the determinants of police effectiveness, ranging from gender and race composition to organization, oversight and technological endowment. The evidence about potential biases in policing is also discussed in this chapter.

In turn, Chapters 3 and 4 use longitudinal data to study the spatial and temporal distribution of crime and police forces (or policing activities). Each chapter focuses on a specific country. On the one hand, Matthew Freedman, Emily Owens and Derek Christopher document in Chapter 3 the evolution of crime and police in the U.S. since the 1980s. Among other things, they show that the general crime reduction observed at the national level has been more pronounced in cities with higher poor and black populations. And police forces have remained particularly concentrated in such areas.

On the other hand, Daniel Mejía, Ervyn Norza, Santiago Tobón and Martín Vanegas-Arias present in Chapter 4 an original investigation of the effects of “broken windows policing” for the case of Colombia. This refers to the strategy of intensifying police presence in low- and moderate-crime areas. The authors leverage highly disaggregated information on the spatial-temporal allocation of arrests and crime in 80 Colombian cities in 2019 and show that after a surge in unplanned arrests in a 2-by-2 block grid cell crime goes down both in “treated” and surrounding cells. The effect is more pronounced in areas with low crime rates and lower presence of organized crime. These findings complement the literature on “hot spot policing,” namely the strategy of concentrating police efforts in high-crime areas.

The broad message emerging from these two chapters is that different groups in the population are exposed to highly heterogeneous interactions with police forces. This occurs for a variety of reasons including context-dependent policing strategies. Evaluating and improving such strategies,
and more generally interactions between different population groups and the police, is extremely policy relevant, but it requires a better measurement of police activities. However, little data is generally available beyond manpower and arrests. Thus, collecting and analyzing new data sources is a promising avenue of future research.

Once a criminal is apprehended, different forms of punishment or correctional measures may be imposed. A prototypical sanction is incarceration, which is widely used due to its deterrent and incapacitation effects but may suffer from overcrowding and be itself criminogenic. Moreover, incarceration is generally very expensive to society. A large body of research has attempted to measure its effects on crime and has explored possible alternatives to it. Chapters 5 and 6 contribute to this debate by evaluating two reforms, one that reduced incarceration in California and one that substituted electronic monitoring for pre-trial prison in Argentina.

Patricio Dominguez, Magnus Lofstrom and Steven Raphael assess, in Chapter 5, the crime impact of reforms passed in 2011 and 2014 in California, which reduced by one-fourth the prison and jail population. The authors find small effects on violent crimes and an increase in property crime of the order of 5 percent. As the U.S. has become an outlier among OECD countries in terms of high incarceration rates, this research suggests that the cost of switching to alternative measures in terms of higher crime rates may be limited, while the savings may be substantial.

In Chapter 6, Rafael Di Tella and Ernesto Schargrodsky investigate a particular alternative to incarceration that is made possible by technological progress. This is the case of electronic monitoring (EM). The authors study a policy that, between 1998 and 2007, allocated some alleged offenders waiting for trial in the Province of Buenos Aires for EM, whereas others were sent to prison. Exploiting random assignment to judges, their conservative estimate suggests that allocation to EM halves recidivism rates. On top of this, EM clearly generates substantial savings, and so the cost-benefit analysis suggests that “the net welfare benefit of sending one alleged offender to EM, instead of prison, amounts to 2.4 times the average Argentine GDP per capita.” Despite such large benefits, the policy was discontinued due to the mediatic resonance of a violent episode. This highlights both the potential for policy improvement and the vulnerability of good policies to political incentives.

While punishment probability and intensity are at the forefront of public strategies of law enforcement, they are not the only tools at hand. Several distinct socio-economic factors may induce individuals to commit crimes, and they have been explored by a large body of literature over the past half century. The second part of this volume summarizes the recent advances of this strand of the literature. Specifically, Chapters 7 to 10 reflect, in different
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Among those, education plays a prominent role among the potential deep roots of crime. It affects individual income and the income distribution, as well as cognitive and non-cognitive skills and traits. Yet, measuring the impact of education on crime is difficult because several potential omitted factors determine both the schooling and the crime choices of an individual. Joel Carr, Olivier Marie and Sunčica Vujić discuss in Chapter 7 the causal effect of education on crime. Reforms that raise school leaving age provide an important source of exogenous variations in educational attainment, but researchers have also exploited variation among twins and in free school days within a year. The evidence—which is mostly based on advanced economies—shows that being at school and finishing high school substantially reduce the propensity to commit crime and that investing in education is a very cost-effective crime-reducing endeavor. In the future we may expect a growing body of research on the effect of education on crime in developing countries and on trying to disentangle how different attributes of education affect different types of crime and through which channels.

While education is a permanent source of income, in the short run economic shocks may alter the balance between legality and crime. Eduardo Ferraz, Rodrigo Soares and Juan Vargas point out in Chapter 8 three characteristics of economic shocks that shape the way they translate into crime: the legality of the affected markets, the source of the income and contextual factors such as the overall institutional environment. While an increase in legal market wages raises the opportunity cost of crime, an increase in the revenues of concentrated and lootable natural resources or in the value of illegal markets may foster crime. This is especially so in contexts characterized by high inequality and poor institutions. The authors review the most recent evidence and provide a useful taxonomy, contrasting an “opportunity cost effect” and a “rapacity effect” of economic shocks. They also discuss how economic shocks may affect crime through non-Beckerian channels, such as those highlighted by social disorganization and strain theories, and they call for more research in this direction.

From a criminal’s point of view, crime returns and costs have both an economic and a social component, so that the structure of social ties may interact with existing inequalities in determining crime choices. Social incentives are relevant for crime both theoretically and empirically. Their consideration allows the explanation of a large part of the variability of crime that otherwise remains unexplained and allows social multipliers to be quantified and better targeted interventions to be designed.

In Chapter 9, Magdalena Domínguez and Daniel Montolio address the possibility of fighting crime through “soft” interventions that increase
community involvement and reduce inequalities. They present the literature on place-based policing and social capital and analyze a specific policy adopted in Spain between 2008 and 2014. The policy introduced, in quasi-random order, interventions aimed at improving health and reducing inequalities in disadvantaged neighborhoods of Barcelona, with a strong involvement of local communities. They show that such policy significantly increased association density, and through this channel it significantly reduced most forms of crime, confirming that well-targeted socio-economic interventions may usefully complement a deterrence-based approach based on punishment threats.

Over the last quarter century, economists have made substantial progress in modeling and estimating the effect of social interactions on crime choices. In Chapter 10, Evelina Gavrilova and Marcello Puca summarize the recent economics and criminology literature on peer effects and crime and discuss the associated identification difficulties. The authors point out that all empirical methods, from reduced-form regressions to the exploitation of quasi-exogenous sources of variation to controlled experiments, converge in documenting the existence of relevant peer effects in crime choices. This is true in both prisons and social networks, especially within relatively homogeneous groups. These findings may also help explain the effectiveness of EM documented in Chapter 6, as such an alternative to prison breaks criminogenic peer interaction behind bars.

The third part of this volume addresses issues related to crime in specific groups. Specifically, Chapters 11 to 13 focus on migrants, females and racial minorities respectively. The share of immigrants in the world roughly tripled over the last half century, and it disproportionately increased in high-income countries. This has often triggered harsh social and political reactions. Paolo Pinotti and Sandra V. Rozo document in Chapter 11 that host country populations hold widespread crime concerns about migration and investigate to what extent such concerns are justified by the data. Causal identification in this context is difficult because omitted (“pull”) variables may drive both migration choices and local crime rates. To overcome this challenge, several studies rely on instruments based on shocks in the country of origin coupled with the geographical distribution of previous immigrants in the country of destination. Consistently, they find little or no effect of immigration on crime, with few exceptions depending on specific local conditions. Other studies exploit exogenous variation in immigrant legalization and document that it substantially reduces migrants’ propensity to engage in criminal activities by providing access to legal jobs. This evidence is robust in developed countries, whereas it is weaker in developing countries, where the share of the informal sector is higher. The authors also highlight the negative effects of forced migration and deportation, and the fact that migrants’ victimization rate tends to be higher than that of natives.
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Just as migrants relative to natives, females relative to males show a higher victimization rate and lower rates of crime participation. In Chapter 12, Evelina Gavrilova documents that these gender differences have been shrinking over time in many high-income countries, and that in some countries the justice system seems biased in favor of women. The author reflects on the different incentives driving male and female crime choices, and on the need to pay closer attention to such aspects both theoretically and empirically.

Racial minorities need not always behave as majority groups, but for the same behavior they may also be treated differently by the criminal justice system. Jennifer L. Doleac documents in Chapter 13 the existing evidence of biased treatment of racial minorities by police, prosecutors and judges. She distinguishes between different possible drivers (animus, statistical discrimination and stereotypes) and reviews the natural experiments used to identify such bias. The chapter points out that the current research frontier lies in identifying how to reduce the existing—and well-documented—bias.

The fourth and final part of the book turns from individual to organized crime. Economists’ interest in criminal organizations is as old as their interest in individual crime (Schelling, 1967, 1971; Buchanan, 1973). However, it has been increasing over the past half century, especially after Diego Gambetta’s influential work on the Sicilian mafia (Gambetta, 1993). New datasets have been assembled to measure the origins and the effects of different criminal groups, and new models have been developed to study their operations.

In Chapter 14, Ben Lessing and Maria Micaela Sviatschi adopt an industrial organization perspective on the economics of organized crime. They portray the trajectories of some famous present and past gangs around the world and discuss their sources of revenues, internal organization and career paths. Gangs and criminal organizations produce a wealth of harmful effects, hindering important aspects of social and economic life. Hence, states often try to fight and curb organized crime. Criminal organizations may in turn fight back violently, hide or try to obtain more favorable treatment by the state. In Chapter 15, Pasquale Accardo, Giuseppe De Feo and Giacomo De Luca discuss how criminal organizations use bribes and violence to affect the selection of elected politicians and to distort public officials’ choices. They highlight the impact of these strategies on self-selection into politics, on electoral outcomes and on policy choices. In turn, Emanuele Colonnelli, Jorge Gallego and Mounu Prem exploit in Chapter 16 Brazilian micro-data to show how novel machine learning models can be used to predict corruption. They find that the best predictors are measures of private sector activity, financial development and human capital. Understanding and fighting corruption, therefore, requires widening attention beyond the public sector and the political sphere to encompass also the “demand for corruption” posed by the private sector. Finally, Tommy E. Murphy and Paolo Vanin discuss in Chapter 17 the similarities
between criminal organizations and states, and their fight for the legitimate monopoly of violence. They move beyond an industrial organization perspective and consider the role of violence in the emergence of both criminal organizations and states, their ability to extract resources, the harmful effects of extractive competition, the incentives to supply protection and the fight for the monopoly of violence and for legitimacy.

Overall, the different chapters give an overview of the tremendous progress made in recent years in the economic analysis of individual and organized crime. They do so while emphasizing the aspects that we discussed as driving the surge of this literature: the availability of novel and administrative micro-data, the use of research designs that unveil causal relationships and the interdisciplinarity of approaches and theoretical frameworks.

Despite such progress, there are still many aspects of the economics of crime about which we know rather little. These are pointed out in detail in each chapter. Broadly speaking, however, although evidence from low- to middle-income countries has been increasing, we still need to understand better how different strategies of law enforcement work in different contexts. In the end, at half a century of age, the economics of crime remains a young, lively and promising field of research, both theoretically and empirically.

NOTES

1. Department of Economics, University of Bergamo.
2. Department of Economics, University of Bologna.
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4. Buonanno, Vargas and Tobón (2021) track the origins of this rational approach to criminal behavior to the utilitarian and redistributive theories of crime, respectively, put forward by Jeremy Bentham and Cesare Beccaria (1819) at the end of the eighteenth century. In particular, Bentham (1789) writes: “The profit of the crime is the force which urges man to delinquency: the pain of the punishment is the force employed to restrain him from it. If the first of these forces be the greater, the crime will be committed; if the second, the crime will not be committed” (p. 33). The Becker/Ehrlich model formalizes this old idea.
6. In 2021, the Royal Swedish Academy of Sciences recognized the role of natural experiments in helping answer important questions for society and awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel to David Card, Joshua Angrist and Guido Imbens.
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7. This apparent stability, however, hides important regional heterogeneity: while regions such as Sub-Saharan Africa or Central Asia have made important progress, others such as Latin America and the Caribbean have much higher violence levels.

REFERENCES


