Quantitative research in linking economic crises and crime

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Introduction

Whenever the world has been faced with an economic crisis or recession, there has been intense rhetoric about the ostensibly higher crime rate caused by financial difficulties. The recent economic crisis has been no exception and has revived the popular and academic interest in the interconnection between economic hardship and crime.

Various criminological theories in general and, to a greater extent, neo-classical theories are based, among other aspects, on the notions of "strain" (e.g. Merton, 1938, Agnew, 2001) and "rational choice"(i.e. economic crime theory and rational choice theory [Cornish & Clarke, 1984; Becker, 1974]). They suggest that it is "logical" that the high levels of unemployment and the "bad" economy, in general, should increase crime rates and that the "good" economy should reduce criminal activity. This reasoning, however, and the related investigations which have been carried out in order to verify or disprove these theories, pertain mainly to economic difficulties in general, without focusing on periods when there is a collective confrontation of economic crises on a national or global level.

It is obvious that periods of economic crisis or recession possess different characteristics than any general period of economic difficulty, as it has a collective impact, and, for this reason, research conducted on the subject of crime, during such a period, should be conducted in a distinct and singular manner. As a result, the methods used for the in-

vestigation of the relationship between economic crises or recessions and crime should be equally analogous of the idiosyncratic nature of such research.

Many researchers have attempted to examine the interrelationship between economic crises and crime quantitatively and have used a variety of methods. However, this type of research often seems to utilise, to a large extent, the same methodological tools which are repetitively applied. As a result, these studies appear to show common and repeated theoretical and practical obstacles which occur mainly from a methodological standpoint.

This article will attempt to highlight some of the methodological problems found in quantitative research conducted in order to interpret the issue of a possible relationship between economic recessions or crises and crime. In addition, this article will endeavour to highlight the common and repeated methodological problems, as well as to illustrate possible "good" practices based on this illustration. In this way, it could be possible to conduct "robust" and reliable research on the subject matter in the future.

The Complexity of Quantitative Research in Linking Economic Crises and Crime

In quantitative criminological research, the link between economic crises and crime is mainly sought for while taking into account one or more Financial Soundness Indicators (FSIs) in relation to overall crime or in relation with one or more types of crime, which in turn are compared either between two or more periods of time, or by observing the variations of the phenomena in a given period, in one or more locations.

As far as concerns the economic indicators which are commonly used in studies conducted to prove or disprove that financial crises or recessions and crime are interconnected, these are usually parameters such as unemployment rates, Gross Domestic Product (GDP), consumption indexes, housing foreclosure rates, poverty and other eco-

nomic indicators such as the Consumer Price Index (CPI) and the Consumer Confidence Index (CCI). Additionally, in some cases, the issue is discussed while taking into consideration the overall economic recession or crisis as a distinct phenomenon, without focusing on the specific parameters which constitute an economic crisis or recession (e.g. Kriesburg, Guzman & Vuong, 2009 and Rodriguez & Larrauri).

The economic indicators which are selected are in turn, usually, compared with one or more types of crime, in order to identify the interconnection, or the lack thereof, between the phenomena. Although there has been a plethora of comparative research which has attempted to confirm or disprove this seemingly causal relationship, investigating the relationship between economic crises and crime has mainly been limited to a narrow field which looks at very specific types of criminal activity.

More specifically, attempts at examining the relationship between the two phenomena have been based, to a very large extent, within the sphere of property crime (e.g. de Blasio & Menon, 2013; NIEIR, 2009; Krisberg, Guzman & Vuong, 2009) and violent crime (e.g. Campos, Dent, Fly & Reid, 2011; Krisberg, Guzman & Vuong, 2009; Nilsson & Estrada, 2003). Moreover, there are but few exceptions which have studied other types of crimes, such as, for example, Blomberg, Hess & Weerapana (2004) whose study assessed the connection between economic conditions and terrorism. As a result, it is apparent that there has been a large neglect within these types of research concerning the ways in which the economic crisis and the levels and types of crime may be connected. At the same time, it becomes evident that illegal political violence and other forms of crimes, which are highly prominent during times of crises, are ignored (Xenakis & Cheliotis, 2013, p. 719).

One of the reasons why property crime and violent crime are primarily selected for this type of research is because, due to the fact that they are theoretically based on the classical criminological theories, it is "easier" to speak of economic difficulties in general and to link these difficulties to the impact they may have on "common" crime. Moreover, these crimes are extensively defined and, as a result, it is easier to

analyze them. In addition, on a practical level, these types of crime are more frequently reported to the police and, thus, there is a large and relatively valid volume of quantitative data available (UNODC, 2011 , p. 10).

The fact that certain crimes are usually "preferred" has resulted in the use of one (e.g. Braithwaite, Chapman & Kapuscinski, 1992), or two (e.g. Wolff, Cochran & Baumer, 2013) types of crime, or a categories of crime (e.g.. Hollis, 2011; NIEIR, 2009; Police Federation of England & Wales, 2009), which are in turn presented as descriptors of the relationship between economic crises and crime in general. The use of individual types of crime is likely to lead to bias and false positive, or negative, results when comparing the economic health of a country or region and crime. For example, when taking into consideration cases of vandalism, it would seem that there are low levels of this type of crime in neighborhoods with high levels of vacant homes due to foreclosure. However, this is likely to be due to the fact that vandalism is not reported to the police, in areas with a diminished population – due to a high amount of foreclosures -, without this necessarily meaning that there is a low level of vandalism is such areas. As a result, it is important to bear in mind the fact that if two events occur at the same time, this does not necessarily mean that they are interdependent.

Furthermore, there is an evident absence of quantitative research which focuses on the relationship of economic crises or recession and "white collar" crimes and, in the few such studies which have been conducted, "white collar" crimes are usually "absorbed" within the totality of the narrative of crime and are not subjected to a deeper analysis (e.g. Rodriguez & Larrauri, 2012; Cui, 2010). This is an issue on which Xenakis & Cheliotis (2009) have reflected and where they specifically mention that this may be due to the notion that such crimes tend to be rarer, as recorded events, than property or violent crimes. However, when taking into account the importance of the anthropocentric, economic and political ramifications of "white collar" crimes, and as they respectively parallel the effects of an economic crisis, it is obvious that these crimes should be examined more thoroughly and

should not be overlooked.

Ideally, a comparison should be implemented, between each separate category of crime, but also with respect to the overall crime rates, and to the individual consequences of an economic crisis at specific locations. In this way, it could be more feasible to create a more informative representation of the relationship of economic health and crime. It is obvious, however, that to perform such a study the appropriate time and financial outlay are required, something which is not always readily available in an academic study.

One of the most important parameters which greatly affect the quality of quantitative research which aims to prove or disprove the relationship between economic hardship and crime is the method of quantitative data analysis itself. More specifically, it has been stated that these quantitative studies are often carried out with the use cross-sectional data or of time-series data (Box, 1987; Dongil, 2006).

Cross-sectional data are data from units observed at the same time or within the same time period. These data can be simple observations of a sample survey or deduction made from all units within a population (Biørn, 2013, p. 1). However, the use of cross-sectional data has been criticized, as it has been seen as a form of "photographing" of the data of one particular period of time (Box, 1987, p. 87) and, therefore, the results cannot successfully be compared with other periods of time.

On the other hand, time-series data are data extracted from a unit or a group of units which are observed over several successive periods. A time-series constitutes a sequence of data points, typically measured at successive time periods spread out between uniform time intervals. The temporal variability of the data, if extensive enough, allows the researcher to examine the effects of fluctuations in crime rates, and to examine the occasions of absence of variations with respect to crime (Fajnzylber, Lederman & Loayza, 2000, p. 236). As a critique of time-series data it has been noted (e.g. Levitt, 2001, p. 377) that utilizing these types of data is an extremely "slow" way of answering questions of a criminological interest. An additional criticism is that the investigation of a possible interdependence between the two phenomena has

been described as difficult to detect by using time-series data, because there is little chance of identifying the causal, or non-causal, relationship between variables and, therefore, the results may be misleading (Levitt, 2001).

In response to the issues presented by the above two methods, some researchers (e.g. Arvanites & Defina, 2001; de Blasio & Menon, 2013) have used panel data. These data contain observations of multiple phenomena obtained over multiple time periods for the same group of units or entities. They constitute, as a result, a combination of time-series and cross-sectional data that allow the researcher to exploit the spatial and temporal changes within the variables which are of interest.

The additional degrees of "freedom" available, in this manner, in relation to time series data or cross-sectional data, enable for a more accurate estimate, and permit for the use of a larger amount of controlled variables and, as a result, researchers can interpret statistically significant relationships and may conclude, with respect to linking events more closely, to causal relations rather simple propinquities. On the other hand, the ability to use both types of data is important, as it helps to reduce the chances of error and imprecision, in connection to the actual relationship between economic cycles and crime. As a result, and while bearing in mind that it is very common for errors to occur between spatial and temporal units, because the parameters are heterogeneous within the unit subsets, it is likely to produce a form of, possibly, incorrect causal heterogeneity or homogeneity between the spatial and temporal parameters.

Although the above data analysis methods are the most prevalent, other methods such as Propensity Score Matching[1] (e.g. Wolff, Cochran & Baumer, 2014), the "difference-in-differences"[2] research model (e.g.

[1] Propensity score matching is a statistical matching technique which attempts to estimate the effect of a treatment, policy, or other intervention by accounting for the covariates that predict receiving the treatment. (Dehejia & Wahba, 2002).

[2] The difference-in-differences research design is a method used in econometrics and quantitative / quantitative research in the social sciences that attempts to mimic an experimental research design using observational study data, by study-

Cui, 2010), and the economic regression model[3] (e.g. Police Federation of England & Wales, 2010) have also been utilized in such research. These methods, despite being less common, may pose as useful alternatives to the overused methods mentioned above. They do, however, also possess similar inherent problems as do the above methods.

In conclusion to the above mentioned methods, one could say that they possess three major recurring methodological obstacles. Firstly, when an economic crisis and crime are measured simultaneously, within the same time period, the analysis cannot adequately describe what variable is the cause and which variable is the consequence. Secondly, in cases where a correlation between the two phenomena is detected, these methods do not explain how to determine whether those who are less likely to commit a crime under "normal conditions" are also those who choose to act in this way when facing financial difficulties. Thirdly, the causal processes displayed by the major criminological theories are examined in greater detail when contemplating the behavior of people before they are faced with financial difficulties, and not during this period.

In response to the above quandaries, the use of longitudinal studies could be suggested. By using longitudinal studies, which would enable the monitoring of a group of people over the course of many years, while collecting multiple observations on all aspects of their lives, the parameters on which the debate of whether economic difficulties affect – or do not affect – criminality rely on, could be distinguished in a more accurate manner. At the same time, whether or not there is a convergence of the two phenomena could be portrayed more unambiguously.

Nevertheless, the greatest practical barrier to using longitudinal studies, in order to investigate the matter in question, is that a financial crisis does not occur during regular or scheduled intervals, at specific

ing the differential effect of a treatment on a 'treatment group' versus a 'control group' in a natural experiment. (Lechner, 2011, p. 167).

[3] The economic regression model is a statistical tool for the investigation of relationships between variables (Sykes, 1992).

locations, and, as a result, it cannot be guaranteed that the group which is being monitored will face a financial crisis while it is being observed. On the other hand, the fact that such an investigation would allow for a more clear detection of the consequences of an economic crisis or downturn on crime and on other social consequences, justifies its use and, for this reason, it could be considered the most successful investigative method. This is also due to the fact that longitudinal studies also focus on the qualitative and not only the quantitative aspects of scientific research.

In addition, longitudinal studies could help overcome "lag effect". Lag effect is an issue which commonly occurs in studies which examine the relationship between economic crises and crime, which are conducted without enough time having passed after a financial crisis or recession has occurred, hence not allowing for enough time for the consideration of the macroeconomic consequences of such a period (e.g. Campos, Dent, Fry & Reid, 2010; Cui, 2010; de Blasio & Menon, 2013; Hollis, 2011; Þórisdóttir, R. & Árnason, 2011; Rodriguez & Larrauri, 2012; UNODC, 2011; Wolff, Cochran & Baumer, 2013) or which make predictions about these consequences (e.g. NIEIR, 2009; Police Federation of England & Wales, 2009). This means that, if we consider that an economic recession or crisis of a certain country has an impact on crime, these consequences may occur later on in time and not immediately after or concurrent with the onset of financial difficulties. By using longitudinal studies it is possible to include repeated observations of the various variables for a long time, even for decades.

Another problem that often occurs in studies on the matter in question is the exclusive use of "hard" data for large spatial areas (e.g. for the whole country) without taking into consideration the possible reasons for the possible increase of specific crimes in specific areas. Despite the fact that, generally, at a national level there is some homogeneity among regions, it is not possible for specific areas of a country to face exactly the same problems as other areas, during an economic crisis.

Research has shown that, in general, economic recessions and crises

are more consequential in urban areas (Sanogo & Luma, 2010; Ruel, Garrett, Hawkes & Cohen, 2010; Baker, 2008). This is likely due to better coping mechanisms which may be in place in rural areas (e.g. self-sufficiency and production of agricultural products and livestock) and, also, due to the strong dependence of people living in urban areas to the circulation of readily available "cash" and to a designated lifestyle.
As a result, and while making the assumption that an economic crisis *does* cause crime, it would be inappropriate to assume that economic difficulties will have the same impact on crime in urban and rural areas. Furthermore, the conclusions drawn regarding the relationship between national crime rates and economic variables may not be able to be generalized in all areas of a country. In essence, there may be a relationship between the economy and crime in specific areas of the country, even if the relationship is not visible at the national level. The analysis of "local" data can be difficult because of the different types of crime seen in different states, provinces, cities, neighborhoods, or even in entire countries. However, analysis on a smaller scale may be more useful in order to be in a position to observe variations in crime in a specific period, either during or after a financial crisis, something which would be attainable by using a longitudinal research design.
The comparison of crime rates in different areas for different periods of time also poses a similar problem because of the "conceptualization" of crime. More specifically, the definitions given to various forms of crime and what constitutes a specific offense vary by region and over time. In this way, the indicators used in studies conducted on the economic crisis and crime, may be comparable neither by region nor by time.
Therefore, all the different parameters on the concepts of time, space, crime and economy, should be taken into account in research on economic downturns and crime, and explanatory discussions should offered, rather than merely simple illustrations and statistics reports designed to "exhibit" the occurring phenomena.

Concluding Thoughts

It is important to bear in mind the fact that crime is an episodic and sporadic phenomenon and that there is no unique and singular effect of the economy on crime. In addition, the subject matter is clearly more complex than a mere causal relationship of "action" and "reaction". As a result, in order to understand the mechanisms that influence fluctuations in crime, it is necessary to take into consideration and understand the temporal and spatial scope within which we are stating our arguments and the "driving forces" which are in effect on a local, national and global level and not to limit ourselves to individual parameters that may be of relevance.

Furthermore, although it would seem "logical" to assume that there indeed would be an increase in crime during a period of financial crisis or recession, this is not exclusively due to the notion that the theoretical "rational choice" effects are enabled and cause people who would otherwise not commit crimes to act in such a manner, but perhaps that this is because other relevant mechanisms "wear out" or cease to be as effective as in prosperous times. More specifically, when a country faces economic difficulties, it is expected that the funds usually spent on protective mechanisms for crime prevention will diminish, thus increasing the risk of victimization. These mechanisms may include, indicatively, the lessening of police patrols or the inability of the State to provide for social welfare and medical treatment to those who need it, with all the possible consequences which may occur as a result.

For this reason, it is important for research related to economic crises and crime, to be assessed *also* in respect of a qualitative point of view during and after periods of economic crises or recession instead of merely investigating the symptoms of a crisis (e.g. unemployment) on a quantitative level. As a result, ideally, future studies conducted on the subject matter should combine a variety of quantitative and qualitative methodological approaches and procedures, as is the case of longitudinal studies, which have, in fact, been characterized as the

"bridge" between quantitative and qualitative methods (Ruspini, 1999).

In essence, whether and in which exact way economic difficulties, particularly during an economic crisis, affect crime remains a problematic question. However, and even though, due to the usual lack of funds and time for the improvement of academic studies, this article contemplates idyllic conditions, it could perhaps be possible to answer the question of whether, and in which way, economic difficulties during a financial crisis or recession, could affect crime, through a thorough and comprehensive investigation, which would make use of all the "good" methodological practices.

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