

## A CROSS-NATIONAL TEST OF BONGER'S THEORY OF CRIMINALITY AND ECONOMIC CONDITIONS\*

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*Using international data for 100 countries, we test two hypotheses derived from Bonger's Marxian theory of crime. The analyses support the hypothesis that the degree of capitalism significantly predicts homicide rates, but they fail to confirm that the de-moralization of the population (loss of moral feelings for others) mediates the relationship between capitalism and homicide. Although capitalism is not the best predictor among those considered, overall, the results underline the importance of Bonger's ideas because both capitalism and corruption (our indicator of de-moralization) show reasonably strong relationships with homicide rates and compete with other variables commonly used as predictors of international homicide rates. The results confirm the usefulness of attempting to subject Marxian ideas to positivist, quantitative tests, with an eye to integrating Marxian theories with other mainstream theories, such as institutional anomie theory.*

The nineteenth-century German social theorist Karl Marx never proposed a complete theory of crime. Yet, he briefly referred to the problem of crime and the issues of law and social control in several of his writings (Marx, 1993a [1853], 1993b [1859]). In particular, he pointed out that causes of crime could be located within the capitalist society that "breeds" crime: "There must be something rotten in the very core of a social system which increases its wealth without diminishing its misery, and increases its crime even more rapidly. . ." (Marx, 1993b [1859]: 54).

In the century that followed, these short statements, as well as Marx's

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general ideas on social organization, inspired numerous followers to develop full-fledged theories of law, social control, and crime. Those theories, discussion about them, and the research connected with them constitute a particular genre of work referred to as “Marxist criminology.” Although the earliest “Marxian” works exploring crime, law, and social control were produced mainly by European intellectuals (Bonger, 1916 [1905]; Pashukanis, 1978; Rusche and Kirchheimer, 2003), this theoretical perspective gained prominence in American sociology and criminology in the 1960s and experienced something of a “boom” in the 1970s (Akers, 1979). As a result, an extensive body of “Marxist” writings now exists that addresses many aspects of crime, law, and social control.

As several scholars note (Groves and Sampson, 1987; Lynch and Groves, 1986; Taylor, Walton, and Young, 1973), the larger corpus of this literature counterposes itself to the body of criminological scholarship that is often defined as “traditional criminology,” which is characterized as concentrating on a positivistic approach to crime causation. Marxist scholars contend that they are different from conventional criminologists by focusing primarily on the origins, evolution, and unequal distribution of law and social control (see, for example, Chambliss, 1974; Humphries and Greenberg, 1993; Quinney, 1977; Pashukanis, 1978; Rusche and Kirchheimer, 2003; Spitzer, 1974, 1998). However, despite an overall emphasis of Marxist criminology on explaining the behavior of law and the system of social control, not all Marxist criminologists have neglected the etiology of criminal behavior. Thus, for instance, the theories of crime and criminality developed by Bonger (1916 [1905]), Colvin and Pauly (1983), Greenberg (1993a), Lynch, Groves, and Lizotte (1994), Quinney (1977), and Spitzer (1974) ingeniously apply a Marxian perspective to explain a wide range of criminal behaviors from juvenile delinquency to corporate criminality. In addition, they introduce some theoretical propositions that may be empirically addressed.

Unfortunately, given the generally hostile and critical position on positivism and quantitative empirical research embraced by many Marxist criminologists (e.g., Bohm, 1987; Quinney, 1977), most of these interesting theoretical statements have never been translated into propositions testable with numerical/quantitative data or subjected to empirical scrutiny. Yet, notably, contrary to the assumption of many twentieth-century Marxist scholars so adamantly opposed to positivism, Marx did not reject the use of numerical/empirical evidence and, on the contrary, employed quantitative economic analysis as one of the preferred methods of investigation (Marx, 1969 [1863], 1990 [1867]; McDonald, 1976). Moreover, in his well-known essay on capital punishment, Marx also applied quantitative methods to the study of crime in his analysis of crime statistics (Marx, 1993b [1853]). In addition, several Marxist criminologists clearly have advocated

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the compatibility of empirical positivistic analysis with Marxist ideas. They have acknowledged the need for more empirical evidence bearing on Marxist criminological theories, and they have urged scholars to conduct more empirical evaluations of theoretical propositions drawn from Marxist theories of crime (Greenberg, 1993b; Groves and Sampson, 1987; Lynch, 1987).

We take that mandate seriously. Here, we report research that tests hypotheses from one Marxist theory of criminality (Bonger, 1916 [1905]). This effort is designed to begin filling the gap in “traditional-style” empirical evidence concerning the validity of Marxist theories of crime. Therefore, we focus on Bonger’s theory of criminality and economic conditions, which is one of the earliest Marxist approaches to crime to have been developed, but which has never been empirically verified. We attempt to test the theory in a conventional criminological way—by deducing distinctive empirical propositions to which we bring statistically manipulable empirical evidence to bear.

### THE THEORY

Bonger introduced his theory of criminality in the book entitled *Criminality and Economic Conditions* (1916 [1905]). A substantial part of this work was devoted to reviewing the existing philosophical, sociological, economic, and criminological literature that corroborates arguments on **the relationship between criminality and economic conditions**. Yet, Bonger recognized many limitations of the previous research, which prompted him to present his own Marxian-inspired theory of criminality and economic conditions.

Specifically, Bonger applied Marx’s arguments to explicate causes of criminal behavior and to explain variations in crime rates among different societies (Taylor, Walton, and Young, 1973; Tittle and Paternoster, 2000). Following Marx, **Bonger locates the motivation to commit crime in the social environment rather than inside the individual**. The simplified main thesis of his theory is that **ultimately crime is caused by the capitalist mode of production because economic conditions in capitalist societies exert strong pressures toward criminal behavior**.

Overall, however, Bonger’s theory is much more complicated, and it identifies several intervening mechanisms that connect capitalist conditions to the probability of criminal behavior. Bonger begins with the observation that **capitalism is based on the system of exchange of products, the goal of which is to generate surplus value**. Under these economic conditions, “the possibility of exchange gives birth to **cupidity**” because everybody is encouraged to compete and must do so to survive (1916

[1905]: 402). Furthermore, Bonger suggests that when economic competition is unrestrained, as it is in a pure capitalist system, an egoistic moral climate and lack of sensitivity to the needs of others is almost inevitable; only individual selfish interests can guide the pursuit of profit, leading to the disregard of ethical concerns. Finally, Bonger completes the causal chain of events and argues that in such an environment, “man has become very egoistic, and hence more capable of crime” (people become de-moralized) (1916 [1905]: 402).

Furthermore, according to Bonger, in the competitive and egoistic environment of a capitalist society, both the rich and the poor, as well as the capitalists and the workers, are afflicted equally with selfishness and crime proneness. In their pursuit of profit, capitalists take advantage of workers, exploit them, subject them to deplorable living conditions, deprive them of many necessities, and directly commit economic and predatory crimes against them. At the same time, the capitalist environment inspires the proletariat to develop selfish instincts. Workers are constantly involved in a struggle for survival that often forces them to compete with each other for the same jobs.

Interestingly, Bonger recognized that capitalism is not the only mode of production under which egoism and de-moralization might flourish. In particular, he exposed feudalism as another economic system that engenders egoism and produces high rates of violent crime. Yet, in his view, egoism that characterizes capitalist societies “is less violent, however, and more disguised”; hence lower violence rates are observed in developing capitalist economies of the nineteenth century (1916 [1905]: 390). Alternatively, Bonger argued that only in societies distinguished by noncompetitive economic systems and more solidarity can the development of demoralization be prevented. Therefore, he envisioned socialism or communism as the type of economic organization where crime would cease to exist (except in rare pathological cases, as he notes) because in those favorable environments, instead of egoism, “the germs of altruism” innate in people would be developed (1916 [1905]: 402).

Next, Bonger suggested that practically all crime—violent, economic, sexual, and political—will be increased in capitalist societies because all are ultimately linked to competitive economic struggles and to the demoralizing environment associated with such struggles (1916 [1905]: 402). In his view, even though the nature and opportunities for different types of crime may differ enormously, “moral forces which may prevent the execution of criminal ideas . . . apply to all crimes” (1916 [1905]: 536). Moreover, Bonger identifies some mediating factors, such as weakened social institutions like the family and education, that intervene to permit capitalist competition to manifest itself in criminal behavior. In particular, under capitalism, the subordinate position of women is said to lead to the erosion

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of the family and to the deterioration of family values. In addition, the educational system is likely to be biased against the poor, dictating that the children of workers will often be disadvantaged.

Thus, Bonger specified a vital connection between the capitalist mode of production and crime. In particular, his description of capitalism emphasized three points that are of great significance in the causal chain of conditions eventually leading to crime: 1) how the capitalist mode of production is characterized by unrestrained competition and economic deprivation, 2) how competition and economic deprivation create an egoistic moral climate that leads to de-moralization (loss of moral feelings for other humans), and 3) how egoistic and de-moralized individuals are motivated toward criminal behavior. The net result, according to Bonger, is that capitalist societies should have higher rates of crime than do socialist societies and one main intervening explanatory mechanism is de-moralization of populations brought on by capitalism.

## HYPOTHESES

Although Bonger's argument suggests that all capitalist societies will have high crime rates relative to socialist societies, it is impractical to imagine that societies can be divided neatly into two groups, those practicing capitalism and those not practicing capitalism. Rather, it is more realistic to recognize that societies may vary in the degree to which they practice capitalism, with some tending more toward the "pure capitalism" end of a continuum and others tending toward the "pure socialism" end.

Actually, thinking of capitalism and its various dimensions as continuous variables is common in contemporary economic and political science literature. It is typical for nations to be considered as more or less "socialist," "liberal," or "conservative" or for them to be arranged on a continuum from "liberal" to "socialist" (see, for example, Esping-Andersen, 1990; Hicks and Kenworthy, 2003; Jaeger, 2006). Furthermore, Bonger's research method and theoretical reasoning, which Bonger applied throughout his book, clearly show him treating capitalism as a continuous variable. For example, to substantiate his argument on the relationship between criminality and capitalist economic conditions by showing how a gradual development of capitalist economy may affect crime rates, Bonger compared crime rates in several Western European capitalist countries with capitalist economies at different levels of development. In addition, in numerous places, Bonger stated that he regarded the development of capitalist economies and their various features to be a continuous process that corresponds with increases in "industrial development." In other words, as more capitalistic/competitive economic conditions grow, so do crimes (1916 [1905]: 262, 379, 398, 401, 419). Moreover, according to Bonger's

interpretation, these crime increases that go along with capitalist development also seem to follow a linear path. For instance, in his comparison of juvenile crime rates in several capitalist countries, Bonger points out that “this increase is considerable in the countries like Germany, Austria, and Belgium, where there is a continuous industrial development; while in countries less developed industrially the increase is less” (1916 [1905]: 419). Therefore, if capitalism can be assumed to be a matter of degree, then the main hypothesis implied by Bonger’s theory is simply that the degree of capitalism among societies should be related positively to crime rates in those societies, with the most capitalistic societies having the highest crime rates and the least capitalistic having the lowest crime rates.

In addition, Bonger contends that the impact of capitalism on crime is indirect, through egoism and de-moralization that is generated by capitalistic competitive conditions. In Bonger’s interpretation, de-moralization was also a continuous variable, influenced by changes in the economic and social structure toward more profitable exchange, increased competitiveness, and advancing “cupidity.” Those conditions were said to cause less sympathy and to reduce sensitivity to the feelings of others, with the maximum competition and unrestrained making of profit producing the most egoistic tendencies (1916 [1905]: 401, 403–5). Yet, Bonger clearly suggested that more favorable economic conditions were capable of reducing the degree of de-moralization and that eventually, “an evolution from egoism towards altruism” might take place (1916 [1905]: 389). Therefore, a secondary hypothesis from Bonger’s work is that de-moralization serves as a mediating link between capitalism and crime with the degree of de-moralization positively related to crime rates.

### EXTANT EVIDENCE

In his book, *Criminality and Economic Conditions*, Bonger (1916 [1905]) tried to marshal empirical support for his arguments. Drawing on statistics compiled at the beginning of the twentieth century in Germany, Austria, France, Italy, and other Western European countries, he showed simple bivariate associations among such things as poverty, illiteracy, marriage rates, and inebriation and variations in rates of different criminal offenses in these nations. Yet, lacking the tools of modern research that permit control for extraneous variables, and in the absence of the more extensive international data bearing on economic systems that are available today, he could not demonstrate an actual link between capitalism and the adverse conditions he hypothesized.

Moreover, to our knowledge, no direct empirical test of the influence of the degree of capitalism on variations in cross-national crime rates has been published yet. Nevertheless, scattered empirical studies that focus on

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the impact of various economic factors on crime rates suggest some indirect support for Bonger's theory. In particular, most relevant studies explore the relationship between one of the characteristics of the economic system—**income inequality—and national homicide rates.** Such studies consistently find that economic inequality is associated positively with levels of homicide, either independently or in combination with other factors (e.g., Kick and LaFree, 1985; Krahn, Hartnagel, and Gartrell, 1986; LaFree and Kick, 1986; McDonald, 1976; Messner, 1986, 1989; Neapolitan, 1994, 1998; Pratt and Godsey, 2003; Savolainen, 2000). In addition, several studies explore the impact of economic features other than unequal distribution of economic resources. Some research suggests that variations in social welfare spending across nations are related negatively to different indicators of lethal violence, such as child homicide, age–sex specific homicide, and overall homicide rates (Fiala and LaFree, 1988; Gartner, 1990; Savolainen, 2000). Cross-national studies also have examined a more general concept of decommodification of labor (that incorporates social welfare expenditure) and its effect on crime. These studies show an empirical association between this aspect of economic organization and homicide rates (Messner and Rosenfeld, 1997; Savolainen, 2000). Finally, most recently, Pratt and Godsey (2003) examine public spending on health care, considering it as a proxy for social support, and they report a negative relationship between social support and national homicide rates as well as some evidence of an interactional effect between social support and economic inequality.

Therefore, although some indirect evidence seems to confirm some of Bonger's theorizations, a direct test of core propositions of the theory remains to be conducted. We hope to take the first step in conducting such a test, although we, too, are limited by inadequate data. Whereas different aspects of Bonger's theory have been criticized for misinterpretations of Marx's writings, for lack of theoretical and methodological sophistication, and for the implausibility of some of its assumptions (Mike, 1976; Taylor, Walton, and Young, 1973; Turk, 1969), we hope that an actual empirical test of its critical propositions will help criminologists judge whether Bonger's contribution to Marxist criminology is more than the illustration of simplistic economic determinism that it is often portrayed as being. After all, as Turk (1969) contends in his introduction to the second publication of *Criminality and Economic Conditions*, despite all of its shortcomings, Bonger's theory of criminality exposes some possible indirect links between the economy and crime.

## METHODS

### UNIT OF ANALYSIS

Bonger's theory focuses on **economic systems and their effects on crime**. Because an economic "system" is a societal, or macroecological, characteristic, tests of hypotheses are conducted most appropriately at an aggregate, or ecological, level. Provided **suitable measures of capitalism** could be derived, aggregate units within a single country, such as states, counties, or cities, might be studied to test Bonger's argument. However, the theory seems more compelling when it is applied to countries, and Bonger, himself, used cross-cultural comparisons to illustrate his propositions. Therefore, our study focuses on countries.

### SAMPLE

We analyze data for **100 nations**—those for which sufficient data exist to permit measurement of the variables of interest. We judged nations appropriate for inclusion in the sample if data for all variables for the analysis were available for each of them or if sufficient data were available to permit reliable imputation of missing values (that is, if we had data for the dependent variable and for at least three fourths of all other variables). Data were compiled from the most recent and reputable sources. They include **1)** the World Bank, **2)** the International Labor Organization, **3)** the United Nations Statistics Division, and **4)** the United Nations Office on Drugs and Crime. A most persistent problem for researchers who attempt to conduct comparative cross-national research, although not the only one, is potential noncomparability and unreliability of data (LaFree, 1999; Lynch, 1995; Neapolitan, 1997). Most experts agree, however, that in the last few decades, the sources named above have made enough strides in collecting comparable data for larger numbers of nations and in improving their quality to enable researchers to conduct **reasonable multivariate statistical analyses**. Still, useful data are obtained mostly from highly or moderately developed nations.

Therefore, included in the 100 nations are 10 African, 28 Asian-Pacific, 23 Central and Eastern European, 20 Western European, and 19 American countries. According to the United Nations classification of the level of development of the countries used in the analysis, **49 are highly developed, 43 are moderately developed, and 8 are classified as having low development** (United Nations Development Programme, 2007). This classification is based on the 2003 scores of the Human Development Index (HDI), which incorporates Gross Domestic Product (GDP) per capita, average life expectancy, adult literacy rates, and educational enrollment. The countries in each category of development, along with the HDI

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cutpoints for each category, are presented in appendix A. The highly developed nations selected for our study constitute 89 percent of all highly developed countries listed by the United Nations Development Programme (UNDP) in 2003, whereas medium- and low-development countries comprise 51 percent and 24 percent of all world nations included by the UNDP, in their respective categories. Thus, it is clear that our sample consists of mostly high- and medium-development countries, with underrepresentation of low-developed countries being greatest in Africa and Southeast Asia. Therefore, as with all comparative research, generalizations of our findings to larger samples of nations have to be made with much caution.

### VARIABLES

#### DEPENDENT VARIABLE

Because Bonger's theory purports to explain all crime (1916 [1905]: 536), ideally one would examine general crime rates as well as crimes of a violent, political, economic, or sexual nature, including those involving vengeance as well as other motives. However, because of differences in cross-national legal definitions of crime and in reporting practices, reliable cross-national data for crime are quite limited, which makes comprehensive tests impossible (LaFree, 1999; Lynch, 1995; Neapolitan, 1997). Most scholars do agree that **cross-national statistics on homicides are the most reliable international crime data available** (Kick and LaFree, 1985; LaFree, 1999, 2005; LaFree and Drass, 2002; Lynch, 1995; Messner, 1989; Neapolitan, 1997; Pratt and Godsey, 2003). Therefore, we attempt to test Bonger's theory of capitalism using homicide rates as the dependent variable.

Most previous cross-national crime research has used Interpol data, with only a few studies having analyzed the crime data collected in the United Nations Surveys on Crime Trends and the Operations of Criminal Justice (Groves, McCleary, and Newman, 1985; Hansmann and Quigley, 1982; Neapolitan, 1996). However, the most recent United Nations crime data are considered by many scholars to be of better quality than those from Interpol and are available for a larger sample of nations (see Neapolitan, 1997 for a complete review). For these reasons, we use data on intentional homicide rates per 100,000 residents drawn from the sixth, seventh, and eighth *United Nations Surveys on Crime Trends and the Operations of Criminal Justice Systems* (2006) that encompass the period from 1997 until 2002.

Following conventional practice, we compute averages for multiple-year periods to minimize the problems associated with random yearly fluctuations (Krahn, Hartnagel, and Gartrell, 1986; LaFree, 1999; LaFree and

Kick, 1986; Messner and Rosenfeld, 1997). For those countries with complete data, the averages are for the years 1997–2002. When data were unavailable for all of those years, we calculated mean homicide rates for the subsets of the years that were available (see Messner, 1992; Messner and Rosenfeld, 1997). In addition, to help reduce skew and to help alleviate heteroscedasticity, we analyzed the natural logarithm of the homicide rate.

#### INDEPENDENT VARIABLE

Bonger's theory contends that capitalism spawns crime. Therefore, to test his theory, we must be able to measure variation in degrees of capitalism among nations. Definitions of capitalism found in the literature range from Marx's original general description of capitalism to numerous subsequent definitions set forth by economists and others. Marx conceived of capitalism as a mode of production characterized by the private ownership of the means of production, division into classes of capitalists (owners) and workers (nonowners), with exploitation by capitalists of waged workers to produce profit stemming from the surplus value that their labor creates (Marx, 1990 [1867]). Subsequent definitions have incorporated a range of characteristics, including the production of goods for exchange (rather than use) with the goal of realizing profit, the existence of labor markets and economic competition, the extent to which production and process are controlled by the capitalists or their agents independently of the interests of the working class, and the extent to which buyers and sellers of products, labor, and services are free to promote their various interests exclusively in response to market conditions (Bonger, 1916 [1905]; Esping-Andersen, 1990; Hicks and Kenworthy, 2003; Kenworthy, 2003; Lynch and Groves, 1986; Lynch, Groves, and Lizotte, 1994; Sutton, 2004; Tittle and Paternoster, 2000). However, there does not seem to be any agreement among scholars concerning the dimensions of capitalism that are most essential or that should be studied in its measurement.

Therefore, because we are trying to test Bonger's theoretical propositions on the relationship between capitalism and crime, we attempt to derive a measure of capitalism based on his statements made in *Criminality and Economic Conditions* (1916 [1905]). Specifically, Bonger describes the capitalist economic system in terms of three conditions: 1) the extent to which an economy "is based upon exchange" executed "exclusively" with the goal of "making a profit" (1916 [1905]: 402–3); 2) the extent of unrestrained competition, which is "the fundamental principal of the present economic system" (1916 [1905]: 607); and 3) the degree of relative impoverishment and deprivation, because "it is not the total amount of wealth but its distribution that bears upon criminality" (1916 [1905]: 91).

Unfortunately, currently no direct cross-national measures of these

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dimensions of capitalism are accessible. However, with available economic indicators commonly employed in research, it may be possible to derive at least a **crude measure of capitalism** that reflects Bonger's reasoning. We experimented with four such indicators: 1) social security taxes as a percent of revenues, 2) private health expenditures as a percent of total health spending, 3) union density, and 4) the Gini index of income inequality.

The first two indicators, social security taxes as a percentage of government revenues and percentage of total national health expenditure that is private, are both indicators of different types of social protection spending often used in research on capitalism to measure **the extent of welfare capitalism** (e.g., Esping-Andersen, 1990; Hicks and Kenworthy, 2003; Huber, 1996). Whereas, according to Bonger, "pure" capitalism relies on exchange conducted solely with the goal of realizing profit, state welfare policies reflect the extent to which national government policies restrict market forces, regulate economic activities, and raise public expenditures to fill a societal need. Therefore, the lower social security expenditure percentages and the higher private health expenditure percentages are generally indicative of fewer restrictions placed by societies on the unlimited pursuit of profit and, thus, indicative of the greater degree of capitalism.

The *World Development Indicators* 2004 database contains relevant data on social security taxes for 89 of our 100 countries for various years within the 1992–1998 period. As noted, multiple-year averages are calculated for the subsets of the years with available data within this period. To derive our second indicator of capitalism, we also use the same database to obtain information about private and total health expenditures in 1997 for 99 countries in our sample. It consists of total private health expenditures, such as direct household spending on health care and private insurance, relative to total national health expenditures.

The third indicator of the degree of capitalism is union density, which is commonly employed as a measure of corporatism and labor market structure (e.g., Esping-Andersen, 1999; Kenworthy, 2003; OECD, 1997; Siaroff, 1999; Sutton, 2004). According to many authors using this indicator, stronger union organizations significantly increase the bargaining power of the working class, enabling them to negotiate many **worker-friendly policies on employment security, wage rates, and work regulations, which are often detrimental to the competitive abilities of involved corporations.** Therefore, in this case, **union density reflects the degree to which economic competition, another characteristic of capitalism** discussed by Bonger, may be restrained by worker organization. **Lower union density, then, shows higher levels of capitalism.** Data from the International Labor Organization (2006) concerning union density circa 1995 are available for 68 countries in our sample. The International Labor Organization (2006)

computes union density as a percentage of total paid employees who are labor union members.

Finally, because Bonger suggests that impoverishment, deprivation, and unequal distribution of wealth are by-products of unrestrained capitalism, their prevalence should indicate the degree of capitalism. To tap such deprivation, we follow the lead of numerous other scholars in using a **Gini index of income inequality** (e.g., Krahn, Hartnagel, and Gartrell, 1986; LaFree and Kick, 1986; Messner, 1989; Messner and Rosenfeld, 1997; Neapolitan, 2003; Pratt and Godsey, 2003; Savolainen, 2000; Sutton, 2004). The Gini index assesses the degree to which the distribution of income within a national economy deviates from a perfectly equal distribution. A zero index score implies perfect equality, whereas a score of 100 indicates the highest degree of inequality. We assume that higher scores reflect greater degrees of capitalism. The World Bank's *World Development Indicators* 2004 database contains the data on the Gini index of income inequality circa 2000 for 85 countries in our sample.<sup>1</sup>

Although each of these four indicators seems to reflect a feature of capitalism, it must be recognized that each is an imperfect indicator. For example, the indicator of private health expenditures may not reflect the degree to which national government policies regulate other economic activities. Union membership by itself may not indicate the actual strength of unions, and unions in different countries may be more or less antagonistic to capitalist freedom. Similarly, authoritarian regimes in noncapitalist countries may foster great inequality in income, whereas social security taxes may fall mainly on workers with minimal impact on capitalists. Nevertheless, if the four indicators are shown to hang together as a meaningful whole, their combination should provide at least a crude measure of the degree of capitalism.

To ascertain whether the four indicators could be regarded as reflecting one underlying dimension, we employed principal components factor analysis. However, before performing the factor analysis, we filled in missing values using the expectation-maximization (EM) algorithm. It estimates missing values based on the covariance matrix of all the variables introduced into the analysis. This method provides more conservative estimates than is typical with other methods of handling missing data, such as mean

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1. In addition to incorporating the Gini index into our composite measure of capitalism, we assessed how the Gini index of income inequality performed as a single indicator of capitalism. Those analyses using 85 countries for which the data on the Gini index were available produce similar patterns of results as those employing the composite index of capitalism, which suggests that such inequality may be linked so closely with capitalism that it alone might be taken as an adequate measurement, although Bonger did not imply this.

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substitution, because it minimizes downward bias in imputed variance estimates (Pratt and Godsey, 2003). Imputing missing values is important because listwise deletion would reduce the number of cases to approximately 60, which would make meaningful analysis far more difficult. Although we have at least one indicator of capitalism for each country in our sample, many countries lack one or more of them. To make sure our results are not biased by using cases with imputed values, we repeated the analysis using the indicator of capitalism that was most complete and analyzing only those 60 countries for which that indicator was available. The results for this alternative analysis showed a similar pattern of results as does the analysis for all cases with imputed values.

Factor analysis of four economic indicators of capitalism confirms that they form one factor (with an eigenvalue of 2.3, which explains 58 percent of the variance) and that all four indicators load at .7 or higher. In addition, the four items show an alpha of .74. Hence, we feel confident in combining them into a composite index, which we believe reflects the overall degree of capitalism in various countries. Combination is accomplished by multiplying the factor coefficients by the  $z$  scores and summing. The resulting scale has a mean of 0 and a standard deviation of 1. Higher scores on the scales reflect greater degrees of capitalism. The computed capitalism scores for all countries in our sample are presented in appendix B.

### MEDIATING VARIABLE

One of the most intriguing hypotheses implied by Bonger's theory is that capitalism indirectly affects crime by generating an egoistic environment characterized by selfishness and feelings of de-moralization (loss of moral feelings for others). Direct indicators of egoistic environments and selfishness are, of course, not available. However, we suggest that de-moralization may be reflected indirectly in the degree to which individuals in each particular country are corrupted and enabled to exercise public power for private gain. The World Bank's (2006) *Governance and Anti-Corruption Indicators* include an aggregated indicator of the extent of corruption (called the Control of Corruption). It is based on subjective perceptions of the extent of corruption derived from national polls of experts and general surveys (Kaufmann, Kraay, and Mastruzzi, 2003).

In the process of aggregation, scores from all sources are weighted according to the reliability of each source. The resulting estimates of the extent of corruption are normally distributed with higher scores indicating less corruption in a country (see Kaufmann, Kraay, and Mastruzzi, 2003 for a complete review). To make interpretation easier, we reverse the scores so that the index reflects corruption rather than absence of corruption. The index is for the year 1998 or for the closest later year for which

data are available for all countries in our sample. Another measure of corruption, the Corruptive Perceptions Index, compiled by Transparency International, is also available, but only for 71 of our 100 countries. The correlation of the two measures of corruption among the 71 nations for which both are available is .98, suggesting that our choice does not bias the result.<sup>2</sup>

#### CONTROL VARIABLES

Following other cross-national research, we control for **several socioeconomic, demographic, and cultural variables** (cf. LaFree and Kick, 1986; Messner and Rosenfeld, 1997; Neapolitan, 1997; Pratt and Godsey, 2003; Savolainen, 2000). They are as follows: 1) the sex ratio (the number of males per 100 females, logged); 2) the relative size of the young population (percent of the population under 14); 3) the degree of urbanization (percent of the population urban); 4) GDP per capita (logged); 5) average life expectancy at birth; 6) adult literacy rates; 7) combined primary, secondary, and tertiary education enrollment; 8) heterogeneity of the population; and 9) whether the nation was dominated by Eastern religions. Four control variables—GDP per capita, average life expectancy, adult literacy rates, and educational enrollment—commonly are taken to reflect the level of economic development. Together, they constitute the Human Development Index compiled by the United Nations. However, in our initial explorations concerning the interrelationships among variables, we treat them separately rather than use the index. Data for the first seven control variables listed are available for all countries in our sample for the year 2000 or more recently in the World Bank's *World Development Indicators* 2004 database. GDP per capita and the sex ratio are transformed into natural logarithmic form to adjust for the skewed distributions of the data.

Because six of these control variables are correlated strongly and seem to reflect a similar underlying characteristic, which we call "development" (not to be confused with the United Nations classification of degree of development shown in appendix A based on only four indicators), we combine them into a scale using the principal components method (cf. Land, McCall, and Cohen, 1990; Messner and Rosenfeld, 1997). They form

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2. We also examined as an alternative measure of corruption, a one-factor scale composed of three items from World Values Survey asking representative samples of people in different countries whether it was acceptable to dodge fares or taxes and to pay bribes. However, this measure is available for only 59 countries in our sample, and for those 59 cases, it produced similar patterns of results as our main measure of corruption. Therefore, we elected to use the measure that is available for all countries in our sample.

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one factor with high loadings for all (the eigenvalue for the principal component is 4.2, and the variance explained is 69 percent). Hence, high GDP per capita, high life expectancy, high adult literacy rates, high education enrollment, high levels of urbanization, and smaller relative size of the young population are combined into a composite scale that reflects level of modernization or development. The alpha for this enlarged composite development index is .58.

A second composite control variable is the degree of heterogeneity or differentiation between people in the population with respect to such characteristics as religion, race, ethnicity, language, culture, and so forth. Such heterogeneity is often identified as an important influence on crime rates (e.g., Blau, 1977; Braithwaite and Braithwaite, 1980; Hansmann and Quigley, 1982; McDonald, 1976). To derive a measure, we combine two major components: an indicator of religious fractionalization and an indicator of linguistic and ethnic fractionalization compiled by Alesina et al. (2003). Although only two indicators are factored, the principal components method suggests a single underlying dimension (with an eigenvalue of 1.2, which explains 59 percent of the variance), with indicators loading at .7 or higher. Composite scores were generated by multiplying the factor coefficients by  $z$  scores and summing. Higher scores on the created scale indicate greater degrees of heterogeneity. Although this measure does not include all forms of heterogeneity, it closely approximates measures employed in many previous studies (see LaFree, 1999 for a complete review).

Our attempt to control for the predominance of Eastern religions is inspired on the one hand by literature that suggests that nations with particular cultural religious orientations, such as Islam, Buddhism, or Confucianism, might have lower rates of violent crime because these orientations promote traditional norms and values, encourage communitarianism, and de-emphasize individualism (Neapolitan, 1997) and is inspired on the other hand by the work of Weber, which suggests that capitalism is linked to some forms of Christianity (Weber, 1958 [1905]). We create a dichotomous variable for the nations with predominant Muslim, Hindu, and other Eastern religious traditions scored as 1 and the others scored as 0. Information on religious prevalence is taken from the Central Intelligence Agency's *The World Factbook* (2006). Overall, then, our analysis includes four control variables: the human development scale, the sex ratio, the heterogeneity scale, and a dummy for Eastern religions.

## ANALYSIS

Because the tested theory postulates linear relationships between the main variables of interest, measured continuously, we employ a series of

ordinary least-squares (OLS) regression models to predict the homicide rate, which is logged to reduce skew and heteroscedasticity.<sup>3</sup>

### MULTICOLLINEARITY

Table 1 presents descriptive statistics and bivariate correlations for all variables included in the analyses. Note, first, that our key theoretical variables—the capitalism index and the corruption measure—are correlated significantly with the logged homicide rates in the direction specified by Bonger’s theory. However, it is also clear that some predictors are highly correlated with each other, which raises the specter of multicollinearity—a common problem that may lead to biased and unstable parameter estimates in cross-national studies of crime (Messner and Rosenfeld, 1997; Pratt and Godsey, 2003; Savolainen, 2000). Therefore, we conducted formal regression diagnostic tests and computed variance inflation factors for all of our multivariate models. In the estimated OLS regression models, all variance inflation factors except one were under 2.7. The exception is the “development” index with the maximum variance inflation factor of 3.78 in the nonadditive model. Yet, its variance inflation never exceeds 4.00, which is the threshold conventionally accepted as indicative of serious multicollinearity (Fisher and Mason, 1981; Pratt and Godsey, 2003; Savolainen, 2000).

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3. Several diagnostic tests showed that the logarithmic transformation of the dependent variable was successful and that it substantially alleviated the problems of skewness and heteroscedasticity. In particular, the skewness of the dependent variable was reduced from 4.08 (standard error [SE] .24) to .86 (SE .24), and the histogram of residuals for the model with the logged homicide rates showed an approximately normal distribution of residuals. To assess the reduction in heteroscedasticity, we examined the scatterplots of the residuals against the predicted values for both untransformed and transformed homicide rates. That examination showed a more pronounced fan shape of residual variance indicative of heteroscedasticity in the former and a more random sphere-like distribution pointing to decreases in unequal residual variance in the latter (Cohen and Cohen, 1983). Furthermore, a more formal Breusch–Pagan test of heteroscedasticity confirmed a very substantial reduction in heteroscedasticity (the  $\chi^2$  test statistic decreased from 104.1 to 20.5), even though a very slight heteroscedasticity still remained and is dealt with in the additional analyses (Gujarati, 1995). In addition, the partial-residual plots were examined and an ANOVA test of linearity was conducted to evaluate the extent to which linear relationships fit the data with the transformed dependent variable (Fox, 1991). All results indicated no significant deviation from linearity (in ANOVA, the  $F$  test statistic for nonlinearity was insignificant and the values of Pearson’s  $r$  and eta were almost identical).

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**Table 1. Descriptive Statistics for Variables Used in the Analysis and Correlations among Them**

Variable	Descriptive Statistics				Correlations					
	Range	Mean	SD	Homicide (logged)	Capitalism	Development	Sex Ratio (logged)	Heterogeneity	Eastern Religion	Corruption
Homicide (logged)	.05-4.50	1.60	.93	1.00	.28*	-.33*	-.32*	.21*	-.26*	.48*
Capitalism	-2.23-1.74	.00	1.00	1.00	1.00	-.66*	.26*	.22*	.30*	.38*
Development	-2.45-1.54	.00	1.00	1.00	1.00	1.00	-.18	-.30*	-.36*	-.72*
Sex ratio (logged)	4.44-5.20	4.59	.09	1.00	1.00	1.00	1.00	.00	.48*	-.01
Heterogeneity	-2.14-2.32	.00	1.00	1.00	1.00	1.00	1.00	1.00	.10	.19
Eastern religion	0-1	.29	.46	1.00	1.00	1.00	1.00	1.00	1.00	.27*
Corruption	-2.58-1.30	-.40	1.11	1.00	1.00	1.00	1.00	1.00	1.00	1.00

NOTES: N = 100 for all variables. \*p < .05, two tailed.

## RESULTS

## CAPITALISM AND HOMICIDE

Table 2 shows the results of the analysis, based on five models. Model 1 is the bivariate coefficient that demonstrates the relationship between capitalism and homicide rates. As Bonger would have it, capitalism is related significantly to homicide rates (.26) in the direction he stipulated; that is, the higher the level of capitalism in a society, the higher the homicide rate. However, because capitalism may be linked with other variables that affect homicide rates, we examined a model (2) in which four control variables are also included as predictors. Although three of those control variables (development, sex ratio, and presence of Eastern religions) are associated independently, themselves, with homicide rates, their inclusion does not reduce the association of capitalism with homicide below significance. Thus, even with other well-established predictors of homicide rates controlled, an increase in capitalism is still associated with a substantial rise in the homicide rate. Therefore, even though the capitalism index does not stand out as the strongest predictor of homicide rates across nations, our results do provide empirical support for Bonger's proposition that capitalism spawns crime.

## OTHER PREDICTORS OF HOMICIDE RATES

Although our primary interest in other potential predictors of homicide rates concerns their effect on the capitalism/homicide association, it should be noted that our findings concerning the usual predictors of international rates of homicide are consistent with previous cross-national crime research (e.g., Messner and Rosenfeld, 1997; Pratt and Godsey, 2003; Savolainen, 2000). Less-developed countries, which are characterized by lower degrees of urbanization, younger populations, and smaller numbers of men relative to women, seem to have higher homicide rates than other countries. Thus, the significant negative coefficient for development is in line with both the "modernization thesis" that predicts the decline in violent crime in more developed societies and the "reduced opportunities" argument that forecasts fewer opportunities for interpersonal violence in more developed societies (LaFree and Kick, 1986; Messner and Rosenfeld, 1997; Neapolitan, 1997).

Furthermore, like other research, our analysis shows that lower sex ratios (smaller numbers of men relative to women) are associated with higher levels of homicide. This finding may seem counter to intuitive expectations that an oversupply of males would lead to violent competition among them for the attention of females (cf. Guttentag and Secord, 1983). Yet, Messner and Sampson (1991; see also Messner and Rosenfeld, 1997) suggest that this anomalous negative association of the sex ratio with

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**Table 2. Regression Coefficients Representing the Effects of Capitalism on Logged Homicide Rates, Controlling Other Variables<sup>a</sup>**

Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$
Capitalism	.26 (.09)*	.28	.19 (.10)*	.21	.25 (.10)*	.27	.25 (.10)*	.26	.35 (.11)*	.37
Development			-.30 (.11)*	-.33	.09 (.13)	.09	.07 (.14)	.08	-.03 (.12)	-.03
Sex ratio			-3.05 (1.05)*	-.28	-2.07 (.97)*	-.19	-2.05 (.98)*	-.19	-3.23 (1.07)*	-.30
Heterogeneity			.09 (.08)	.10	.11 (.07)	.12	.10 (.08)	.11	.08 (.07)	.08
Eastern religion			-.65 (.20)*	-.32	-.76 (.19)*	-.37	-.77 (.19)*	-.38	-.42 (.19)*	-.20
Corruption					.44 (.09)*	.52	.42 (.10)*	.50	.34 (.09)*	.41
Capitalism $\times$ corruption							-.03 (.08)	-.03		
Capitalism $\times$ sex ratio										
Capitalism $\times$ Eastern religion										
<i>N</i>	100		100		100		100		100	
Adjusted <i>R</i> <sup>2</sup>	.07		.32		.45		.44		.52	

<sup>a</sup> Standard errors of estimates in parentheses.

\**p* < .05, one tailed.

rates of violence in macrolevel studies can be explained by countervailing effects that involve sex ratios, family disruption, and violence. According to their argument, on the one hand, consistent with ideas that a shortage of men produces a marriage squeeze for females, the sex ratio is correlated negatively with levels of family disruption; that is, lower numbers of males are associated with increases in the number of households headed by females. On the other hand, family incompleteness is associated positively with criminal violence; that is, the areas with more female-headed households tend to be characterized by higher violent crime rates. Therefore, Messner and Sampson (1991) contend that it is possible that the indirect negative effects of the sex ratio on violent crime, which are expressed through family disruption, may help suppress any direct positive effects of the sex ratio that may be expected. The researchers also find some empirical support for this paradox in their analyses that show the positive effects of the sex ratio when family disruption is controlled.

Furthermore, as several other studies of rates of violence have found (Hansmann and Quigley, 1982; McDonald, 1976; Messner, 1989), societal heterogeneity does not show a significant association with homicide rates, whereas the prevalence of an Eastern religious tradition is significantly (negatively) associated with homicide rates.

Thus, our results confirm previous international research on homicide, which shows that several variables are persistently significant predictors of homicide rates, whereas others are not. However, the introduction of those predictors into our equation does not alter the substantive finding that capitalism is a significant, independent predictor of homicide rates.

#### WHY DOES CAPITALISM PREDICT HOMICIDE?

Having established that capitalism is associated with homicide rates, as Bonger claimed, it is important to turn to his explanation for why capitalism might lead to increased homicide rates. Recall that Bonger thought that capitalism creates a de-moralizing, or corruptive, atmosphere conducive to criminal activities. Model 3 of table 2 shows the coefficient for our measure of corruption, which we take to be a good proxy for de-moralization when it is included in the equation with the index of capitalism and the four control variables. Taking corruption into account does increase appreciably the explanatory power of the model. And, consistent with Bonger's theoretical prediction, the coefficient for de-moralization/corruption on homicide rates (.44) is significant and in the expected direction: the greater the de-moralization, the higher the homicide rates. Moreover, this is true net of the effects of all other variables included in the equation. In addition, standardized regression coefficients from model 3 show corruption to have the largest standardized regression coefficient in the model. Importantly, its inclusion erases the negative coefficient for the composite

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development index on homicide rates while reducing, somewhat, the size of the regression coefficient for the sex ratio.

Still, the addition of the corruption (de-moralization) measure does not reduce the capitalism coefficient (.25). In fact, the capitalism coefficient remains significant and even increases in size when the level of corruption is taken into consideration. This finding is contrary to what would have been expected if Bonger were correct. If corruption mediates the capitalism/homicide relationship, controlling corruption should reduce or eliminate the capitalism/homicide relationship. It does not. Hence, it seems that our results do not support the hypothesis specifying corruption (de-moralization) as the intervening link between capitalism and crime.

However, to make allowance for our possible misinterpretation of Bonger's argument and to give his thinking the benefit of any doubt, we considered the possibility that de-moralization might at least interact with capitalism in the production of homicide. To explore that possibility, we introduce into the predictive equation for homicide a multiplicative interaction term (capitalism  $\times$  corruption). Its coefficient (model 4) is not statistically significant, and its inclusion in the model does not change the pattern of substantive findings already reported. Thus, our analysis shows no empirical evidence that the effect of capitalism on homicide rates is mediated by, or conditional on, the level of corruption/de-moralization. Both capitalism and corruption seem to be significant—but independent—predictors of lethal violence. Therefore, Bonger's theoretical argument about why capitalism is linked to increased homicide rates is not supported by our findings.

Yet, these results raise the question of what else might be implicated in the association between capitalism and lethal violence. So far, our findings from the additive models clearly show that the other factors thought to affect homicide rates, including corruption, together do not mediate the relationship between capitalism and lethal violence. Nevertheless, some of those variables, particularly the ones that proved to be independent predictors of homicide rates, might serve as contingencies that boost or suppress the effects of capitalism. Therefore, to examine potential conditioning effects, we introduce multiplicative terms that express the interaction of capitalism with other variables. Results for the "capitalism  $\times$  sex ratio" and "capitalism  $\times$  Eastern religion" terms, when both are incorporated into the model at the same time, are shown in model 5 of table 2.<sup>4</sup>

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4. We also tested interaction terms concerning capitalism and development and capitalism and heterogeneity. Neither proved significant, which is not surprising because neither development nor heterogeneity were consistent significant predictors of homicide rates.

Even though the sex ratio continues to exert a significant independent effect on capitalism, it does not seem to condition the effect of capitalism because the coefficient for the interaction term is insignificant. However, the interaction term between capitalism and Eastern religion is significant. The negative sign of this coefficient suggests that prevalence of a predominant Eastern religion may reduce the destructive consequences of capitalism on homicide rates. Using the unstandardized regression coefficients from model 5, we can estimate the effect of capitalism on homicide rates in the nations dominated by Eastern religions. It is, in fact, negative(-.35). Thus, in the nations with predominant Eastern religions, higher degrees of capitalism are actually predictive of lower levels of homicide,<sup>5</sup> whereas in nations without Eastern religions, capitalism is associated with increased rates of homicide.

#### ROBUSTNESS

Overall, all estimated models are robust and statistically significant at the  $p < .001$  level, accounting for 7 percent to 52 percent of the total variance in homicide rates. However, to help ensure that our findings are not statistical artifacts, we employ a series of additional tests (results available on request). First, we test for the presence of influential cases, using Cook's D as a diagnostic tool. This test suggests that Qatar may be a distorting case. In addition, we removed Pakistan and Swaziland from the analysis for having the lowest and highest homicide rates, respectively. Analyzing the data with these three cases deleted does not change the basic pattern of findings, thus confirming the stability of our initial equation.

We also replicate our initial analysis using a set of countries where the population is larger than 100,000 as well as a set of countries with 2 or more years of homicide data. In addition, we conducted additional analyses employing an alternative source of data for the dependent variable: the 1997–2002 data on homicides in 69 countries from our sample, collected by the World Health Organization (2006). The findings from these analyses reveal no differences in substantive results compared with analyses using the whole sample.

Finally, even though we take some steps to reduce the problem of unequal error variance in our sample, we conducted the Breusch–Pagan test for diagnosing heteroscedasticity. The test suggested a very slight presence of heteroscedasticity. Therefore, to correct for unequal variances, we reestimated our models with weighted least-squares regression where the weight is equal to the square root of the population size.

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5. This pattern of results is the same when each of these multiplicative terms is in the equation alone.

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In all instances, the robustness tests show persistence in the basic pattern of our findings.

### SUMMARY AND DISCUSSION

Using international data from 100 countries, we perform robust tests of two hypotheses from Bonger's Marxian theory of crime. First, consistent with Bonger's theory, we find that **capitalism is a significant predictor of homicide rates**, independent of other well-established predictors. Second, however, although we find an indicator of de-moralization (corruption) to be significantly and independently predictive of homicide rates, corruption does not mediate the capitalism/homicide relationship, as Bonger's theory implies. Thus, we find only partial support for Bonger's theory. Capitalism apparently is linked to homicide rates and may be an important influence on them, but the reason for that link does not seem to be de-moralization, or corruption, stemming from capitalism.

Moreover, capitalism alone does not provide an adequate explanation for rates of lethal violence, accounting for only a moderate amount of variation in homicide rates. Other factors seem to be equally or even more important for the explanation of cross-national homicide rates. Other important factors include **structural conditions (sex ratio)** and **cultural orientations (corruption and religion)**, both of which seem to affect homicide rates either independently of the degree of capitalism or by serving as a contingency. **Of particular note is the finding that in countries with a predominant Eastern religion, the direction of the association between capitalism and homicide rates actually is reversed.** So, even if Bonger's attribution of criminal stimulus to capitalism is correct, capitalism clearly cannot be regarded as the principal cause of homicide, and the reason for the deleterious effects of capitalism does not seem to be a tendency for individuals in capitalist societies to lose moral feelings for each other (to become de-moralized or corrupt). Whereas corruption does seem to be one of the most potent variables for predicting homicide, it stands on its own, neither exceptionally well related to capitalism nor constituting the intervening link between capitalism and homicide. Therefore, we conclude from our analysis that **Bonger and others with Marxian orientations are right in attributing criminal significance to capitalism.** However, they may have overestimated the importance of capitalism in crime causation and may have misidentified the mechanisms through which capitalism has its deleterious effects.

It is common for theories of crime (or anything else) to oversimplify the causal landscape by focusing on narrow terrain or by obsession with a specific theorized causal mechanism. As a result, all contemporary theories seem only "partially correct." Potential solutions for this plethora of

incomplete theories include theoretical elaboration and integration (Braithwaite, 1989; Tittle, 1995; see Messner, Krohn, and Liska, 1989). Both processes involve bringing together various theories so that the weaknesses of each can be compensated by the stronger elements of other theories. It would appear that Bonger's theory is a good candidate to join with others in the elaboration and synthesization enterprise. Capitalism and corruption (de-moralization), which are key concepts from Bonger's theory, along with demographic variables and cultural features, as well as other factors such as strain or socialization, may link together in complex causal chains to explain variations among societies in crime rates.

In addition, our findings suggest that Bongerian theory could benefit from elaboration using Messner and Rosenfeld's institutional anomie theory (1994). That theory contends that it is the relative balance of emphases on different institutional domains, rather than the nature of any one domain, that is a key to explaining crime rates. Bonger's theory might be better if it recognized that when other domains besides the economy are strong and stress the common good at the same time, they may overcome the focus of capitalism on individual economic success. Our finding that in countries with predominant Eastern religions, capitalism actually is linked negatively to homicide rates seems to bear testimony to Messner and Rosenfeld's argument, suggesting a clear route to synthesization.

When thinking about Bongerian theory as a candidate for theoretical elaboration or integration, it may be useful to raise a preliminary question: "If corruption/de-moralization is not the connecting link between capitalism and homicide, what is?" Several possibilities can be imagined. One of the most promising possibilities would seem to be the strength of informal networks of social control. Capitalism is rooted necessarily in the freedom of individuals and organizations, motivated by potential profit, to compete without undue constraint. But, competition, particularly where profit for one may imply less for others, would seem to make difficult the social cohesion and integration necessary for the administration of effective informal sanctions (Braithwaite, 1989). Freedom from constraint may enhance capitalist pursuit of economic goals, but it also permits violation of social and legal norms. Therefore, capitalist systems may generate crime because they flourish where social control, particularly informal social control, is weak.

Like many early generation theories, Bonger's (1916 [1905]) Marxian formulation centers on criminal motivation, with constraint being relegated to a secondary role and being portrayed as rooted in the psyches of individuals. His theory contends that capitalism fosters criminal motivation through its emphasis on competition and that such motivation results

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in crime because individuals in capitalist contexts lack internal moral constraints rooted in empathy for others. Many contemporary theories, however, have shifted the focus away from criminal motivation toward social control that emanates from the external environment, sometimes deemphasizing or ignoring motivation altogether and discounting internal moral principles (see Tittle, 1995). It seems likely that effective theories will have to honor the **foci** of early generation theories by recognizing the importance of criminal motivation but will have to go further by adding constraint from internal and external sources to the explanatory network.

Hence, if Bonger's theory (1916 [1905]) is to be improved, it may be necessary to modify it by integrating **the element of informal social control**. A good starting point might be to bring into a cross-societal analysis, like we report here, measures of informal social control, such as strength of social attachments. Such data would permit conclusions about whether capitalism is related, in fact, to weak social control and whether weak social control is the connecting link between capitalism and crime rates.

### **CAVEATS**

Many reasons exist for interpreting and weighing our findings carefully. As in all cross-national research, our study is based on a small sample, which itself incorporates substantial amounts of imputed information to compensate for missing data. As a result, estimates necessarily are more problematic than we would desire. In addition, the measures are either imperfect, such as the measure of de-moralization, or incomplete, such as crime rates being limited to the crime of homicide. A more effective test of Bonger's theory (1916 [1905]) probably would require direct measures in various countries of citizen's moral feelings and their willingness to neutralize such feelings under various circumstances as well as require reliable measures of various kinds of crime. It is easy to imagine that Bonger's argument might be far more powerful in explaining **economic crime rates** than in explaining **rates of violent crime**. In addition, we could not obtain any reasonable measures of some important variables that logically might compete with capitalism or mediate its relationship with homicide rates. Finally, it would have been more effective to employ longitudinal data, which simply do not exist in sufficient quantities for enough countries to permit meaningful analysis.

Obviously, then, final decisions about the adequacy of Bonger's theory (1916 [1905]) must wait on other research, some of which replicates and extends, with more complete data, what we have done. Additional work may be undertaken using different kinds of social units, such as political subdivisions of various countries like the United States. In the meantime, we interpret our findings not so much as a confirmation or repudiation of Marxist arguments but as validation of an empirical, quantitative approach

to their assessment as well as a sufficient basis for continuing examination of Marxist notions with an eye to incorporating them into mainstream criminological theories.

### CONCLUSION

Based on our data and analyses, capitalism appears positively predictive of increased homicide rates, as Bonger contended (1916 [1905]). However, the reason for that link does not seem to be the de-moralization of the population, as he maintained. The results, nevertheless, confirm the usefulness of attempting to subject Marxian ideas to positivist, quantitative tests. Moreover, they demonstrate the import of Bonger's ideas because both capitalism and corruption (our indicator of de-moralization) show reasonably strong relationships with homicide rates that stand independently of each other and of other variables commonly used as predictors of homicide rates. Still, our findings showing the link between capitalism and homicide in countries with predominant Eastern religions suggest that Bonger's theory could be integrated profitably with others, especially with the institutional anomie theory of Messner and Rosenfeld.

### REFERENCES

- Akers, Ronald L. 1979. Theory and ideology in Marxist criminology: Comments on Turk, Quinney, Toby, and Klockars. *Criminology* 16:527-43.
- Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. Fractionalism. *Journal of Economic Growth* 8:155-94.
- Blau, Peter. 1977. *Inequality and Heterogeneity*. New York: Free Press.
- Bohm, Robert. 1987. Comment on "traditional contributions to radical criminology" by Groves and Sampson. *Journal of Research in Crime and Delinquency* 24:324-31.
- Bonger, William Adrian. 1916 [1905]. *Criminality and Economic Conditions*. Translated by Henry P. Horton. Boston, MA: Little, Brown.
- Braithwaite, John. 1989. *Crime, Shame, and Reintegration*. New York: Cambridge University Press.
- Braithwaite, John, and Valerie Braithwaite. 1980. The effect of income inequality and social democracy on homicides. *British Journal of Criminology* 20:45-57.
- Central Intelligence Agency. 2006. *The World Factbook*. <http://www.cia.gov/cia/publications/factbook>.

## A CROSS-NATIONAL TEST OF BONGER'S THEORY 951

- Chambliss, William. 1974. Toward a political economy of crime. *Theory and Society* 2:149–70.
- Cohen, Jacob, and Patricia Cohen. 1983. *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. Hillsdale, NJ: Lawrence Erlbaum.
- Colvin, Mark, and John Pauly. 1983. A critique of criminology: Toward an integrated structural-Marxist theory of delinquency production. *American Journal of Sociology* 89:513–51.
- Esping-Andersen, Gøsta. 1990. *Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.
- Esping-Andersen, Gøsta. 1999. *Social Foundations of Post-Industrial Economies*. New York: Oxford University Press.
- Fiala, Robert, and Gary LaFree. 1988. Cross-national determinants of child homicide. *American Sociological Review* 53:432–45.
- Fisher, Joseph E., and Robert L. Mason. 1981. The analysis of multicol-linear data in criminology. In *Methods in Quantitative Criminology*, ed. James A. Fox. New York: Academic Press.
- Fox, John. 1991. *Regression Diagnostics*. Newbury Park, CA: Sage.
- Gartner, Rosemary. 1990. The victims of homicide: A temporal and cross-national comparison. *American Sociological Review* 55:92–106.
- Greenberg, David. 1993a. Delinquency and the age structure of society. In *Crime and Capitalism: Readings in Marxist Criminology*, ed. David Greenberg. Philadelphia, PA: Temple University Press.
- Greenberg, David. 1993b. Introduction. In *Crime and Capitalism: Readings in Marxist Criminology*, ed. David Greenberg. Philadelphia, PA: Temple University Press.
- Groves, W. Byron, and Robert J. Sampson. 1987. Traditional contributions to radical criminology. *Journal of Research in Crime and Delinquency* 24:181–214.
- Groves, W. Byron, Richard McCleary, and Graeme R. Newman. 1985. Religion, modernization, and world crime. *Comparative Social Research* 8:59–78.
- Gujarati, Damodar N. 1995. *Basic Econometrics*. New York: McGraw-Hill.
- Guttentag, Marcia, and Paul F. Secord. 1983. *Too Many Women? The Sex Ratio Question*. Beverly Hills, CA: Sage.

- Hansmann, Henry B., and John M. Quigley. 1982. Population heterogeneity and the sociogenesis of homicide. *Social Forces* 61:206–24.
- Hicks, Alexander, and Lane Kenworthy. 2003. Varieties of welfare capitalism. *Socioeconomic Review* 1:27–61.
- Huber, Evelyne. 1996. Options for social policy in Latin America: Neoliberal versus social democratic models. In *Welfare States in Transition: National Adaptations in Global Economies*, ed. Gøsta Esping-Andersen. Thousand Oaks, CA: Sage.
- Humphries, Drew, and David Greenberg. 1993. The dialectics of crime control. In *Crime and Capitalism*, ed. David Greenberg. Philadelphia, PA: Temple University Press.
- International Labor Organization. 2006. *Labour Statistics*. <http://www.ilo.org>.
- Jaeger, Mads Meier. 2006. Welfare regimes and attitudes toward redistribution: The regime hypothesis revisited. *European Sociological Review* 22:157–70.
- Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2003. Governance matters III: Governance indicators for 1996-2002. World Bank Policy Research Working Paper 3106. <http://www.worldbank.org>.
- Kenworthy, Lane. 2003. Quantitative indicators of corporatism. *International Journal of Sociology* 33:10–44.
- Kick, Edward L., and Gary D. LaFree. 1985. Development and the social context of murder and theft. *Comparative Social Research* 8:37–58.
- Krahn, Harvey, Timothy F. Hartnagel, and John W. Gartrell. 1986. Income inequality and homicide rates: Cross-national data and criminological theories. *Criminology* 24:269–95.
- LaFree, Gary. 1999. A summary and review of cross-national comparative studies of homicide. In *Homicide: A Sourcebook of Social Research*, eds. M. Dwayne Smith and Margaret A. Zahn. Thousand Oaks, CA: Sage.
- LaFree, Gary. 2005. Evidence for elite convergence in cross-national homicide victimization trends, 1956 to 2000. *The Sociological Quarterly* 46:191–211.
- LaFree, Gary, and Kriss A. Drass. 2002. Counting crime booms among nations: Evidence for homicide victimization rates, 1956 to 1998. *Criminology* 40:769–99.

## A CROSS-NATIONAL TEST OF BONGER'S THEORY 953

- LaFree, Gary, and Edward L. Kick. 1986. Cross-national effects of developmental, distributional, and demographic variables on crime: A review and analysis. *International Annals of Criminology* 24:213–35.
- Land, Kenneth C., Patricia L. McCall, and Lawrence E. Cohen. 1990. Structural covariates of homicide rates: Are there any invariances across time and social space? *American Journal of Sociology* 95:922–63.
- Lynch, James P. 1995. Crime in international perspective. In *Crime*, eds. James Q. Wilson and Joan Petersilia. San Francisco, CA: ICS Press.
- Lynch, Michael. 1987. Quantitative analysis and Marxist criminology: Some old answers to a dilemma in Marxist criminology. *Crime and Social Justice* 29:110–27.
- Lynch, Michael, and W. Byron Groves. 1986. *A Primer in Radical Criminology*. New York: Harrow and Heston.
- Lynch, Michael, W. Byron Groves, and Alan Lizotte. 1994. The rate of surplus value and crime. A theoretical and empirical examination of Marxian economic theory and criminology. *Crime, Law, and Social Change* 21:15–48.
- Marx, Karl. 1969 [1863]. *Theories of Surplus Value*. London, UK: Lawrence and Wishart.
- Marx, Karl. 1990 [1867]. *Capital: Volume One*. New York: Penguin Books.
- Marx, Karl. 1993a [1853]. On capital punishment. In *Crime and Capitalism: Readings in Marxist Criminology*, ed. David Greenberg. Philadelphia, PA: Temple University Press.
- Marx, Karl. 1993b [1859]. The labeling of crime. In *Crime and Capitalism: Readings in Marxist Criminology*, ed. David Greenberg. Philadelphia, PA: Temple University Press.
- McDonald, Lynn. 1976. *The Sociology of Law and Order*. Boulder, CO: Westview.
- Messner, Steven F. 1986. Modernization, structural characteristics, and societal rates of crime: An application of Blau's macrosociological theory. *The Sociological Quarterly* 27:27–41.
- Messner, Steven F. 1989. Economic discrimination and societal homicide rates: Further evidence on the cost of inequality. *American Sociological Review* 54:597–611.

- Messner, Steven F. 1992. Exploring the consequences of erratic data reporting for cross-national research on homicide. *Journal of Quantitative Criminology* 8:155–73.
- Messner, Steven F., and Richard Rosenfeld. 1994. *Crime and the American Dream*. Belmont, CA: Wadsworth.
- Messner, Steven F., and Richard Rosenfeld. 1997. Political restraint of the market and levels of criminal homicide: A cross-national application of institutional-anomie theory. *Social Forces* 75:1393–416.
- Messner, Steven F., and Robert J. Sampson. 1991. The sex ratio, family disruption, and rates of violent crime: The paradox of the demographic structure. *Social Forces* 69:693–713.
- Messner, Steven F., Marvin D. Krohn, and Allen E. Liska. 1989. *Theoretical Integration in the Study of Deviance and Crime: Problems and Prospects*. Albany: State University of New York Press.
- Mike, Barry. 1976. Willem Adrian Bongers' "Criminality and Economic Conditions": A critical appraisal. *International Journal of Criminology and Penology* 4:211–38.
- Neapolitan, Jerome L. 1994. Cross-national variation in homicide rates: The case of Latin America. *International Criminal Justice Review* 4:4–22.
- Neapolitan, Jerome L. 1996. Cross-national crime data: Some unaddressed problems. *Journal of Criminal Justice* 19:95–112.
- Neapolitan, Jerome L. 1997. *Cross-National Crime: A Research Review and Sourcebook*. Westport, CO: Greenwood Press.
- Neapolitan, Jerome L. 1998. Cross-national variation in homicides: Is race a factor? *Criminology* 36:139–56.
- Neapolitan, Jerome L. 2003. Explaining variation in crime victimization across nations and within nations. *International Criminal Justice Review* 13:76–89.
- Organization for Economic Cooperation and Development (OECD). 1997. *Economic Outlook*. Paris, France: OECD Publishing.
- Pashukanis, Evgeniy. 1978. *The General Theory of Law and Marxism*. London, UK: Ink Links.
- Pratt, Travis C., and Timothy W. Godsey. 2003. Social support, inequality, and homicide: A cross-national test of an integrated theoretical model. *Criminology* 41:611–43.

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- Quinney, Richard. 1977. *Class, State and Crime: On the Theory and Practice of Criminal Justice*. New York: David McKay Company.
- Rusche, Georg, and Otto Kirchheimer. 2003. *Punishment and Social Structure*. New York: Transaction.
- Savolainen, Jukka. 2000. Inequality, welfare state, and homicide: Further support for the institutional anomie theory. *Criminology* 38:1021–42.
- Siaroff, Alan. 1999. Corporatism in 24 industrial democracies: Meaning and measurement. *European Journal of Political Research* 36:175–205.
- Spitzer, Steven. 1974. Toward a Marxian production of deviance. *Social Problems* 22:641–51.
- Spitzer, Steven. 1998. Rationalization of crime control in capitalist society. In *Crime and Political Economy*, ed. Ian Taylor. Dartmouth, UK: Ashgate.
- Sutton, John R. 2004. The political economy of imprisonment in affluent Western democracies. *American Sociological Review* 69:170–89.
- Taylor, Ian, Paul Walton, and Jock Young. 1973. *The New Criminology: For a Social Theory of Deviance*. London, UK: Routledge.
- Tittle, Charles R. 1995. *Control Balance: Toward a General Theory of Deviance*. Los Angeles, CA: Roxbury.
- Tittle, Charles R., and Raymond Paternoster. 2000. *Social Deviance and Crime: An Organizational and Theoretical Approach*. Los Angeles, CA: Roxbury.
- Turk, Austin T. 1969. Introduction. In *Criminality and Economic Conditions*, ed. Willem A. Bonger. Partially translated and abridged by Austin T. Turk. Bloomington: Indiana University Press.
- United Nations Development Programme. 2007. *Human Development Report 2003*. <http://www.undp.org>.
- United Nations Office on Drugs and Crime. 2006. *United Nations Surveys on Crime Trends and the Operations of Criminal Justice Systems*. <http://www.unodc.org>.
- Weber, Max. 1958 [1905]. *The Protestant Ethic and the Spirit of Capitalism*. Translated by Talcott Parsons. London, UK: Charles Scribner's Sons.
- World Bank. 2004. *World Development Indicators*. CD-ROM.
- World Bank. 2006. *Governance and Anti-Corruption Indicators*. <http://www.worldbank.org>.

World Health Organization. 2006. *Demographic Yearbook 2002*. <http://unstats.un.org/unsd/demographic>.

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**Appendix A. Classification of Countries in the Study by Development, according to the United Nations, Based on Four HDI Indicators<sup>a</sup>**

High		Medium		Low
Norway	Bahrain	Bulgaria	Tajikistan	Nepal
Iceland	Hungary	Malaysia	Bolivia	Pakistan
Sweden	Slovakia	Panama	Guatemala	Zimbabwe
Australia	Uruguay	Macedonia	Namibia	Uganda
Netherlands	Estonia	Mauritius	Morocco	Yemen
Belgium	Costa Rica	Russian Federation	India	Tanzania
United States	Chile	Colombia	Myanmar	Cote D'Ivoire
Canada	Qatar	Dominica	Papua New Guinea	Zambia
Japan	Lithuania	Venezuela	Swaziland	
Switzerland	Kuwait	Romania		
Denmark	Croatia	Saudi Arabia		
Ireland	Bahamas	Thailand		
United Kingdom	Latvia	Ukraine		
Finland	Belarus	Kazakhstan		
Luxembourg	Mexico	Jamaica		
Austria		Oman		
France		Fiji		
Germany		Peru		
Spain		Paraguay		
New Zealand		Philippines		
Italy		Maldives		
Israel		Georgia		
Portugal		Azerbaijan		
Greece		Jordan		
Cyprus		Tunisia		
Barbados		Albania		
Singapore		Sri Lanka		
Slovenia		Armenia		
Korea, Republic of		Kyrgyzstan		
Czech Republic		China		
Malta		El Salvador		
Argentina		Moldova, Republic		
Poland		South Africa		
Seychelles		Indonesia		

<sup>a</sup> Countries in each category are listed in order from more developed to less developed: High = HDI from .94 to .80; Medium = .79 to .50; Low = less than .50.

**Appendix B. Capitalism Scores for Countries in the Study**

Nation	Score	Nation	Score	Nation	Score	Nation	Score
Albania	-.35	Estonia	-.87	Macedonia	-1.30	Russian Federation	-1.25
Argentina	.16	Fiji	.48	Malaysia	1.00	Saudi Arabia	.42
Armenia	.63	Finland	-1.11	Maldives	.40	Seychelles	-.38
Australia	.11	France	-.67	Malta	-.77	Singapore	1.10
Austria	-1.11	Georgia	.25	Mauritius	.25	Slovakia	-1.79
Azerbaijan	-1.26	Germany	-1.30	Mexico	.77	Slovenia	-1.43
Bahamas	.73	Greece	.60	Moldova, Republic	-.98	South Africa	1.31
Bahrain	-.03	Guatemala	1.62	Morocco	1.31	Spain	-.58
Barbados	-.38	Hungary	-1.57	Myanmar	1.65	Sri Lanka	.46
Belarus	-2.23	Iceland	-1.05	Namibia	1.24	Swaziland	1.02
Belgium	-1.18	India	1.39	Nepal	1.18	Sweden	-2.17
Bolivia	.49	Indonesia	1.26	Netherlands	-.71	Switzerland	-.72
Bulgaria	-1.18	Ireland	-.43	New Zealand	.08	Tajikistan	.70
Canada	-.45	Israel	-.10	Norway	-1.37	Tanzania	.81
Chile	1.41	Italy	-.64	Oman	.56	Thailand	.99
China	.41	Jamaica	.38	Pakistan	1.20	Tunisia	.09
Colombia	1.54	Japan	-.75	Panama	.60	Uganda	1.46
Costa Rica	.10	Jordan	.38	Papua New Guinea	.29	Ukraine	-1.35
Cote D'Ivoire	1.45	Kazakhstan	-1.13	Paraguay	1.74	United Kingdom	-.43
Croatia	-1.36	Korea, Republic of	.68	Peru	1.01	United States	.24
Cyprus	-.36	Kuwait	-.24	Philippines	.97	Uruguay	.53
Czech Republic	-1.64	Kyrgyzstan	-.06	Poland	-.64	Venezuela	.89
Denmark	-1.24	Latvia	-.72	Portugal	-.10	Yemen	.99
Dominica	-.10	Lithuania	-1.09	Qatar	-.42	Zambia	1.17
El Salvador	1.31	Luxembourg	-1.18	Romania	-.85	Zimbabwe	1.20