

Want Amid Plenty: Developing and Testing a Cross-National Measure of Anomie

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Want Amid Plenty: Developing and Testing a Cross-National Measure of Anomie

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One of the biggest challenges facing researchers trying to empirically test structural or institutional anomie theories is the operationalization of the key concept of anomie. This challenge is heightened by the data constraints involved in cross-national research. As a result, researchers have been forced to rely on surrogate or proxy measures of anomie and indirect tests of the theories. The purpose of this study is to examine an innovative and more theoretically sound measure of anomie and to test its ability to make cross-national predictions of serious crime. Our results are supportive of the efficacy of this construct to explain cross-national variations in crime rates. Nations with the highest rates of structural anomie also have the highest predicted rates of homicide.

In 1994, Messner and Rosenfeld introduced the theory of institutional anomie (IAT). This theory expanded Merton's original theory on social structure and anomie (1938). Merton developed his theory to explain disproportionate crime rates in the United States. He examined the impact of cultural goals, the proscribed means of achieving those goals and the incongruity between these two things in the United States. Crime rates were predicted to be highest in those societies in which the culture emphasized monetary attainment to the detriment of the legitimate means for attaining it. Messner and Rosenfeld expanded on this notion by emphasizing the interrelationships among the various social institutions in society. They posited that an overemphasis on economic goals, coupled with a devaluation of society's non-economic institutions would result in high crime rates. Since its initial introduction, numerous researchers have attempted to test various aspects of this theory (Chamlin and Cochran 1995; Messner and Rosenfeld 1997; Hannon and DeFronzo 1998; Piquero and Piquero 1998; Savolainen 2000; Batton and Jensen 2002; Stucky 2003; Maume and Lee 2003; Schoepfer and Piquero 2006). Because of difficulties operationalizing the key concepts of the theory as well as numerous data limitations, these empirical examinations have only indirectly tested the theory. One of the important

findings to emerge from these tests is that the key tenets of this theory are sensitive to the operationalizations utilized. The current study advances this area of inquiry in a number of important ways. Firstly, this study utilizes cross-national data to examine violent offenses. More importantly, this study offers a unique and more theoretically specified operationalization of the key tenet of institutional anomie theory (IAT), while controlling for the strength of important non-economic institutions.

1. Institutional Anomie

IAT suggests that the high crime rates present in the United States are the result of an overemphasis on material and monetary attainment, the American Dream. The American Dream embodies the fundamental values of individualism, universalism, achievement and materialism (Messner and Rosenfeld 2006, 129). Messner and Rosenfeld suggest that the emphasis on the American Dream and the idea that this goal of economic achievement is possible by everyone in a system is underscored by open, individual competition.

Further, Messner and Rosenfeld (1994) examined the influence of various social institutions in promoting crime.

As they point out, social institutions help individuals to achieve these goals by socializing individuals to society's norms, helping them organize resources, and helping them cope. They focus on four such institutions: the economy, the family, the polity, and education.

The main tenet of their arguments is that crime is prevalent in situations where the economy is emphasized to the detriment of these other social institutions. The economy is the social institutions primarily responsible for promoting the fundamental values of the American Dream. Further, they note that a capitalistic economy is important as it allows for "private ownership and control of property and free market mechanisms for the production and distribution of goods and services" (1994, 76). When the economy is accentuated and the alternate non-economic institutions weakened, a situation where economic values dominate is present. When this happens the non-economic institutions must make accommodations that help further the dominance of the economy. For example, family time is sacrificed for work time. Further, economic goals and values become important in the context of non-economic institutions. Eventually, these non-economic institutions start to operate in manners that reinforce these economic goals. It is this situation that Messner and Rosenfeld believe is most criminogenic. The cultural imbalance identified above helps to promote anomie which in turn promotes crime. Additionally, these conditions also render the social control functions of the non-economic institutions ineffective.

The basic principles of Messner and Rosenfeld's theory have been tested several times. As noted earlier, two of the greatest challenges to empirically testing this theory are the difficulty operationalizing its key concepts and the difficulties inherent in collecting the requisite cross-national data. As a result, most previous tests of this theory have utilized inappropriate units of analysis (i.e., anything less than cross-national) and/or have been partial or indirect. Clearly the most important concept proposed both by Merton and by Messner and Rosenfeld is the idea of anomie. Since it is not practical to measure anomie directly at the aggregate level, it is necessary to identify situations where anomic pressures would be expected to be present. Therefore, researchers rely

on measures such as economic strength and relative and absolute deprivation.

Chamlin and Cochran (1995) provided one of the first tests of the theory. They examined poverty to measure the impact of economic conditions and determine whether the effects of these conditions on rates of crime varied by the strength of non-economic institutions. They found that the influence of poverty on property crimes was dependent on the strength of other non-economic institutions such as family, polity, and religion.

Messner and Rosenfeld took a slightly different approach and examined the effects of decommodification of labor on cross-national homicide rates. Decommodification should operate to moderate the influence of the economy on homicide rates. They found support for this proposition among a sample of forty-five nations. Similarly Hannon and De Fronzo (1998) examined the influence of social welfare assistance in moderating the effects of economic deprivation on crime rates. They likewise found that higher levels of welfare assistance operated to moderate and reduce the influence of economic disadvantage on crime rates.

Savolainen (2002) examined economic inequality to predict cross-national homicide rates while controlling for the strength of both the economy and other social institutions. His findings provided support for the idea that economic inequality was a predictor of homicide in situations with weak welfare support.

Piquero and Piquero (1998) focused on exploring various operationalizations of the key concepts in the theory to predict both property and violent crime rates. They found that the influence of the strength of the economy on crime was influenced by the effect of various social institutions. More importantly, they found the analysis to be sensitive to various operationalizations of the key independent variables, suggesting that findings may not be uniform and are influenced by the measurements utilized.

All in all, various empirical tests of IAT have found support for several aspects of the theory. However, the majority of these examinations have approached the study of this

theory in similar fashions. First, the majority of these studies have utilized data from only the United States (Chamlin and Cochran 1995; Hannon and DeFronzo 1998; Piquero and Piquero 1998; Stuckey 2003; Schoepfer and Piquero 2006). While these tests have provided important insights into the theory, they have not allowed the theory to be tested as it was originally proposed. Messner and Rosenfeld, like Merton, point out that the theories were designed to explain high crime rates in the United States relative to other countries. Therefore, this proposition can only be fully tested by utilizing a cross-national sample.

In addition, one of the greatest challenges facing researchers who wish to empirically test Mertonian structural anomie theory or Messner and Rosenfeld's institutional anomie theory is the ability to directly measure anomie at the aggregate level. Previous researchers have been forced to rely on proxy or surrogate measures, typically relying on single indicators of economic strength (gross domestic product) or deprivation/economic inequality (Gini coefficient) (e.g., Messner 1982; Messner and Tardiff 1986; Chamlin and Cochran 1995; Piquero and Piquero 1998; Savolainen 2000; Messner, Raffalovich, and Schrock 2002; Maume and Lee 2003).

Messner and Rosenfeld conceptualized anomie as a multi-dimensional concept. They indicate that one would expect anomie to be present in societies that emphasize the American Dream while simultaneously blocking a portion of their populace from the legitimate, societally prescribed means for achieving those goals. Further, they define the American Dream as "a commitment to the goal of material success, to be pursued by everyone in society, under conditions of open, individual competition" (2007, 68). Meritocracy is expected to increase anomie specifically in situations where an egalitarian ideology does not differentiate between various strata with differential access to success (Passas 1997). Theoretically, one would also expect anomie to be highest in situations where non-economic institutions have been co-

opted through the penetration and accommodation of economic values and consequently have lost their effectiveness as control institutions. In fact, Merton originally hypothesized that it was the combination of cultural universalism, cultural imbalance, and a stratified social structure that leads to anomie. Messner and Rosenfeld (2007) reiterate that anomie is produced by cultural pressures to achieve material wealth coupled with a strong economy that reinforces this goal. Therefore, one would expect anomie to be present in situations of open competition, where monetary achievement and individual economic success are emphasized and portions of the population are impeded from achieving success. All three conditions should be simultaneously present to produce high levels of anomie. Previous research testing this theory has relied on either single indicators of anomie or when examining multiple indicators has examined only the direct effects of these measures.

The present study advances the current debate by utilizing a cross-national sample to test the relative effects of an alternative and more theoretically specified operationalization of anomie on serious violent offenses. If these indicators must all be present simultaneously, then the appropriate specification of this measure would be a multiplicative term measuring the effect of economic strength with an emphasis on open competition in a situation where segments of the population are simultaneously blocked from achieving success. We will examine the influence of this new measure on cross-national homicide rates while simultaneously controlling for the strength of non-economic institutions.

2. Data and Measures

As noted above, IAT attempts to explain macro-level crime rates. The data for this study were collected for forty-nine nations from a variety of sources including the International Criminal Police Organization (INTERPOL), the World Health Organization, the United Nations, the World Bank, and other international sources identified in Appendix A;

¹ The data for this study was utilized in a previous study and therefore the methods section is substantially similar in nature (see Bjerregaard and Cochran 2008). The forty-nine nations examined are: Albania, Austria, Azerbaijan, Bahamas, Bangladesh, Bul-

garia, Canada, Columbia, Costa Rica, Croatia, Czech Republic, Denmark, Dominican Republic, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Israel, Italy, Jamaica, Japan, South Korea, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Maldives, Mol-

dova, Netherlands, New Zealand, Norway, Panama, Poland, Portugal, Romania, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Trinidad, Tunisia, Turkey, Ukraine, and United States.

the data for the independent variables were taken from 1997 where possible and 1996 if 1997 data were not available.¹ Appendix B shows the means, standard deviations, and ranges for the measures utilized in the analysis.

Crime rates. Messner and Rosenfeld (1994) propose that their theory also explains cross-national differences in the rate of serious crimes; therefore, cross-national homicide rates are utilized as our measure of crime. This measure offers the additional advantage of being considered the most reliable and accurate estimate of crime available for cross-national comparisons. Homicide rate data were derived from both the World Health Organization (1997–99) and the International Crime Statistics published by INTERPOL (1997). The primary source of data is the World Health Organization (WHO). If data were missing from this source, INTERPOL data were utilized. While WHO data are considered by some to be the most reliable estimates of international crime rates (Avison and Loring 1986; Savolainen 2000; Messner, Raffalovich, and Schrock 2002; cf. Krahn, Hartnagel, and Gartrell 1986; Nalla and Newman 1994; Chamlin and Cochran 2007), the WHO and INTERPOL measures correlate very highly for the sub-sample of nations for which complete data are available.

To control for yearly fluctuations, multi-year averages were computed. A logged transformation of this measure was utilized as it was highly positively skewed. Initial analyses also indicated potential problems with heteroscedasticity which were greatly reduced once the measures were logged.

Numerous concerns regarding the use of official statistics to measure cross-national crime have been raised (e.g., Newman 1999). One of the primary issues is the possibility of systematic bias in the reporting practices of various nations.² Kick and LaFree (1985, 42), however, conclude that offenses such as homicide, which has ancient origins, exhibit a fairly high degree of definitional consistency and

are more comparable. Likewise, Krohn and Wellford (1977) and Krohn (1978) also suggest that problems of systematic bias may not be particularly serious. This was also concluded by Bennett and Lynch (1990) who examined the reliability of four cross-national crime data sets, including Archer and Gartner's CCDF, INTERPOL, UN, and WHO data.³ They concluded that for analytical purposes all four data sets afforded substantively similar results (1990, 176). They also concluded that analytic studies were "more robust than descriptive studies with respect to error" and that such error did not necessarily affect the substantive findings unless correlated with the independent variables (1990, 157). They also suggest that aggregating these indicators helps to mitigate some of these issues.

Anomie. Messner and Rosenfeld (2001, 68) stress that the core values expressed in the American Dream are supported by the economy and that the most important characteristic of the American economy is its capitalistic nature which is defined by "both private ownership and control of property and free-market mechanisms for the production and distribution of goods and services." However, they also stress that a free-market economy, if unregulated by other non-economic social institutions, will adversely impact crime rates. When the economy is unchecked by non-economic social institutions, the principles of the free-market economy dominate and infiltrate the functions of these other institutions. The degree to which economic conditions influence non-economic institutions is associated with both the amount of control or political restraint the state exerts over the economy and the extent to which it attempts to mediate the effects of these economic conditions (Batton and Jensen 2002, 7). In fact, anomie should be greatest in situations where the American Dream is emphasized under conditions of open, individual competition (Messner and Rosenfeld 1994). These conditions should have more of an impact when state regulation and control are reduced. This suggests that the impact of the economy on crime at a cross-

² It should be noted that the same concerns have been raised concerning crime estimates across the United States (Wiersema, Loftin, and McDowall 2000).

³ In fact, Bennett and Lynch (1990, 176–77) suggest that the selection of a data set should be based on coverage or logistical considerations. In our data, the homicide rates reported by INTER-

POL and the WHO were found to correlate at .80 lending credence to the idea that they are substantially measuring the same phenomenon.

national level of analysis involves at least three elements: (1) the degree of economic freedom/regulation within a nation, (2) the strength of the economy to sustain opportunities for the accrual of wealth, and (3) the nature of economic conditions (i.e., the extent to which opportunities for wealth accrual are open for all members of society).

The prominence of a free-market economy, unrestrained and unregulated by social or political constraints is measured first by an index of economic freedom developed by the Heritage Foundation (O'Driscoll, Holmes, and O'Grady 2003). Economic freedom is defined as "the absence of government coercion or constraint on the production, distribution, or consumption of goods and services beyond the extent necessary for citizens to protect and maintain liberty itself" (Beach and O'Driscoll 2003, 2). Each country is rated by examining fifty economic variables classified into ten broad categories including: trade policy, fiscal burden of government, government intervention in the economy, monetary policy, capital flows and foreign investment, banking and finance, wages and prices, property rights, regulation, and black market activity (Beach and O'Driscoll 2003, 2). High scores on this variable are indicative of institutional policies that are most conducive to economic freedom.⁴

In a free market economy one would expect obstacles to economic success to have a direct impact on crime rates. In the present study, economic obstacles are operationalized by a measure of relative deprivation or economic inequality. Nearly every test of IAT has also employed a measure of economic inequality as an indicator of deprivation related to impediments to economic attainment: Chamlin and Cochran (1995) and Piquero and Piquero (1998) both used a measure of the percent of families living in poverty; Messner and Rosenfeld (1997), Savolainen (2000), and Maume and Lee (2003) each used the Gini coefficient as their measure of economic inequality; Messner and Rosenfeld (1997) and Savolainen (2000) also utilized an index of economic

discrimination; Schoepfer and Piquero (2006) employed percent unemployed as their measure of the strength of the economy; while Messner and Rosenfeld (1997), Hannon and DeFronzo (1998), and Stucky (2003) each employed an index economic deprivation consisting of several of the indicators employed by the other studies. The present study employs the Gini coefficient of household income to measure economic inequality or relative deprivation. This coefficient ranges in value from 0 to 100 with a score of 0 representing perfect income equality and a score of 100 representing a perfectly unequal distribution of income.⁵

Finally, one would expect anomie to be present in situations where the strength of the economy was high. In other words, a strong economy will operate to enhance the impact of income inequality on homicide rates. It should be noted that the direct impact of economic strength or GDP may in fact be negative. Messner and Rosenfeld (2007, 19) note that GDP, as a measure of economic development, may reduce rates of violent crimes in modern nations characterized by urbanization and industrialization. The "modernization thesis" hypothesizes that development is negatively related to violent crime (Shelley 1981). Similar arguments have been made that increased development reduces the opportunities for interpersonal contacts that can enhance homicide rates (LaFree and Kick 1986; Messner and Rosenfeld 1997). The dominance or strength of the economy is measured by the Gross Domestic Product in U.S. dollars. Because of the highly skewed nature of this variable the log value of the gross domestic product is utilized in the analysis.

Our current measure of anomie is a multiplicative function of each of the three measures above. One would expect conditions of anomie to be highest in situations where one has a strong economy operating on free market principles coupled with high levels of economic inequality or restricted opportunities for some segments of society (i.e., want amid plenty). To accommodate the inclusion of the

⁴ The variable was originally measured on a scale from 1 to 5 with high scores representing policies that were least conducive to economic freedom. In the current analyses the variable was

rescaled from 0 to 4 and then reversed coded so that higher scores represented greater economic freedom. For further information see <http://www.heritage.org/research/features/index>.

⁵ For countries with missing data on the Gini coefficient, aggregated mean substitution was utilized (by region and the United Nations human development code).

necessary two-way and three-way cross-product interaction terms comprised by each of these three correlated measures, we have mean-centered each.

Economic growth. Economic growth can serve as an indicator of the advancement of a country's economy. By facilitating increased consumption, economic growth has the propensity to impact many aspects of citizens' quality of life. Perhaps most relevant to the study of anomie is its propensity to generate additional "wants" for citizens. Ironically, although economic growth can reduce absolute poverty, it can also increase income inequality, potentially leading to lesser abilities of segments of society to achieve prosperity in this environment – which should, according to anomie theory, facilitate crime. In our study economic growth is measured by the annual percentage growth of the gross domestic product. To negate potential yearly fluctuations in this measure, the annual percentage growth in GDP was averaged for the years 1995 – 97. This measure is included to control for the potential that a country's economic growth might confound the observed relationship between its economic strength and crime rates. In addition, the country's total population is included as a control variable.

Non-economic institutions.

(a) The family

Messner and Rosenfeld (1994) stipulate a need to control for the strength of non-economic social institutions, specifically the family, polity, and education. One of the most consistently utilized measures of the weakening of the family unit is the divorce rate (Chamlin and Cochran 1995; Piquero and Piquero 1998; Maume and Lee 2003; Schoepfer and Piquero 2006). While this measure is subject to certain qualifications, including differential definitions of divorce cross-nationally, it is commonly used in macro-level research as an indicator of family disruption (Maume and Lee 2003; Gartner 1990).⁶ High divorce rates, as a measure of family disruption – indicating a breakdown of the traditional nuclear family as well as a measure of the permeation

of economic norms – is a more complete measure of extent to which the family has been devalued as economic values have been accommodated.

(b) The polity

As a social institution, the political system is utilized to promote and attain collective goals, unless co-opted by the economy (Messner and Rosenfeld 2001, 65). Messner and Rosenfeld (2001, 76–97, 104–106) further maintain that involvement in the political process can promote a sense of community and lead to a reduction in anomie. They also point to low voter turnout as an indicator that the polity is devalued (2001, 71). Accordingly, the ineffectiveness of the polity was measured by the lack of voter turnout at the latest election. That is, this measure was created by subtracting the percentage of the population that voted at the last election from 100.

(c) Education

Messner and Rosenfeld (2001) point to the importance of the educational system as a socializing agent. They stress that the educational system is also responsible for preparing youth for their occupational roles (2001: 66). Consistent with previous examinations of the theory, the strength of the educational system is measured by educational expenditures as a percentage of GDP (Maume and Lee 2003). So that all measures of non-economic institutions reflect the inability of these institutions to mediate the effects of the economy, the weakness of the educational system is measured by subtracting the educational expenditures from 100 so that high scores indicate weak educational systems.

3. Findings

Table 1 presents OLS regression models for the effects of our three indicators of economic strength, economic growth, and the three indicators of the strength of non-economic social institutions on cross-national rates of homicide. Our findings are somewhat mixed. Firstly, the most parsimonious model (Model 1: direct effects of economic conditions

⁶ To the extent to which various countries have different wait periods and/or procedures for attaining a divorce, we would expect that

our measures would be a conservative estimate of family disruption and simply underestimate the true impact of this concept.

without controls) accounted for 52 percent of the variance in the cross-national rates of homicide; the inclusion of the two-way and three-way cross-product terms among the economic indicators (Model 2) raised the variance explained to 64 percent and the full model (Model 3), which added the control variables, increased the variance explained to 71 percent. Next, based on the extant research literature which has examined the direct effects of economic conditions on cross-national rates of crime, we anticipated that the effect of economic inequality (i.e., Gini coefficient) on crime would be positive and we observe as much. Likewise, with regard to the direct effect of the economic freedom index, we anticipated a positive effect and that is what we observed, though non-significant. Finally, consistent with modernization theory we find the direct effect of gross domestic product to be negatively associated with the cross-national rate of homicide. This finding is consistent with research demonstrating that modernization or economic development is associated with a decrease in interpersonal violence (Messner and Rosenfeld 1997; Antonaccio and Tittle 2007).

Table 1: OLS regression – the relative effects of the components of institutional anomie on cross-national rates of homicide

	Homicide rates		
	Model 1	Model 2	Model 3
Gini	.057**	.075**	.061**
GDP	-.644*	-.723**	-.716**
Economic freedom	.360	.298	.507
GDP*Gini		.072**	.064**
Gini*Freedom		.049	.064
GDP*Freedom		-.337	-.222
Gini*GDP*Freedom		.060	.082*
Family			-.003
Polity			.027*
Education			-.168
Economic growth	-.060	.001	.011
Total population	7.18E-009	5.43E-009	6.30E-009
R2	.52**	.64**	.71**
V.I.F.	< 2.95	<3.46	< 3.56

* P < .05

** P < .01

Messner and Rosenfeld, like Merton, have conceptualized structural anomie to be present under conditions in which (1) the dominant culture prescribes as legitimate the goal of economic security (i.e., a cultural emphasis on wealth accrual, represented here as the economic freedom index), (2) the structural organization of the economy permits the acquisition of great wealth (i.e., economic strength represented here by the gross domestic product), but (3) the structural organization of society blocks the access of some of its members to the legitimate means to attain this goal (i.e., relative deprivation/economic inequality/blocked opportunities, represented here by the Gini coefficient). Model 2 introduces interactive effects among these three measures of economic conditions (i.e., two- and three-way cross-product terms) to test this thesis. This more complex model substantially increased the variance explained compared to its more parsimonious counterpart. The main effect of economic inequality attained statistical significance, as did one of its two-way interactive effects (with GDP). High levels of economic inequality are associated with high levels of homicide, especially in countries with a strong economy. The effect of the three-way interaction term is positive as expected, but it fails to reach a level of statistical significance.

Finally, Model 3 of Table 1 introduces controls for the strength of non-social institutions and economic growth to the conditioned effects models just discussed. The addition of these control variables did little to alter the findings for the significant predictors in Model 2. The variance explained increased to 71 percent. As before, cross-national rates of homicide are positively associated with high levels of economic inequality and are reduced by a strong economy, for nations at mean levels on the respective conditioning variables. The statistically significant two-way interaction between economic inequality and economic strength remains significant. However, in this fully specified model, the hypothesized three-way interaction term is also significantly positive. This indicates that the effect of economic inequality on the rate of homicide is enhanced by a strong economy, especially where the culture stresses economic freedom and wealth attainment.

The findings observed for the effects of the strength of non-economic institutions are somewhat mixed. Only the polity

achieves statistical significance. As expected, poor voter turnout is positively associated with higher cross-national rates of homicide. Economic growth and the country's population size are not significantly associated with the cross-national rate of homicide.

4. Conclusion

Without question one of the most vexing problems facing researchers trying to test structural or institutional anomie theories is the operationalization of anomie. This challenge is magnified in the context of comparative criminology by the data constraints already present. As a result, researchers are forced to rely on indirect tests and often weak surrogate or proxy measures of key theoretical variables. This study offers a unique and, we believe, more theoretically sound operationalization of structural/institutional anomie. We argue that a theoretically sound operationalization of anomie should address the joint societal conditions minimally necessary for structural anomie to be operative and under which economic inequality can then lead to increased rates of crime cross-nationally. Messner and Rosenfeld, like Merton, have conceptualized structural anomie to be present when the dominant culture prescribes as legitimate the goal of economic success, and the strength of the economy permits the acquisition of great wealth, but the structural organization of society blocks the access of some of its members to the legitimate means to attain this goal (to this Messner and Rosenfeld add a fourth condition: non-economic social institutions are not sufficiently strong to offset these anomic and criminogenic conditions). We have argued with regard to these three necessary elements of an anomic society that an examination of their independent or relative effects, which is normative for this area of research, constitutes a theoretical misspecification of both Mertonian structural anomie and Messner and Rosenfeld's conceptualization of institutional anomie. We believe structural anomie is best conceptualized as a multiplicative construct involving direct, two-way, and three-way interactions.

We tested the efficacy of such a construct to explain cross-national variation in the rate of homicide while controlling for the strength of several non-economic social institutions. We used the Economic Freedom Index developed by

Heritage Foundation (O'Driscoll, Holmes, and O'Grady 2003) as our measure of a cultural emphasis on economic accrual, the gross domestic product as our measure of the economic strength of a nation-state (with population size controlled), and the commonly employed Gini coefficient as our measure of blocked opportunities. Our results are supportive of the efficacy of this construct to explain cross-national variation in the rate of homicide. That is, several of our multiplicative functions were (as expected) significantly associated with cross-national rates of homicide.

Table 2: Predicted rates of homicide under varying economic conditions

Gini index:	GDP:	Economic freedom index:	Predicted homicide rate:
Average	Average	Average	3.080
High	High	High	143.452
High	High	Low	0.693
High	Low	High	7.396
High	Low	Low	5.254
Low	High	Low	1.578
Low	High	High	0.087
Low	Low	High	53.144
Low	Low	Low	2.869

Note: Predicted rates (log) were computed at "average" (mean), "high" (1.5 standard deviations above the mean) and "low" (1.5 standard deviations below the mean) values of the economic condition variables and the means of the exogenous control variables. These combinations of high and low values of the economic conditions measures constitute hypothetical cases and do not represent any real cases in these data.

More importantly, predicted rates of homicide generated from the parameter estimates in Model 3 reveal the dramatic effect of structural anomie (see Table 2). Uniquely high rates of homicide are predicted for those societies characterized by high levels of both economic freedom and economic inequality (143.452 compared to the average predicted rate of 3.080 and all other predicted rates ranging from a high of 53.144 to a low of 0.087). Such societies are characterized by the joint effects of a powerful cultural force that elevates aspirations for economic success and converts these cultural aspirations into expectations and high levels of economic inequality. In such societal arrangements, where there is a culture that fosters economic attainment and a strong economy to make manifest these economic goals and values but high levels of economic inequality have foreclosed the legitimate opportunities for economic attainment (i.e.,

where there is “want amid plenty”), homicide finds expression. Such societies are structurally anomic as specified by Merton and by Messner and Rosenfeld.

It is important to note that this research is not immune to the criticism leveled at other aggregate tests of structural or at institutional anomie theories or at cross-national research in criminology. Missing data on key concepts necessarily restricted the number of nation-states that could be examined. Likewise, the analysis fails to control for other measures known to influence homicide rates (e.g., absolute deprivation/poverty, urbanism, etc.). This research, however, does underscore the importance of refining our operationalization of key theoretical constructs. We need to continue our focus on developing appropriate measures of our theoretical concepts and more directly testing our theories to gain a better understanding of the variation in crime rates cross-nationally.

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Appendix A: Measures and Data Sources

Measures	Data source
Crime:	
Homicide Rates	International Crime Statistics (Interpol 1997). World Health Statistics Annual, 1997-1999, online edition (World Health Organization 2000).
Economic conditions:	
Economic freedom	Heritage Foundation.
GDP, annual % growth, and total population	World Development Indicators 2001, CD-ROM (World Bank 2001).
Gini coefficient	World Inequality Database World Institute for Economic Research. World Resources Institute Facts and Figures: Environmental Data Tables World Resources Institute.
Family:	
Divorce rates	International Marketing Data and Statistics, 2001.
Education:	
Public expenditures on education as a % of GNP	World Development Indicators 2001, CD-ROM (World Bank 2001).
Polity:	
Voter Turnout	Human Development Report, 2000, United Nations.

Appendix B: Description of Study Variables

	Minimum	Maximum	Mean	Standard deviation
Logged GDP	9.249656	12.91587449	10.75507191	0.891014423
Income inequality	19.5	59.3	34.02122449	9.286159646
Economic freedom	1.5	4.65	2.758163265	0.676337174
Economic growth	272000	271542464	26263040.45	46203417.01
Total population	0.1	64	26.01979592	20.74040747
Family disruption	5	64	28.51020408	13.67193361
Polity	2.2	9.7	5.42244898	1.6919251
Education	-0.62861	4.801312462	1.188362056	1.320374672
Logged homicide rates	9.249656	12.91587449	10.75507191	0.891014423

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