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Poverty, Socioeconomic Change, Institutional Anomie, and Homicide*

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Abstract

Objective. This study examined institutional anomie theory in the context of transitional Russia.

Methods. We employed an index of negative socioeconomic change and measures of family, education, and polity to test the hypothesis that institutional strength conditions the effects of poverty and socioeconomic change on homicide rates. **Results.** As expected, the results of models estimated using negative binomial regression show direct positive effects of poverty and socioeconomic change and direct negative effects of family strength and polity on regional homicide rates. There was no support, however, for the hypothesis that stronger social institutions reduce the effects of poverty and socioeconomic change on violence. **Conclusions.** We interpret these results in the Russia-specific setting, concluding that Russia is a rich laboratory for examining the effects of social change on crime and that empirical research in other nations is important when assessing the generalizability of theories developed to explain crime and violence in the United States.

This study tested institutional anomie theory (IAT) (Messner and Rosenfeld, 1997a) in the context of widespread poverty and large-scale socioeconomic change in Russia. Although developed to explain crime in the capitalist culture of the United States, IAT has been tested cross-nationally (Messner and Rosenfeld, 1997b; Savolainen, 2000) and Bernburg (2002) recently argued that the theory should also apply to the effects of social change on crime. Russia has experienced tremendous social, political, and economic change during the last 15 years as totalitarianism and a command economy are being replaced by a free-market democracy. Since these changes began in the early 1990s, Russians have faced a wide array of social problems, including high levels of poverty and unemployment, increasing inequality, and a mortality crisis (Walberg et al., 1998). It is likely that the anomic environment accompanying the rapid social change has played a role in the increase in and wide cross-sectional variation of Russian homicide rates during the 1990s (Pridemore, 2003a).

Durkheim ([1893] 1984, [1897] 1979) argued that during times of rapid social change norms become unclear and society's control over individual behavior decreases. He believed that as people's aspirations become less limited and as conventional social institutions are weakened, deviance and crime should increase. Large-scale changes have occurred since the Soviet Union collapsed, including fundamental shifts in political and economic philosophies and decreased formal social control, leading to normative uncertainty. Russians' aspirations are now less limited because of newfound individual freedoms and because a free market creates desires, whereas totalitarianism and a planned economy stifles them. Similarly, conventional Soviet

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institutions are gone and enduring social institutions such as the family and education are weakened by the ongoing changes and the collapse of the Soviet welfare system. The pace and outcome of these changes vary widely throughout the vast nation, however, and deprivation and anomie theories lead us to expect violence to be higher in areas facing greater poverty and change. Institutional anomie theory also leads us to expect that the strength of noneconomic social institutions such as family, education, and polity will moderate the effects of poverty and change on violence (Bernburg, 2002; Chamlin and Cochran, 1995; Messner and Rosenfeld, 1997a).

Background: Transitional Russia

In the early 1990s, Russia launched a program of privatization meant to convert the command economy to a free market. Economic, legal, political, regulatory, and social institutions are a fundamental part of a properly functioning market economy, however, and these institutions were absent or underdeveloped in Russia (Goldman, 1996; Hanson, 1998; Intriligator, 1994). This vacuum played a role in the ensuing problems, including increased rates of interpersonal violence.¹ There was severe economic instability and uncertainty throughout the decade. According to Goskomstat (2001), in 2000 nearly 30 percent of the population was living in poverty and the unemployment rate of 10.5 percent was double what it had been in 1992. Regional levels of economic dislocation are not uniform, however, but vary widely throughout the country based on the type of local industry, access to raw materials, and the presence of the requisite legal protections for business transactions (Gokhberg et al., 2000).

The transition also has had a dramatic impact on mortality, which is often an indicator of stressful, anomic, and abnormal conditions. Middle-aged males were the most vulnerable to the increased stress resulting from the rapid social and economic change toward an uncertain future, and male life expectancy declined sharply to less than 60 years (Leon and Shkolnikov, 1998). This group also has the highest homicide offending and victimization rates (Pridemore, 2003a) in Russia.

Based largely on the supposed Soviet experience, there was a belief in the past that crime rates were lower under state socialism than in democratic countries with capitalist economies. A higher degree of social justice and social integration in socialist countries were reasons often cited for this assumption. Such low crime rates might also be explained by other more ominous factors, such as “tight social control practiced through a dense network of secret police activities and the considerable power difference between members of the Communist party and nonmembers” (Savelsberg, 1995:216).

One of the benefits of Russia's democratic transformation is increasing transparency and thus broader availability of demographic, economic, and social data. Under the totalitarian regime, crime and other data were strictly controlled and often falsified when made public. Pridemore (2001) has used newly available historical data on homicide mortality to dispute the claim that rates of interpersonal violence were low during the Soviet era. These data showed that the Russian homicide victimization rate has been comparable to or even higher than the U.S. rate for at least the past 40 years. More importantly for the present study, the Russian homicide rate rose dramatically following the collapse of the Soviet Union. According to data from the Russian Ministry of Health, the 2001 homicide victimization rate of 29.8 homicides per

¹Russian organized crime has received considerable media attention. Compared to Western nations, the number of mafia-related murders is high. This type of violence is detrimental to a free market and a democracy since it targets businesspeople and politicians, and the widespread attention it receives may foster a climate that recognizes violence as an acceptable form of conflict resolution. When estimating models to test macro-level theories of crime, however, it is necessary to make it clear that this type of violence plays little to no role since the number of mafia-related killings is a tiny fraction of the nearly 40,000 homicides in Russia annually (see also Andrienko, 2001; Gavrilova et al., 2005).

100,000 persons was three times what it had been a decade earlier and nearly five times the U.S. rate (Pridemore, 2003a). As with the levels of poverty and socioeconomic change mentioned before, however, these rates vary widely throughout Russia, ranging from a low of around six per 100,000 in the Republic of Kabardino-Balkaria to over 130 per 100,000 in the Republic of Tyva.

Institutional Anomie Theory

Institutions are patterned mutually shared ways that people develop for living together (Bellah et al., 1991), providing socially sanctioned rules that define and regulate conduct. According to Bellah et al. (1991:12), institutions “are the substantial forms through which we understand our own identity and the identity of others as we seek cooperatively to achieve a decent society.” If these institutions remain stable they allow social organization to persist over time despite the constant change of members of society. These institutions are critical for increasing predictability among societal members, which in turn increases trust because it allows “individuals to act based on their perception that others are likely to perform particular actions in expected ways” (LaFree, 1998:71).

According to Messner and Rosenfeld (1997a), culture and structure operate together to create higher crime rates. At the cultural level, capitalist culture “exerts pressures toward crime by encouraging an anomic cultural environment, an environment in which people are encouraged to adopt an ‘anything goes’ mentality in the pursuit of personal goals ... [and] the anomic pressures inherent in the American dream are nourished and sustained by an institutional balance of power dominated by the economy” (1997a:61). Messner and Rosenfeld argue that capitalist culture promotes intense pressures for economic success at the expense of pro-social noneconomic institutions such as family, education, polity, and religion. Social structure comes to be dominated by the economic structure, thereby weakening institutional controls. As former communist countries move toward a free market it is likely their citizens are beginning to adopt capitalist ideologies, including an emphasis on individual economic success at the expense of noneconomic social institutions (Merton, 1938; Polanyi, 2001), making institutional anomie theory appear applicable to the Russian situation.

While the negative socioeconomic changes in Russia are expected to create higher crime rates, this association may be conditioned by the strength of noneconomic social institutions such as family, education, and polity (Bernburg, 2002). First, even in the face of difficult structural conditions, strong families and the accompanying social cohesion can inhibit crime (Sampson, Raudenbush, and Earls, 1997). According to institutional anomie theory, families can mitigate anomic pressures by providing emotional support and social bonds for their members (Messner and Rosenfeld, 1997a). Pridemore (2002) has shown family structure to be associated with regional homicide rates in Russia and Pridemore and Shkolnikov (2004) found marriage to be an individual-level protective factor against homicide victimization in the country. Second, the educational system can reduce crime by effectively monitoring and supervising the behavior of children and by creating environments in which children are strongly committed to their education and aspirations (LaFree, 1998). Since education is directly connected to socialization, the system's capacity to exercise social control may lessen the impact of social change on crime. An educated population is also more likely to possess networks and social skills that allows it to cope better with social change. Third, trust in political institutions reflects the legitimacy of these institutions among the populace, which may be closely related to social control efforts (LaFree, 1998). Given the wide variation in poverty, negative socioeconomic change, and the strength of social institutions throughout the country, post-Soviet Russia provides a unique opportunity to test IAT.

Only a handful of studies have specifically tested institutional anomie theory. According to Chamlin and Cochran (1995), Messner and Rosenfeld's (1997a) model implies that economic stress will be less salient as a predictor of serious crime in the presence of strong noneconomic institutions. They hypothesize that the impact of poverty on property crime is thus moderated by the strength of religious, political, and family institutions. Results from their state-level analysis are consistent with this hypothesis, since they show that high church membership, low divorce rate, and high voter turnout significantly reduced the effect of poverty on property crime.

Piquero and Piquero (1998) tested institutional anomie theory with cross-sectional data from the United States, employing several different operationalizations of the main social-institutions variables. Their findings provided some support for the institutional anomie hypotheses, but they also concluded that the inferences drawn about IAT may depend on how the institutional variables are operationalized.

A study by Messner and Rosenfeld (1997b) draws on Esping-Anderson's (1990) decommodification index as the indicator of economic dominance in the institutional balance of power. According to Esping-Anderson (1990), decommodification is the degree to which the state's policies protect the individual standard of living of its citizens from the forces of the market. Messner and Rosenfeld argue that decommodification influences crime independently of economic stratification. Using cross-national data, the authors found support for this hypothesis since the index of decommodification had a relatively strong negative effect on national homicide rates, controlling for economic discrimination, income inequality, and the level of socioeconomic development.

Savolainen (2000) pointed out the differences between Chamlin and Cochran's and Messner and Rosenfeld's studies. The main difference was that Chamlin and Cochran emphasized that IAT implies an interaction effect between economic conditions and the strength of noneconomic institutions, while Messner and Rosenfeld were concerned with the main effect of the institutional balance of power on homicide rates. Savolainen hypothesized that the positive effect of economic inequality on lethal violence is strongest in nations where the economy dominates the institutional balance of power. This implies a negative interaction effect between economic stratification and the relative strength of noneconomic institutions, which is what he finds in his analyses. Savolainen concluded that nations that protect their citizens from market forces appear to be immune to the effects of economic inequality on homicide.

Since contemporary Russia is moving toward capitalism, it is likely that citizens of the country have begun to adopt capitalist ideologies such as an emphasis on individual economic success. Thus the "American dream" may now be the Russian dream (and that of other nations in an era of globalization), and as in other capitalist nations, Russia's institutional balance of power may be tilting toward the economy and away from social welfare. Pridemore (2002) and Pridemore and Kim (2004) have shown elsewhere that poverty and negative socioeconomic change, respectively, are positively related to the cross-sectional variation of homicide in Russia. Further, the main focus of the empirical literature on IAT has become testing for moderating effects of noneconomic social institutions, and Bernburg (2002) argues that we should expect similar conditioning effects of these institutions on any association between social change and crime. Our study is the first of its kind to test Bernburg's hypothesis and to test IAT in a single country other than the United States, and thus provides a bridge between studies of the United States and the cross-national studies that use nations as the unit of analysis.

Summary of Hypotheses

This review of literature led us to test the following hypotheses.

1. The level of poverty is positively related to the cross-sectional variation of homicide rates in Russian regions.
2. Negative socioeconomic change is positively related to the cross-sectional variation of homicide rates in Russian regions.
3. The strength of social institutions is negatively related to the cross-sectional variation of homicide rates in Russian regions.
4. The strength of social institutions conditions the effects of poverty and negative socioeconomic change on homicide rates in Russian regions.

Data and Method

This was a cross-sectional study of Russian regions. With the exception of the measures used to create the change index, all data were for 2000 unless otherwise noted. Of the 89 regions, nine are autonomous districts embedded within a larger region and their data are covered by the larger unit. Data from the neighboring Ingush and Chechen Republics are unreliable and were not used. This left 78 cases for analysis. In Russia, local data are aggregated to the regional level and only the aggregate data forwarded to Moscow and published. Thus, while a lower level of aggregation might be preferable, the nature of data collection makes this untenable. Versions of institutional anomie theory have been tested at even higher levels of analysis, such as the nation, however, so we are confident with our use of regions (Messner and Rosenfeld, 1997b; Savolainen, 2000).

Dependent Variable

Regional homicide estimates are available from both police (MVD) and vital statistics data, though the former are highly suspect. For example, annual estimates from the vital statistics reporting system have reported nearly 40 percent more homicides than the MVD data over the last 15 years, and there is a relatively low correlation between the two reporting systems among the regions (Pridemore, 2003b). We thus used the regional homicide victimization rate per 100,000 persons as our dependent variable. Russia used the abridged Soviet cause of death coding system until 1999, when it began to use the International Classifications of Diseases Codes—10th revision (Pridemore, 2003b). Regional mortality rates, including homicide, are published annually by the Russian Ministry of Health (2001). Table 1 provides descriptive statistics and brief descriptions of all variables.

Independent Variables: Poverty and Socioeconomic Change

Poverty was measured as the proportion of the regional population living below the poverty line. Data were unavailable for 2000, so 1999 data were used. These data are available from Goskomstat (2001). We used the natural logarithm of these values because of the pronounced positive skew in their distribution.

We created a composite index to account for regional variation in socioeconomic change. The variables used to measure the index represent multiple dimensions of change (e.g., population, economic, and legal) and thus should not be considered different attempts to capture a single underlying concept. As described below, the measures were coded in a way that highlighted those regions that have experienced the worst effects of change relative to other regions. The measures of these different dimensions were population change, unemployment change, poverty change, privatization, and foreign capital investment.² Data for these measures were obtained from Goskomstat. Population change and the proportion of the active labor force

²The poverty and unemployment variables were used in the “poverty” models below. Since the change scores for these measures are part of the socioeconomic change index, these variables were not included in the “socioeconomic change” models.

unemployed were measured as residual change scores when 2000 values were regressed on 1992 values. The poverty variable was measured as the residual change score when 1999 poverty rates (2000 data unavailable) were regressed on poverty rates from 1994 (earlier data unavailable). For poverty, for example, the equation was $\Delta\text{Poverty} = \text{Poverty}_{2000} - (\alpha + \beta * \text{Poverty}_{1992})$. Residual change scores are superior to raw change scores since they are independent of initial values (Bohrnstedt, 1969). Since all the regions were used to estimate the regression, the residual scores also take into account changes in the entire ecological system under study (Morenoff and Sampson, 1997).

Since the Soviet economic system was characterized by state ownership, two further important indicators of legal, political, and economic change are privatization and foreign investment. The former was measured as the percentage of the labor force employed in private companies and the latter as foreign capital investment per capita in U.S. dollars. In essence, these are change scores since both were virtually zero until the adoption in 1992 of the “Basic Provision for the Privatization of State and Municipal Enterprises in the Russian Federation” (Chubais and Vishnevskaya, 1993). Foreign capital investment is an especially interesting measure since it is an indicator not simply of worthwhile investment potential but of political and economic stability and of the presence of the relatively strong legal framework required for a free market.

In the context of this study, privatization and foreign investment were “positive” since they represent economic revitalization in economically depressed areas by providing jobs, income, and other advantages (Firebaugh and Beck, 1994; Frey and Field, 2000). An increasing population is also considered positive, since a decreasing population usually represents a concentration of poverty as people with greater resources move out (Centerwall, 1992; Wilson, 1996) and leave behind residents with fewer resources and thus a higher proportion of people who are economically dependent. Recent research has shown this to be the case for regional mobility in Russia (Andrienko and Guriev, 2004; see Heleniak (1997) for a discussion of Russian migration patterns in the early transition years). Therefore, in order to create our index of negative change, we coded privatization, foreign investment, and population change as 1 if they were more than 0.5 standard deviations below the mean (i.e., they were substantially worse off than other regions on these measures), 0 otherwise, and coded unemployment and poverty as 1 if they were more than 0.5 standard deviations above the mean (i.e., they had substantially higher levels of poverty and unemployment relative to other regions), 0 otherwise. These scores were summed, providing a value of 0–5 (with 5 being the worst) for each region. In one respect, this approach means we lose information since we turn interval variables into dummies and thus restrict their variance. Creating a factor or constructing an index by summing z scores, however, might not allow us to capture the different components of socioeconomic change in the manner we wish.

Institutional Anomie Variables

Our measure of family stability was the proportion of households with a single parent and at least one child under the age of 18. This was reverse coded to interpret it in terms of institutional anomie (i.e., family strength). Although new data on this variable will soon be available from the 2002 Russian census, at the moment we must use data from the 1994 Russian micro census, which are available from several Goskomstat publications. Educational strength was measured as the number of people enrolled in college per 1,000 residents (Goskomstat, 2001). Voter turnout or proportion voting for a specific party/candidate is often used as a measure of trust, apathy, or anomie in macro-level studies (Putnam, 1995; Villarreal, 2002), including in studies of institutional anomie (Chamlin and Cochran, 1995). We thus measured polity as the proportion of registered voters who voted in the 2000 Russian presidential election (Orttung, 2000).

Control Variables

Two further economic measures common to macro-level studies were included as controls. Inequality was measured as the ratio of the income of the top 20 percent of wage earners to that of the bottom 20 percent of wage earners. Unemployment was measured as the proportion of the active labor force that was unemployed. Data for these measures were obtained from Goskomstat (2001) and both were logged due to heavy positive skewness.

Recent research on Russia by Andrienko (2001) and Pridemore (2002) has found alcohol consumption to be positively and significantly associated with regional homicide rates after controlling for other structural factors. We thus controlled for this by using the latter's proxy for consumption (i.e., deaths per 100,000 persons due to alcohol poisoning; examples of and reasons for using this proxy in Russia are explained elsewhere: Chenet et al. (2001) and Shkolnikov, McKee, and Leon (2001)). These data are from the Russian Ministry of Health (2001).

Research has shown that the age distribution of Russian homicide offenders and victims is very different from that in the United States. The mean age of Russian homicide arrestees is 10–11 years older than in the United States and victimization is highest among males in their mid-20s to late 40s (Pridemore, 2003a). Since factors such as the labor market and migration have led to variation in the size of this group by region, we included the proportion of the population male 25–44 as a control. Values were logged due to the heavy positive skew in the distribution.

Finally, homicide victimization rates in Russia are geographically patterned. Controlling for other factors, rates have been shown to be significantly lower in the northern Caucasus and higher east of the Ural Mountains (Pridemore, 2002, 2003a). We thus included two regional dummy variables to control for these differences.

Missing Data

Northern Osetia and the Chukot Autonomous Okrug had missing data on foreign capital investment and the latter also on education, and the missing observations were replaced in order to retain these cases for analysis. Mean substitution can be problematic because it may produce biased estimates of variances and covariances (Allison, 2001), so we replaced the missing values by using information from other variables in the model, which can be used as instruments to predict the missing observations if we assume they are uncorrelated with the error term (Pindyck and Rubinfeld, 1998). We regressed the variable with the missing observation on all the other independent variables that had complete data and used the predicted value to replace these three missing observations.

Method

Homicide is a rare event and its distribution is usually positively skewed, which can lead to several methodological problems. The skew statistic for the distribution of regional homicide victimization rates in Russia is several times its standard error. Further, regional populations vary widely, which may result in violation of the OLS assumption of homogeneity of error variance since prediction errors likely vary by population size. One way to account for the skewed distribution is to logarithmically transform the homicide rate to help normalize its distribution. Recent work has shown, however, that misleading findings can result from logging the dependent variable (Hannon and Knapp, 2003; Osgood, 2000). A more appropriate alternative is to use negative binomial regression since it does not assume homogeneity of error variance. The negative binomial model is being increasingly used in macro-level criminological studies (Osgood and Chambers, 2000) and we employed this method with our data. Negative binomial regression is normally used for count data, so a small change was necessary since we are interested in crime rates relative to population size. This was

accomplished by adding to the model the log of the population at risk and assigning this variable a fixed coefficient of 1 (Gardner, Mulvey, and Shaw, 1995; Osgood, 2000). Common exploratory data analysis techniques and regression diagnostics were carried out and are discussed below where appropriate.

Results

Table 1 shows descriptive statistics. The mean regional homicide victimization rate of 30 per 100,000 persons in 2000 was about five times higher than the rate of six per 100,000 in the United States that year (Miniño et al., 2002). On average, over 40 percent of the regional populations were living in poverty. As for institutional strength, both the mean for single-parent households of 16 percent and mean voter turnout in the presidential election of 69 percent were very similar to comparable measures in the United States (Federal Election Commission, 2003; Fields and Casper, 2001).

Table 2 shows the correlation matrix. As expected, poverty ($r = 0.30$) and negative socioeconomic change were positively correlated with homicide rates ($r = -0.40$), and the strength of family ($r = -0.44$), education ($r = -0.20$), and polity ($r = 0.37$) were all negatively correlated with homicide rates. Other results show that alcohol consumption had the strongest correlation with homicide ($r = 0.50$) and confirmed that homicide rates were lower in the northern Caucasus ($r = -0.26$) and higher in the regions east of the Urals ($r = 0.56$).

Table 3 presents the results of model estimation testing the direct effects of poverty and institutional variables on homicide, as well as the interaction effects for poverty with each of the three institutional measures. The inferences for each variable are the same and effect sizes are very similar across all four models. Model 1 shows that poverty is positively and significantly associated with homicide rates ($b = 0.32$, $p = 0.013$) net of all other variables in the model. The results from this model also show that regions with stronger family ($b = -4.36$, $p = 0.016$) and polity ($b = -1.98$, $p = 0.001$) have lower homicide rates. The results for the education variable are in the expected direction, but its negative association with homicide is not significantly different from zero. Homicide rates in the northern Caucasus did not remain significantly lower when controlling for the other structural factors, but rates in the east remained significantly higher.

Models 2–4 of Table 3 include the interaction terms of poverty with family, education, and polity. In each of these models, the respective variables were mean standardized before creating the interaction term in order to purge them of nonessential collinearity and thus avoid any problems associated with multicollinearity (Jaccard and Turrisi, 2003). The results show that none of the interaction terms conditioned the effect of poverty on homicide. The slope coefficients for the family and polity interaction terms are in the expected negative direction but are not significant.

The models in Table 4 are similar to those in Table 3 except the negative socioeconomic change index has been included (and thus the poverty and unemployment variables excluded). Again, the inferences are the same across all four models and are essentially the same for all variables as in Table 3. The direct effects on homicide of negative socioeconomic change and institutional strength are shown in Model 1. As expected, those regions that have faced more negative effects of socioeconomic change have higher homicide rates. The results for the direct effects of the institutional variables are the same as above, though the p value for family strength is around 0.06 in each model. Models 2–4 present the interaction terms, which show that the strength of institutions such as family, education, and polity do not condition the effects of negative socioeconomic change on homicide rates in Russia.

Overall, the results from Tables 3 and 4 provide (1) support for the first hypothesis that poverty is positively associated with regional homicide rates, (2) support for the second hypothesis that negative socioeconomic change is associated with homicide rates, (3) partial support for the hypothesis that institutional strength is negatively associated with homicide rates (i.e., family and polity were negatively associated with homicide, but educational strength was not), and (4) no support for the hypothesis that institutional strength conditions the effects of poverty and of negative socioeconomic change on homicide rates.

Model Sensitivity

Regression diagnostics and several other strategies were employed to test the stability and sensitivity of the results presented here. First, since highly aggregated data are often highly collinear, models were reestimated with OLS regression in order to generate variance inflation factors (VIF). The VIFs showed that multicollinearity did not appear to be a problem (all VIFs were below 3.0 in all models). Second, several methods were employed to search for outliers on the X- and Y-axis and for undue influence on the regression line of individual cases (Pindyck and Rubinfeld, 1998). Both Moscow and Tyva had high values on the influence statistics. Reestimating models that excluded these cases individually and together, however, had no affect on the inferences drawn. Third, in order to test how our decisions about how to construct the negative socioeconomic change index affected its association with homicide rates and its interaction with measures of institutional strength, we created a second index that simply summed the *z* scores of the variables' original values. The results for the models shown in Table 4 were very similar when this index was included. The only meaningful difference was that *p* values for the new index were around 0.07–0.10 in the four models. Finally, the negative socioeconomic change index represents dynamic effects, whereas the dependent variable in these models is static (i.e., the homicide victimization rate in 2000). Since data were not available to create change scores for all variables, we partially accounted for this by including the 1992 homicide rate as a control in the models in Table 4. There were no meaningful changes from the inferences drawn from these models when this control was included. As a further check, change models were reestimated using residual change scores for homicide, which were created in the same manner as the residual change scores for the index. Again, the results are similar to those here and do not result in any changes to inferences drawn for the main issues under study.

Discussion

Russia has experienced widespread poverty since the collapse of the Soviet Union. The level of poverty, however, varies widely among the Russian regions as a result of many factors, including type of industry, level of development, and the quality of social services provided by the state. Our results show that poverty is positively and significantly related to regional homicide rates in Russia, which provides support for the first hypothesis and is consistent with research in the country using data from the mid-1990s (Pridemore, 2002) and with the U.S. literature on social structure and homicide.

Aside from poverty, Russia experienced other forms of change following the collapse of communism that likely disrupted the social equilibrium and produced anomic conditions that in turn were partially responsible for the increase in and wide variation of crime and violence in the country. Our results show that regions experiencing the worst effects of socioeconomic change had higher homicide rates. This result provides support for the second hypothesis, based on Durkheimian anomie theory, and is consistent with recent research on socioeconomic change and crime in Russia (Pridemore and Kim, 2004).

The third hypothesis was drawn from institutional anomie theory and concerned the direct effects of social institutions on homicide rates. Our results provide partial support for this

hypothesis. First, according to institutional anomie theory, families function to mitigate anomic pressures by providing emotional support and social bonds (Messner and Rsoenfeld, 1997a). We found that regional family strength was negatively and significantly associated with regional homicide rates, which provides support for this hypothesis. Further, this association is consistent with Pridemore's (2002) findings using Russian homicide data from the mid-1990s and with Pridemore and Shkolnikov (2004), who found that marriage is an individual-level protective factor against homicide victimization in Russia. Second, education appears to have no relationship to homicide rates. This is somewhat surprising given the disruption of the Russian educational system resulting from underfunding and changing curricula. Third, our results show a negative and significant association between polity and homicide rates. One interpretation of this is that faith in political institutions decreases crime rates since it represents a level of trust and social cohesion. Distrust in political institutions threatens their legitimacy, which can reduce the effectiveness of the social-control system, and our result is consistent with research in the United States that has shown that distrust in political institutions is positively associated with crime (LaFree, 1998; see also Stucky, 2003). Although these findings are largely consistent with one aspect of institutional anomie theory, they are also consistent with other structural-level theories that may claim these same variables or measures. The real heart of IAT lies in the claim that these institutions moderate the negative effects of other structural factors on crime.

Institutional Anomie

Institutional controls are expected to condition the effects of culture and structure on crime rates. Research has shown that crime rates are lower where social institutions and informal control are stronger (Friedman, 1998; LaFree, 1998; Sampson and Groves, 1989; Sampson, Raudenbush, and Earls, 1997), and studies using cross-national and U.S. data have shown support for this aspect of institutional anomie theory. Further, Bernburg (2002) argued that the strength of social institutions should also act to reduce the effects of social change on crime. We followed a strategy common to previous studies of IAT by testing the hypothesis that the effects of poverty and of negative socioeconomic change on homicide rates are dependent on the strength of social institutions such as family, education, and polity. The results show that none of the interaction terms was significant, indicating that the strength of noneconomic social institutions does not appear to condition the effects of poverty and socioeconomic change on homicide in Russia.

There are a few possible substantive reasons for these results. First, any potential conditioning effects of social institutions simply may be over-whelmed because the changes were so strong and so swift in Russia. Thus our results may represent a period effect, an artifact of the current transitional conditions. Perhaps in the context of slower-paced societal development, social institutions retain their ability to temper the effects of change on crime. Second, social institutions may be weakened by socioeconomic change, thereby reducing their ability to condition its impact. Several studies have shown, for example, that institutional characteristics are shaped by economic and social changes (Fligstein, 1987; Fligstein and Brantley, 1992; Thornton and Ocasio, 1999), and many theories of crime posit that anomie weakens social institutions and thus leads to crime and deviance (Passas, 1990; Passas and Agnew, 1997; Thorlindsson and Bjarnson, 1998).

Finally, institutional anomie theory was not developed to explain the role of rapid socioeconomic change on crime. It focuses instead on the specific cultural pressure for monetary success that gives rise to anomie because of the (1) imbalance between the economic institution and other noneconomic institutions and (2) interplay between cultural pressure for material desire and the structural imbalance of social institutions. However, Bernburg (2002) argued that institutional anomie theory links crime, anomie, and contemporary social change

by bringing in the notion of the disembedded market economy, a central notion in the institutionalism of Durkheim ([1897] 1979) and Polanyi (2001). Thus, while institutional anomie theory was not developed to explain the relationship between social change and crime, it appears a logical extension to test it in this context.

Summary and Conclusion

Despite important gains in individual freedoms and the move toward democracy, the Russian transformation has not been smooth. The transition led to a collapse of Soviet state paternalism such as social guarantees of health, housing, and education, and price controls on many staples such as food products (Shkolnikov and Meslé, 1996). Russia and Russians are also experiencing uncertainty and instability as many former social values and institutions are being replaced by a completely new political economy. These rapid structural and cultural changes have likely created anomic conditions that may contribute to various social problems in the country, including increases in and a widening variation of homicide rates.

Our findings suggest that poverty and socioeconomic change are positively and significantly related to the variation of regional homicide rates in Russia. This is consistent with our first and second hypotheses and provides support for deprivation theories and for Durkheim's anomie theory. Stronger families and polity appear to reduce regional homicide rates, providing partial support for one part of institutional anomie theory, though again these variables are also claimed by other macro-level theories. The main hypothesis tested here, a version of the key aspect of institutional anomie theory, finds no support. That is, our results show that none of the social institutions moderate the positive effects of poverty and socioeconomic change on homicide. One interpretation of these results is that change was so swift and powerful in Russia that social institutions were unable to buffer the effect of the anomic conditions. Similarly, social institutions may have been weakened by these changes, and in their weakened state do not have the power to condition the effects of change on violent crime.

In building on the present study, future research might more fully develop and extend the construct for socioeconomic and political change. It will also be useful to use alternative research designs and model specifications. For example, time-series analysis should be employed to examine whether socioeconomic change influences crime over time in Russia, and one could also test the alternative model specifications that we suggest in the discussion section of this article, such as the hypothesis that socioeconomic change negatively influences the strength of social institutions, thereby reducing or negating their ability to reduce crime rates. Further research also must test specific pathways through which socioeconomic change affects crime. For example, among the control variables included here, alcohol consumption is consistently significantly and positively related to homicide rates. Many researchers suggest that negative socioeconomic change, repeated crises, and continued uncertainty in Russia likely played a part in increased levels of alcohol consumption during the 1990s (Gavrilova et al., 2000; Leon and Skolnikov, 1998; Pridemore, 2002; Shkolnikov et al., 1998). This presents yet another alternative model to explore and thus further research should test the hypothesis that socioeconomic change influences rates of crime and violence indirectly via alcohol consumption.

Other potential alternative explanations to anomie theory should also be examined in the context of transitional Russia. For example, less authoritarian law enforcement, together with the overall disarray and corruption of the police force, may have resulted in less fear of the state in general and less fear of being caught and punished for violent acts. Finally, we should note that the idea here is not simply that Russia shifted from a low-violence country to a high-violence country with the move toward capitalism. Pridemore (2001) has already shown that Russia has had homicide rates comparable to or higher than the those of the United States for

several decades. The results of our study instead suggest that the poverty and anomic conditions associated with the transitional period between communism and capitalism and between totalitarianism and democracy are associated with the cross-sectional variation of homicide rates in Russia. Those regions that felt the more negative consequences of these changes are those regions with higher rates of violence.

In conclusion, our study is the first of its kind to test institutional anomie theory in a nation besides the United States and it provides a link between the single-country studies of IAT in the United States and cross-national studies of IAT that use nations as units of analysis. The study also provides the first empirical test of Bernburg's (2002) hypothesis that IAT should help explain the association between social change and crime rates. Russia offers an excellent *locus in quo* for researchers to test this hypothesis and to examine more general aspects of the impact of large-scale social change on society. Rigorous research on social change, institutions, and crime in the country should not only provide knowledge about Russia but important theoretical and empirical findings that are more broadly applicable to other societies and to our criminological knowledge.

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TABLE 1

Descriptive Statistics ($N = 78$)

Variable	Description	Mean	SD
Homicide rate	Deaths per 100,000 population due to homicide	30.14	17.44
Poverty	Proportion of population living below subsistence minimum	0.43	0.16
SE change	Index of socioeconomic change (Δ population + Δ poverty + Δ unemployment + privatization + foreign capital investment)	1.38	1.13
Family	Proportion of households with only 1 parent and at least 1 child < 18 years old (reverse coded)	-0.16	-0.02
Education	Rate per 1,000 population enrolled in college	26.96	13.81
Polity	Proportion of registered voters who voted in 2000 presidential election	0.69	0.05
Inequality	Ratio of income of the top 20% of wage earners to bottom 20% of wage earners	6.00	2.78
Unemployment	Proportion of active labor force unemployed	0.12	0.04
Alcohol	Deaths per 100,000 population due alcohol poisoning	28.73	17.52
Males	Proportion of population that is male aged 25-44	0.15	0.01

TABLE 2

Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12
1. Homicide rate	1.00											
2. Log poverty	0.30	1.00										
3. SE change	0.40	0.41	1.00									
4. Family	-0.44	0.14	-0.19	1.00								
5. Education	-0.20	-0.05	-0.21	0.12	1.00							
6. Polity	-0.37	0.13	-0.05	0.46	0.04	1.00						
7. Log inequality	-0.01	-0.07	-0.04	-0.14	0.39	-0.05	1.00					
8. Log unemployment	0.28	0.64	0.38	0.08	-0.12	0.05	-0.16	1.00				
9. Alcohol	0.50	-0.05	0.07	-0.20	-0.30	-0.26	-0.25	-0.06	1.00			
10. Log males	0.10	-0.22	0.16	-0.29	-0.20	-0.33	-0.01	0.01	0.04	1.00		
11. Caucasus	-0.26	0.36	-0.03	0.30	0.13	0.26	0.09	0.05	-0.41	-0.37	1.00	
12. East	0.56	0.15	0.35	-0.33	-0.01	-0.38	0.06	0.30	0.06	0.43	-0.21	1.00

TABLE 3Results for Homicide Rates Regressed on Poverty, Social Institutions, and Interaction Terms ($N = 78$)

	Model 1		Model 2		Model 3		Model 4	
	b	P Value	b	P Value	b	P Value	b	P Value
Intercept	-1.28	0.643	-1.39	0.609	-2.11	0.456	-1.74	0.546
Log poverty	0.32	0.013	0.32	0.009	0.39	0.006	0.30	0.021
Family	-4.36	0.016	-5.14	0.006	-5.06	0.008	-4.44	0.014
Education	-0.08	0.291	-0.06	0.504	-0.09	0.282	-0.09	0.279
Polity	-1.98	0.001	-1.92	0.001	-1.81	0.003	-1.89	0.002
Log inequality	0.02	0.890	0.02	0.870	0.07	0.609	0.02	0.877
Log unemployment	0.06	0.771	0.05	0.763	-0.03	0.876	0.06	0.701
Alcohol	0.01	<0.001	0.01	<0.001	0.01	<0.001	0.01	<0.001
Log males	-0.53	0.329	-0.35	0.521	-0.60	0.271	-0.53	0.331
Caucasus	-0.25	0.096	-0.20	0.186	-0.26	0.08	-0.24	0.117
East	0.39	<0.001	0.35	<0.001	0.42	<0.001	0.40	<0.001
Poverty $\times$ Family			-6.73	0.143				
Poverty $\times$ Education					0.34	0.263		
Poverty $\times$ Polity							-0.82	0.594

Note: All models were estimated with negative binomial regression. In the negative binomial model, α represents the overdispersion parameter. In each case, the likelihood ratio test for the value of α (not shown here) showed it to be significantly different from zero. This means that there is overdispersion beyond that expected by a simple Poisson process and thus signifying the negative binomial model is more appropriate. The R^2 statistic is not part of the maximum-likelihood estimation of the negative binomial model and thus it is not reported here. When these models were reestimated using OLS regression, adjusted R^2 values were over 0.60.

TABLE 4

Results for Homicide Rates Regressed on Socioeconomic Change Index, Social Institutions, and Interaction Terms ($N = 78$)

	Model 1		Model 2		Model 3		Model 4	
	b	P Value	b	P Value	b	P Value	b	P Value
Intercept	-2.13	0.431	-1.81	0.497	-2.66	0.343	-2.47	0.358
SE change	0.08	0.007	0.08	0.006	0.09	0.005	0.09	0.005
Family	-3.46	0.065	-3.50	0.056	-3.58	0.056	-3.48	0.061
Education	-0.07	0.395	-0.05	0.542	-0.07	0.391	-0.05	0.582
Polity	-2.01	0.001	-2.09	<0.001	-1.88	0.003	-1.93	0.001
Log inequality	-0.00	0.972	0.03	0.831	0.00	0.972	-0.03	0.824
Alcohol	0.01	<0.001	0.01	<0.001	0.01	<0.001	0.01	<0.001
Log males	-0.89	0.097	-0.83	0.118	-0.85	0.112	-0.88	0.099
Caucasus	-0.12	0.318	-0.13	0.308	-0.12	0.326	-0.14	0.258
East	0.42	<0.001	0.38	<0.001	0.43	<0.001	0.42	<0.001
SE change × Family			-2.82	0.094				
SE change × Education					0.05	0.492		
SE change × Polity							0.71	0.269

Note: All notes in Table 3 are relevant here. Poverty and unemployment are not included in these models because their change scores were components of the socioeconomic change index.