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SOCIOECONOMIC CHANGE AND HOMICIDE IN A TRANSITIONAL SOCIETY

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Abstract

Durkheim argued that rapid social change would produce anomic conditions which, in turn, would lead to increases in criminal and deviant behavior. Russia provides a unique opportunity to test this theory given the large-scale fundamental socioeconomic changes occurring in the nation. Russian homicide rates more than doubled in the years following the dissolution of the Soviet Union and are now among the highest in the world. The pace and effects of the socioeconomic transition vary widely throughout Russia, however, as do rates of and changes in violent crime. In this study, we took advantage of the unique natural experiment of the collapse of the Soviet Union to examine the association between socioeconomic change and homicide. We measured the negative effects of socioeconomic change by creating an index of changes in population size, unemployment, privatization, and foreign investment. Using data from Russian regions (n = 78) and controlling for other structural covariates, regression results indicated that regions that more strongly experienced the negative effects of socioeconomic change were regions where homicide rates increased the most between 1991 and 2000. Further analysis of the individual components of this index revealed that regions with greater increases in (1) unemployment experienced greater increases in homicide rates and (2) privatization experienced smaller increases in homicide rates.

Russia faced tremendous socioeconomic, political, and ideological change during the last 20 years. These changes had profound effects on every societal institution, and Russians are being asked to embrace norms that were anathema less than a generation ago, with many formerly revered values now scorned. During this period the country experienced a wide array of challenges related to crime, law, and justice. These included drafting a new criminal code (Solomon 2005), a police system with budget shortfalls and widespread corruption (Beck and Lee 2002), a judiciary distrusted by citizens (Huskey 1997), corruption among the political elite (Coulloudon 1997; Wedel 2001), and a dramatic increase in interpersonal violence. The Russian homicide victimization rate more than tripled between 1988 and 1994, and the 2000 rate of nearly 30 homicides per 100,000 persons was among the highest in the world, about double what it was a decade earlier and almost five times higher than in the United States (Pridemore 2003a).

Although it is easy to suspect that the rapid changes associated with political change and marketization have influenced Russian crime rates, no studies have focused on this issue. While recent research on post-Soviet Russia has examined the influence of social structure, alcohol consumption, and social institutions on the variation of crime in the country (Andrienko 2001; Kim and Pridemore 2005; Pridemore 2002, 2005), the effect of the major force of the

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Russian transition—socioeconomic and political change—has not been tested explicitly as an explanation of the increase in the rates of interpersonal violence. This is surprising since contemporary Russia appears to fit some of the foundational works of sociology. Most notably, Durkheim ([1897] 1979:253) argued that rapid social change results in the related problems of decreasing integration and normative confusion, leaving society unable to regulate individual desires at the same time that new freedoms were abounding. He concluded that these destabilizing forces led to increased rates of deviance.[1]

A flood of foreign values carried by western media has eroded already battered traditional norms, leaving many Russians culturally disoriented and uncertain about the future (Frisby 1998). Further, the cohesive effects provided by family and friendship networks on social, economic, and moral stability may be threatened by the transition and the new emphasis on self-reliance and cash accumulation. According to Polanyi (1947), under these circumstances, the individual is coerced into acting on economic motives lest he/she be overwhelmed by the "juggernaut market." Traditional interpersonal relationships and patterns of social interaction obviously retain value in Russia, but now they coexist with a pressing need for money and with the nascent opportunities and individual freedoms offered by the new political economy. All this has occurred in a society where individual aspirations and liberties had been limited from above and where group-oriented values run deeper and go back much further than the 20th-century interlude with Soviet communism (Kharkhordin 1999).

NEGATIVE SOCIOECONOMIC CHANGE IN RUSSIA

In the early 1990s, Russia launched an economic reform program of privatization and shock therapy meant to convert rapidly the centrally planned command economy to a free market. The legal, political, regulatory, and social institutions necessary for a properly functioning market economy, however, were and continue to be underdeveloped in Russia (Intriligator 1994; Porket 1995; Goldman 1996; Hanson 1998). The ensuing political instability and economic collapse had far-reaching implications, including increased rates of crime and deviance. Figure 1 clearly shows that the Russian homicide rate rose dramatically during this period (although not tested here, the overall robbery rate is also shown for comparative purposes), and Pridemore, Chamlin, and Cochran's (2007) use of interrupted time series techniques revealed that the increase in Russian homicide rates following the collapse of the Soviet Union were significant and sustained.[2]

Since the dissolution of the command economy and the transition toward a free market began in the early 1990s, Russian citizens have experienced economic, social, and political instability. The unemployment rate of 10.5 percent in 2000 was twice as high as it was in 1992, and nearly 30 percent of the population is currently living in poverty (Goskomstat 2001). These conditions are largely the result of a decline in industrial output. Following the collapse of the Soviet Union, Russia's gross domestic product decreased by almost 40 percent, industry output halved, and salaries decreased by 45-65 percent (Gokhberg et al. 2000). These rates of

[1]DiCristina (2004) noted the confusion in the literature about the hypotheses to be drawn from Durkheim's discussion of societal development and crime. He shows that some scholars suggest a positive relationship between development and crime (presumably as a consequence of the break-down of mechanical solidarity), others expect a negative relationship resulting from the increasing strength of moral individualism/religion of the individual, while still others expect offsetting positive and negative relationships via countervailing mechanisms. We note that most studies have examined *levels* of societal development not rapid social *change* (although see Bennett 1991; Ortega et al. 1992). Our study focused squarely on the latter, making Durkheim's social deregulation hypothesis of interest to us.

[2]Given the sudden and dramatic increases in mortality following the dissolution of the Soviet Union and the subsequent mortality crisis in Russia, there has been considerable research on the validity of the Russian mortality data. Leon et al. (1997) showed that the tremendous variation in mortality during this period was real, not an artifact of changing systems, and Pridemore (2003b) provided a detailed description of the homicide mortality data and compared them to the Russian police data on homicide, showing the mortality data to be a far better measure than the unreliable police data. Further, there was in fact no change in the vital statistics registration system at this time in terms of recording deaths. The country continued to employ the former Soviet death classification system until it switched to ICD-10 codes in 1999.

unemployment and poverty vary widely by region, however, and a sharp geographic divergence in average incomes and living standards has developed since the introduction of sweeping economic reforms at the beginning of 1992 (Sagers 1992; Goskomstat 1998). For example, regions that were heavily dependent upon military industry faced deeper recessions during the 1990s. On the other hand, oil and natural gas can now be sold at market value on the international market, and regions with large reserves of these natural resources are performing better economically than other regions (Murakami and Tabata 2000). These regions can provide more and better paying jobs to their citizens, which also allows local government to be more effective in providing public services because of a larger tax base.

The transition also had an alarming impact on demographic trends, which are often indicators of abnormal conditions (Kingkade 1997). The concurrent trends of declining birth rates and increasing death rates, for example, led to a shrinking population. The largest increases in death rates were among middle-aged males, who proved to be the most vulnerable to the increased stress brought on by rapid socioeconomic change and an uncertain future (Shkolnikov and Meslé 1996; Leon and Shkolnikov 1998). In less than a decade, male life expectancy declined by nearly 8 years, to around 60 years (Heleniak 1995). Crime and mortality data also indicate that males 25-44 years old have the highest rates of homicide (Pridemore 2003a) and suicide (Pridemore and Spivak 2003). Shkolnikov and Meslé (1996) concluded that marketization led to a failure of Soviet state paternalism—including the state's social safety networks and guarantees of medical care, housing, and food—that had disastrous effects for the population.

Finally, the forces of migration have been closely related to the wide regional variation in population age, labor force, the provision of social services, and the performance of local fiscal systems, all of which influence social and economic structures. A region's age-sex structure is partially dependent upon the type and number of jobs available, and, in turn, will have an impact on the supply and demand for schools and health care, as well as on the regional tax base and pension funding (Heleniak 1997). Andrienko and Guriev (2004) have shown that there were clear migration flows from poorer regions with job scarcity and poor public services to more prosperous areas with higher employment and stronger public services.

It is important to recognize that Russia is an enormous country and that the pace and impact of these socioeconomic changes differ widely throughout the nation. This can be expected to produce varying levels of uncertainty and social stress throughout Russia, thus leading us to expect greater increases in homicide rates in those areas most negatively affected by these changes. Therefore in this study we tested the hypothesis that those areas that have experienced the strongest negative effects of socioeconomic change are those areas that experienced the greatest increases in homicide rates throughout the transition years of the 1990s.

DATA AND METHOD

The unit of analysis in this study was the Russian region. There are 89 of these regions, which are first-order administrative units equivalent to states or provinces. Data from the contiguous Ingush and Chechen Republics are unreliable because of the ongoing war in the area, so they were excluded from this analysis. Data from nine of the smaller regions (called autonomous "okrugs," or districts) are covered by the larger regions in which they are embedded. This left 78 cases for analysis. A lower level of aggregation may be more appropriate for testing most criminological theories, but larger units, including nations, are commonly employed when investigating the effects of large-scale political, economic, and social change on crime.

Dependent Variables

Violence was measured using regional homicide victimization rates. In order to examine the effect of socioeconomic change on the change in homicide rates during the transition years of

the 1990s, we employed as the dependent variable the *change* in regional homicide rates between 1991 (the last year of the Soviet Union's existence) and 2000.[3] We used the residual change score instead of the raw change score, since this value reflects the amount of change in a region's homicide rate that is unexplained by its initial levels (i.e., ΔHomicide2000 = Homicide2000 - ($\alpha + \beta$ *Homicide1991)). These values are superior to raw change scores since they are independent of initial values (Bohrnstedt 1969). Further, since all the Russian regions were used to estimate the regression from which the residuals were drawn, these scores take into account the developments of the entire ecological system we examined (Morenoff and Sampson 1997). This approach has been used to examine macro-level change on changes in rates of delinquency (Bursik and Webb 1982) and changes in homicide and robbery rates (Chamlin 1989). This strategy is important here since we know from prior research that the spatial patterning of homicide in Russia has shown consistently lower rates in the Northern Caucasus and European Russia and higher rates east of the Ural mountains for the last several decades (Shelley 1980; Shkolnikov 1987).[4] Our construction of the dependent variable assures us that this historical legacy will not play a role in our results.

Pridemore (2003b) described and compared the homicide estimates provided by the vital statistics and police reporting systems in Russia. Given his conclusion that the mortality data provide significantly more reliable estimates of the overall number of homicides, we used the homicide victimization rate per 100,000 residents. These rates were age-standardized for each region. These data are collected via the vital statistics registration system and are available from Russian State Committee for Statistics (Goskomstat) and Ministry of Health publications. The data employed here were prepared for the first author from Goskomstat data (Russian Mortality Database, 2003). Russia used the abridged Soviet coding system to classify cause of death until 1999, when it began to use International Classification of Diseases (ICD) codes, 10th revision. The case definition of homicide in the Soviet coding system, however, was the same as that in the ICD codes. Soviet and Russian mortality data in general (Anderson and Silver 1997), and for violent death specifically (Wasserman and Värnik 1998), have been subjected to various validation procedures with positive results (see also Värnik et al. 2001).

Socioeconomic Change Index

We created a composite index to measure the variation in different aspects of socioeconomic change by region, coding the index to highlight the negative effects of these changes. These variables should not be considered measures of the exact same underlying factor, but instead represent different components of social and economic change. The measures were change in unemployment,[5] population size, privatization, and foreign capital investment. Data for these measures were obtained from Goskomstat (2001).

The change in the size of the population and the proportion of the active labor force unemployed were measured as residual change scores when values for each in 2000 were regressed on 1991

[3]Although political and economic change in the USSR began in the mid- to late-1980s, there are several reasons for selecting the early 1990s as the key initial years for analysis of change. First, and most important, the changes of the 1980s were qualitatively different than those following the dissolution of the Soviet Union. While liberalizing, the former sought to retain the underlying political and economic framework while the latter resulted in a fundamental shift that required discarding this framework. Second, the formal shifts toward democratization and a free market officially and legally began in 1992.

[4]Of course this spatial distribution of crime by region is not unique. Research in the United States, for example, has found higher homicide rates in the South relative to the rest of the nation for more than a century (Redfield 1880; Corzine, Huff-Corzine, and Whitt 1999). While a detailed description of this regional variation in Russia is beyond the scope of the current article, potential sources of this variation have been discussed elsewhere (see Pridemore 2005).

[5]We would have preferred to employ a direct measure of poverty as the key economic component of this index. Unfortunately, regional poverty data were unavailable for 1991. Using data from just a year or two later (such as estimates available from 1994) would (1) present temporal problems with the independent variable measured substantially after the dependent variable, which would be exacerbated by the fact that (2) economic conditions worsened very quickly, with 1994 being the worst for Russian citizens in terms of the level of poverty.

values (as discussed earlier with changes in homicide rates). Another important indicator of political and socioeconomic change is privatization, since the Soviet economic system was characterized by state ownership. We measured this as the percentage of the regional labor force employed in private companies in 2000, which in a sense represents a change score since privatization was 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 another vital indicator of political and socioeconomic change, since it is an indirect measure of stability and of the presence of a relatively strong legal framework for business and rule of law. This is also essentially a change score, since foreign investment was absent during the Soviet era, and was measured as foreign capital investment per capita in U.S. dollars.

In this study, privatization and foreign investment were considered "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). A growing population was considered "positive" since a decreasing population usually represents a concentration of poverty as people with greater resources move out (Wilson 1996), leaving behind residents with fewer resources, thus creating a society where a higher proportion of the population is economically dependent upon the state. Research has shown this to be the case for regional mobility in Russia (Heleniak 1997; Andrienko and Guriev 2004). In order to create our index of negative socioeconomic 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), 0 otherwise, and coded unemployment as 1 if it was more than 0.5 standard deviations above the mean (i.e., substantially higher levels of unemployment relative to other regions), 0 otherwise. These scores were summed, providing a value of 0-4 (with 4 being the worst) for each region.

Constructed in this manner, the negative socioeconomic change index can be seen as a way to capture various aspects of widespread change and thus to represent a proxy for Durkheim's (1893) ideas about the effects he expected such change to have on homicide rates. In essence, we were most concerned about creating an index from factors that are suspected of being aspects of or antecedents to the anomie caused by rapid political, socioeconomic, and ideological change. The measures for the index were coded in such a way as to highlight those regions that were substantially worse off than other regions on any given variable (which is why we used the .5 standard deviation cutoff). While we believe this to be a valid approach based upon theory, we recognize that it is somewhat unorthodox. Thus we reestimated the initial models using several more standard methods in order to make sure that the results were not an artifact of our original coding scheme. This is discussed further in the next section.

Control Variables

We employed several controls based on the social structure and crime literature and on findings from recent studies of crime in Russia (Andrienko 2001; Pridemore 2002; Kim and Pridemore 2005). First, we included a measure of inequality, measured as the ratio of the income received by the top 20 percent relative to the bottom 20 percent of wage earners. These data were obtained from Goskomstat (2001) and the values logged since the skew statistic was more than twice its standard error.

Pridemore (2002) found alcohol consumption and family disruption to be positively and significantly associated with Russian regional homicide rates. We therefore employed his proxy for heavy drinking, the rate per 100,000 of deaths due to alcohol poisoning,[6] as a control. We used the percentage of all households in the region that had at least one child younger than 18 and only a single parent (which is a common measure of family instability and social disorganization in U.S. studies of social structure and homicide) as a measure of family

disruption. The alcohol-related mortality data are available from the Ministry of Health and from Goskomstat and the single-parent household data from Goskomstat (2001). Based on Kim and Pridemore's (2005) study we also included measures of the strength of social institutions such as education and polity. Educational strength was measured as the rate per 1,000 residents enrolled in college (Goskomstat 2001). Voter turnout or the proportion voting for a specific candidate/party is often used as a measure of apathy or lack of trust (Putnam 1995; Villarreal 2002), and thus we measured polity as the percentage of registered voters who voted in the 2000 Russian Presidential election. The voting data were obtained from Orttung (2000). The education and polity measures were logged because of the pronounced positive skews in their distributions.

We also included controls for the proportion of the population living in cities with more than 100,000 residents[7] and the proportion of the population male aged 25-44. The latter group was used because it has the highest level of homicide victimization in Russia. Finally, a dummy variable was included for regions located in the Northern Caucasus, which has significantly lower homicide rates than the rest of the nation (Pridemore 2003a). Given the larger proportion of Muslims in this area, the cultural characteristics of the region may be confounded with some of the other variables in the model (e.g., lower rates of single-parent households and alcohol consumption), thus providing another reason to include a control for these regions.

Missing Data

The Chukot and Jewish Autonomous Okrugs had missing data for homicide rates in 1991, so 1992 rates were substituted when creating change scores. Northern Osetia and the Chukot Okrug had missing values on foreign investment, and the latter also for education. In order to retain these cases for analysis, we regressed the variable with the missing observation on all other independent variables with complete data, thus replacing the three missing observations with the predicted values from this equation (Pindyck and Rubinfeld 1998).

Method

Two models were estimated using ordinary least squares (OLS) regression, with the change in homicide rates as the dependent variable and the negative socioeconomic change index as the main independent variable of interest in each model. The second model is the same as the first except it includes the control for the Northern Caucasus. We used the Huber-White sandwich estimator to obtain robust standard errors (Huber 1967; White 1980). For each model, common exploratory data analysis techniques, regression diagnostics, and tests of model sensitivity were employed and are discussed below where appropriate.

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[6]Estimating heavy drinking in Russia is difficult since a real measure of consumption commonly employed elsewhere—such as production, retail sales, and tax receipts—are unreliable (Treml 1997). For example, illegally produced homemade alcohol (*samogon*) may account for nearly half the alcohol consumed in the country, although the proportion varies from region to region. This renders sales and tax receipts invalid, and such data are further compromised since businesses often keep two sets of books in order to avoid high taxes. Another approach common to aggregatelevel studies has been to use the death rate from liver cirrhosis as a proxy. Russian registration habits, however, commonly classify deaths caused by the effects of drinking in the more proximate "alcohol poisoning" category (Shkolnikov and Meslé 1996), which makes up about 80 percent of all deaths directly related to alcohol in Russia (Blum and Monnier 1989; Treml 1997). All of this has made it common to employ the age-adjusted death rate attributed to alcohol poisoning as a proxy for heavy drinking in Russia (Chenet et al. 2001; Pridemore 2002; Shkolnikov et al. 2002; Shkolnikov, McKee, and Leon 2001).

[7]Kim and Pridemore (2005) found rates of armed robbery in Russia to be significantly higher in more urbanized regions. However, unlike what we are used to from U.S. studies, homicide rates in rural Russia are as high as or higher than in urban areas (Chervyakov et al. 2002). This may be indicative of the differential development of urban centers in the United States and Russia. In the United States, urban neighborhoods became increasingly segmented along racial and class lines, resulting in ghettos characterized by racial segregation, concentrated disadvantage, and high crime rates (Wilson 1996, 1987). In Russia, on the other hand, urbanization did not occur on a large scale until well into the 20th century, and Soviet economic and migration policies created an urban landscape that was more egalitarian and that lacked areas of concentrated disadvantage. It will be interesting to monitor how changes in the Russian political economy will influence the structure of Russian cities in this regard, and to discern the effects these changes will have on crime.

RESULTS

The bottom two rows of Table 1 provide descriptive statistics for the variables. The mean regional age-standardized homicide victimization rate in Russia was about 30 per 100,000 in 2000. This mean rate for entire regions is higher than most large U.S. cities. It is important to note that aside from the high overall homicide rate, the regional rates vary tremendously, ranging from a low of 7 per 100,000 in Kabardino-Balkaria to a high of 135 in Tyva. The mean change in regional homicide rates between 1991 and 2000 was an increase of about 14 homicides per 100,000 persons, or an average increase of nearly 100 percent over 1991 rates. Of the 78 regions in this analysis, all but one experienced an increase in homicide rates between 1991 and 2000 (the rate in the Kursk Oblast decreased by less than 1 homicide per 100,000 persons). The correlation matrix shown in Table 1 reveals a moderate correlation between the negative socioeconomic change index and the change in regional homicide rates between 1991 and 2000 (r = .44).

Table 2 provides the results of model estimation. The results for models 1 and 2 are essentially the same, so we discuss the latter here. The results show that when the residual change scores for regional homicide rates between 1991 and 2000 were regressed on the socioeconomic change index and the control variables, the results were as expected. Higher levels of negative socioeconomic change were positively and significantly associated with greater increases in regional homicide victimization rates ($\beta = 0.39$, $p < .001$). We also note that the results for the controls were consistent with findings from crosssectional studies of social structure and homicide in Russia. For example, single-parent households and heavy drinking were positively associated with homicide, polity was negatively associated with homicide, and the increases in homicide rates were lower in the Northern Caucasus than in the rest of the nation.

Model Sensitivity

Several alternative specifications were examined to check model sensitivity. First, the logic behind our index was to create a broad measure of socioeconomic change that captured multiple facets of this theoretical concept. However, it may be that certain individual components of the index are more important than others in their association with changes in homicide rates. We therefore estimated a third model that dropped the index and included each of its measures separately. The results are shown as model 3 in Table 2. The findings show that (1) where privatization was greater, homicide rates increased less, (2) where increases in unemployment were greater than expected, the increase in homicide rates was greater, and (3) foreign capital investment and change in population size were unrelated to changes in homicide rates.

Second, in one respect we are losing information by turning interval into dummy variables, thereby restricting the variance on our main independent variable. Creating a factor or constructing an index in a more traditional manner, however, might not allow us to capture the nature of these different components in a manner consistent with our theory. Nevertheless, as sensitivity tests we reestimated the models (1) with an index created by summing the *z*-scores (after unemployment was reverse-scored as discussed earlier) and (2) using principal components analysis to create a factor using these four measures. The inferences drawn when these measures were substituted for the current index were the same as those shown in Table 2.

Third, although our dependent variable represented a change in homicide rates, several of the control variables were static measures. While there is little that could be done about this because of data availability at the end of the Soviet era, we recognize that this introduces specification problems. We thus estimated two more models that dropped the static controls: one model that included only the change index and one that included only the individual components of the index (both also included a control for those regions located in the Northern Caucasus). Results

are not shown here (available from author), but the inferences drawn from these purer change models were the same as those drawn from models 1-3 in Table 2.

Fourth, the cities of Moscow and St. Petersburg are considered "regions" for administrative purposes. Since they may represent a different dynamic than other regions, we estimated a model excluding these cases. It also appears that Tyva may be an outlier, and thus a separate model was estimated excluding this region. Further, past research has shown that regions east of the Ural Mountains have significantly higher homicide rates than the rest of the nation, and thus models were estimated that included a dummy variable for these regions. For each of these alternative models, the inferences drawn in regard to the effect of the negative socioeconomic change index and its individual components on homicide remained the same, with only very minor changes to the rest of the model.

Next, since highly aggregated data are often collinear, we examined various indicators of its presence. None showed problems in this regard. For example, all variance inflation factors (VIF) were less than 2.5, which is well below critical levels for a sample of this size (Neter et al. 1996). While the VIF scores suggest multicollinearity is not a problem, the number of independent variables, the moderate correlations between several of them, and the relatively small sample size could result in the findings for a particular variable being unstable as a result of the limited degrees of freedom. This raises the possibility that when one or two control variables are dropped, the resulting noise could make the association between negative socioeconomic change and homicide nonsignificant. Thus several models were estimated that excluded the different controls, both alone and in concert. The inferences about the association between socioeconomic change and homicide remained the same throughout.

Finally, given that large geographic regions are used as the unit of analysis, spatial autocorrelation may present a problem. One main assumption of OLS is that the observations are independent, yet it may be that homicide rates in one region are influenced by rates in neighboring regions. While spatial autocorrelation does not bias coefficients, if present, it does reduce the efficiency of estimates. If there is positive spatial autocorrelation, standard errors will be smaller than they would be otherwise, thus increasing the likelihood of a Type I error. In order to account for this possibility, we employed GeoDa (Anselin 2003) to test for the presence of spatial autocorrelation on the dependent variable and to reestimate the models taking into account any autocorrelation. We discovered the presence of negative spatial autocorrelation (i.e., on average, regions with lower levels of change in homicide rates were surrounded by regions with higher levels of change in homicide rates, and vice versa), which suggests the necessity of a spatial lag model. When spatial lag models were reestimated there were no substantive changes to the inferences drawn from the results presented in Table 2.

DISCUSSION

This is the first study to test the association between socioeconomic change and changes in crime in Russia, which clearly provides a rare opportunity for assessing the efficacy of this hypothesis. Controlling for other structural covariates, our results showed that negative socioeconomic change was positively and significantly associated with changes in regional homicide rates between 1991 and 2000. Below we provide brief discussions of two alternative, although not completely unrelated, explanations for these findings.

Rapidity of Change and Social Deregulation in Russia: A Durkheimian Interpretation

Given the collapse of the legal and economic structure of Soviet society and the rapid political and socioeconomic changes that followed, Durkheimian anomie theory offers an appealing framework for increasing rates of violence in transitional Russia.[8] According to Pokrovsky, "Russian society has made a dramatically fast transition to conditions in which there is a

complete vacuum in cultural goals and institutionalized means. This transitional period in Russian society has brought the theory of anomie to the fore" (Pokrovsky, as cited in Merton 1997). The dissolution of the Soviet state occurred nearly overnight, leaving an unfulfilled void as the transition toward democracy and civil society inched slowly and painfully forward. The sweeping fundamental changes have not only produced cultural dissonance but social deregulation and unprecedented freedoms for Russians. While generally positive, the limits of these freedoms are not yet fixed, and the boundaries will thus be tested by Russian citizens.

Progressing naturally and gradually, societal development should not create acute anomic conditions since societies adapt new mechanisms to meet these changes and to control new aspirations. Rates of violence should actually decrease under these conditions according to Durkheim ([1900] 1957, [1897] 1979; see DiCristina 2004:71), since the religion of the individual strengthens and the power and strength of collective sentiments dissipates. The change in Russia, however, was anything but gradual. There was instead a sudden collapse of totalitarianism and the welfare state that, together with the introduction of shock therapy and individual freedoms, occurred in a context where civil society and democratic and market institutions were at best immature. During such times of rapid political, social, and economic change, the former solidarity is weakened and loses its power to control individuals. At the same time, new controls are not yet solidified and a new solidarity remains underdeveloped. Individuals are free to follow selfish pursuits, leaving no time for adjustment of the moral forces required to control the behavior individuals use to grasp for these desires (Passas 1995). Russia's instantaneous switch from tight top-down control over aspirations to deregulated desires would be expected to create this type of rootlessness, allowing unanchored individuals to drift (Durkheim [1897] 1979). Furthermore, the ongoing transitional status has yet to reach a new equilibrium and thus individual aspirations flourish at the expense of respect for others. That is, the concern is for *my* person and not *persons* (Durkheim [1893] 1984). According to (Durkheim [1897] 1979:253):

> The scale is upset; but a new scale cannot be immediately improvised. Time is required for the public conscience to reclassify men and things. So long as the social forces thus freed have not regained equilibrium, their respective values are unknown and so all regulation is lacking for a time. The limits are unknown between the possible and the impossible, what is just and what is unjust, legitimate claims and hopes and those which are immoderate. Consequently, there is no restraint upon aspirations. . . . At the very moment when traditional rules have lost their authority, the richer prize offered by these appetites stimulates them and makes them more exigent and impatient of control. The state of deregulation or anomie is thus further heightened by passions being less disciplined, precisely when they need more disciplining.

Just such a situation has occurred in Russia. Democratic and market reforms demand that Russian citizens abandon old understandings of good and evil and supplant former goals and values with new ones that were publicly demonized until recently. What had been regarded as criminal during the Soviet era, for example private entrepreneurship, is now central to success. Russians are thus being told that they must play according to new social, economic, and legal rules that are not only different from what they had been taught throughout much of their lives under the Soviet regime, but that are also still ambiguous. If society is facing a crisis of norms that confuses past and present wrongs and rights, then what behaviors are to be considered

[8]It is commonly accepted that Durkheim used the term anomie in different ways. We wish to make it clear that the scope of our discussion is concerned chiefly with the anomie/crime (and especially homicide) dimension of Durkheim's theory and not other important Durkheimian concepts such as cultural variations in respect for humanity, respect for "collective things," or other aspects of anomie. The latter might include, for example, Durkheim's conception of domestic anomie (which may help explain our finding of an association between single-parent households and crime) and the anomic division of labor (an alternative conception of economic anomie discussed by Durkheim [1893] 1984 in *The Division of Labor in Society*).

criminal? According to Durkheim ([1893] 1984), what is allowed and prohibited is not clearly defined in such situations. This is made worse in Russia by real and perceived beliefs about widespread corruption among the police, the legal system, government officials, and economic elites (Beck and Lee 2002; Shlapentokh 2003). Crime and corruption become acceptable under these circumstances, or at least substantially less unacceptable. Even violence becomes routinized if it is recognized as a sometimes necessary and accepted part of entrepreneurship and dispute resolution (Volkov 2002), and if we remember that the number of homicides reported by the Russian police is significantly lower than that reported by vital statistics data, then we see that even murder may be included among behaviors whose illegitimacy is not clearly defined.

The Former Russian Collective and the New Russian Individual—Although certainly not possessing the same traits of mechanical societies as described by Durkheim ([1893] 1984), Soviet Russia was characterized by a sameness in thought and action that stemmed from a ubiquitous value system and homogeneity enforced from the top down. Just as importantly, a strong collective conscience, communitarian ideals, and a social system that privileged the collective relative to the individual were characteristics of Russian culture well before the arrival of the Soviets. Thus many of the goals of the past had to be delegitimized, and symbols of group pride and faith that earlier generated strong collective sentiments have disappeared or exist in a weakened state: The hammer and sickle, the omnipresent paternalistic state, the social safety net, superpower status, the Red Army, the ubiquitous community-oriented groups sponsored by the Party. These cultural traditions and the Soviet state are being replaced by the individual goals of freedom, autonomy, and economic opportunities that were repressed during the Soviet era. Russians are thus likely beginning to consider material success an important social value and to emphasize individualism. In Durkheimian terms, we might say that Soviet society represented one social species (discussions of “the new Soviet man,” or “Homo Sovieticus,” were not uncommon during the period), while current Russia is evolving toward a new social species.

Is the American Dream Becoming the Russian Dream?—The transition to a free market has been a major goal in Russia during the last 15 years, and it has been accompanied by an influx of Western goods, advertising, and media programming. At the same time, however, high unemployment rates and widespread poverty have kept the average Russian income low. This may have resulted in a discrepancy between new cultural aspirations and current structural realities. Hence, Merton’s (1938, 1968) ideas may also be relevant here, as he argued that a strong emphasis on the goal of monetary success in the context of deemphasized legitimate means for achieving it will result in the goal-seeking behavior of individuals being subject to little regulation. Individuals are thus more likely to pursue monetary success using whatever means necessary as societal institutions fail to cap aspirations and regulate behavior. As Russians begin to accept consumerist values, yet face widespread limits on the means for achieving their desires, the disjuncture between goals and means may help explain the increase in and wide variation of crime throughout the country. According to Merton (1968):

> The social structure strains the cultural values. . . . [It] acts as a barrier or as an open door to the acting out of cultural mandates. When the cultural and the social structures are malintegrated, the first calling for behavior and attitudes which the second precludes, there is a strain toward the breakdown of the norms, toward normlessness. (p. 217)

In the case of Russia, then, it may not only be the deregulation of desires that is important in explaining heightened levels of violence, but also the redistribution or removal of opportunities and the frustration and anger that ensues.

An Alternative Explanation: Economic Performance

Our examination of the individual components of the index revealed that economic variables played a large role in the change in homicide rates in Russia during the 1990s. Changes in regional rates of unemployment, for example, were positively associated with changes in homicide rates, and regions with greater levels of privatization experienced smaller increases in homicide rates. Although the anomic and economic hypotheses are not mutually exclusive, the finding for privatization highlights their differences. Since greater privatization means greater change, this finding would be the opposite of what would be expected in a purer interpretation of Durkheim (i.e., any rapid change, even seemingly "positive" change, will have detrimental results). If one focuses more on economic explanations, however, this finding makes sense. While privatization is a more general measure of the changes away from the former political and ideological landscape (e.g., rule of law to govern business transactions), it is also a marker of better economic fortunes relative to regions still mired in state ownership. Thus the findings for unemployment and privatization suggest a stronger role for more economic explanations in the change of homicide rates.

This is not unexpected since poverty is the most consistent covariate of area homicide rates in the empirical literature (Sampson and Lauritsen 1994:63). In Russia, cross-sectional analyses of homicide have consistently shown regional levels of poverty to be among the strongest predictors of regional homicide rates (Andrienko 2001; Pridemore 2005). It is also interesting to note that national-level homicide (and suicide) rates in Russia closely followed indicators of economic performance and poverty during the 1990s. For example, the economic situation worsened substantially in 1992 and 1993, and was at its worst in 1994. Economic conditions then improved slightly and stabilized for a few years before the economic collapse in 1998. Looking back to Figure 1, we see that homicide rates follow a very similar pattern. We must note, however, that since 1998 economic conditions have steadily improved, while homicide rates have remained stable and even gone back up slightly.

Even given this evidence, we argue that it was not simply the economic collapse alone that might have created problems, but that this collapse occurred in the midst of the dissolution of Soviet state paternalism and the economic protections it provided. According to Shkolnikov and Meslé (1996), for example, the stress resulting from the collapse of the Soviet state was one of the main causes of the mortality crisis of the 1990s, including increased rates of external causes of mortality like homicide. High homicide rates may simply be one of the prices paid by Russians for the transition, especially in those regions more strongly experiencing poor economic conditions. Russian citizens have been left unprotected in the face of the collapse of the welfare state and the chaos that followed. A government in disarray and facing repeated crises did little to respond. Says Polanyi (2001:76), "[r]obbed of the protective covering of cultural institutions, human beings would perish from the effects of social exposure; they would die as the victims of acute social dislocation through vice, perversion, crime, and starvation." In Russia, the already-widespread negative effects of heavy alcohol consumption became worse (Nemtsov 2002), drug use (and with it HIV incidence) increased dramatically (Paoli 2002), a mortality crisis led to premature mortality for countless Russians and lowered male life expectancy to less than 60 years (see Bobadilla, Costello, and Mitchell 1997), and the results from our study suggest that regions with greater increases in unemployment and regions that failed to privatize a substantial proportion of the workforce were regions that experienced greater increases in homicide rates during the 1990s.

Limitations

There are a few limitations to consider when evaluating these results. The first relates to our definition and measurement of socioeconomic change. Durkheim ([1893] 1984) believed that even seemingly "positive" change would create anomic conditions. A sudden flow of wealth

into a community or society, for example, would result in new opportunities and desires that might go unchecked, thereby leading to anomie and thus an increase in negative behaviors resulting from seemingly positive changes. On the other hand, our index highlights the negative aspects of socioeconomic change and assumes that some types of change are "positive" for areas (e.g., providing more jobs and income and better health). Those areas with fewer of these types of "positive" changes experience negative conditions, which we have shown to be associated with higher rates of crime and violence. Nevertheless, one could argue in Durkheimian terms that there has been an influx of noneconomic "wealth" into Russia and that the changes the country is experiencing in this regard are "positive" by democratic standards. For example, despite remaining authoritarian limits (and the imposed limits of the negative socioeconomic conditions we highlight here), relative to the Soviet era, there is a new wealth of individual liberties in the country. Few would argue that new freedoms of speech, expression, religion, and private property are bad things, but all this occurred in a short time and replaced strict controls. Therefore, these "positive" new freedoms and the aspirations they generate may be as responsible for the anomic conditions resulting in crime and violence as the negative aspects of socioeconomic change we studied here.[9]

A second main limitation is related to research design. Unlike a time series analysis that might test Durkheim's societal development theory, the very nature of the deregulation hypothesis is about swift change and it is difficult to envision a design that could test this exactly. A fixed-effects panel analysis might be appropriate, and would also better model the non-monotonic change in homicide rates throughout the 1990s, but annual data on all regions on all measures are lacking. An interrupted time series analysis has shown that the changes in Russian homicide rates following the collapse of the Soviet Union are significant and not explained by longer trends (see Pridemore, Chamlin, and Cochran 2006), yet such a univariate analysis must necessarily assume that these changes were entirely because of a Durkheimian process without any measures of this process. We have thus used a design that we believe can best test the negative socioeconomic change and crime hypothesis with the available data. In our attempt to overcome these obstacles, our design was aided by the fact that Russia is a vast nation that stretches across 11 time zones. It is also a diverse nation that varies across this large area in terms of ethnic and demographic makeup, level of development, and other characteristics of interest to sociologists and criminologists. Most importantly for our study, the pace of socioeconomic change throughout the country, and the effects it has had on these different regions, vary substantially. This allowed us to gauge more effectively the covariation of negative socioeconomic change and changes in homicide rates.

The last main limitation is that we were unable to address all alternative explanations for homicide growth, as well as other theoretically relevant outcomes of social change. For example, future research should examine the mechanisms through which these changes serve to increase rates of violence. Alternatively, perhaps the increased crime rates in Russia are associated with declining deterrence resulting from police ineffectiveness and corruption, or with the growth in criminal opportunities associated with greater amounts of consumer goods. Further, there is always the possibility of simultaneity between homicide and socioeconomic change. In other words, high rates of violence may not have been simply the result of these social forces, but the rapidly increasing rates of violence in some regions during the 1990s could have been one factor in the out-migration from the regions and the inability of these regions to attract greater foreign investment. Finally, models similar to those tested here should

[9]An alternative explanation of these events may be consistent with Merton's (1938) ideas outlined earlier. Russians now have economic freedoms that likely generate new goals, such as accumulating wealth and goods (and probably the desire to do so, given the encroachment of Western products and advertising). Yet the negative effects of these changes, which we have described here, mean that the pathways to these new goals are blocked for most people. Areas with higher levels of blocked opportunities (i.e., negative socioeconomic change) should thus be those areas with higher crime rates, which is consistent with our findings.

also examine the influence of the societal changes in Russia on its high suicide rate, which also increased sharply during the 1990s, especially given Durkheim's explicit focus on suicide in his work.

CONCLUSION

The hypothesis that rapid societal change leads to social disruption and thus to higher rates of crime has long been a part of the sociological and criminological literatures. We have rarely had the opportunity, however, to test this hypothesis on such a large scale with truly visible and meaningful social change. The dissolution of the Soviet Union and the transition toward a free market democracy is likely the closest scholars in this area will come to a natural experiment, and it represents a rare and unique opportunity to test a host of sociological and criminological propositions, as well as to more generally examine the effects of political, social, and economic change on a society. Further, historical circumstances and Russia's very large size has resulted in meaningful variation on many structural concepts, including the pace and effects of socioeconomic change, that normally we would not see in countries such as the United States.

With this study, we have attempted to take advantage of this confluence of opportunities in order to test the hypothesis that negative socioeconomic change leads to increased rates of interpersonal violence. We believe our measures of change do not simply represent economic circumstances, but also indicate other important aspects of social, political, and legal change. Controlling for other structural covariates, those parts of Russia that have experienced greater negative socioeconomic change are those areas that witnessed larger increases in homicide rates during the course of the transition. Looking at the individual components of the index, we also found that regions that experienced greater increases in unemployment and that had lower levels of privatization were regions where homicide rates increased the most.

Finally, while the length of the Russian transformation will be measured in decades, the initial shift was surprisingly sudden and abrupt. Instead of society progressing slowly and gradually, there was a swift change from collective to individual ideals. The question now is what behavior will flourish throughout the rest of the transition? Importing institutions and dropping them on the Russian people and culture will not magically result in a new Russia overnight. Democratic institutions and democratic culture take time to develop. We want to view Russia as becoming a democracy, but it is not yet; it is becoming a free market, but it is not yet. This interzone is necessarily murky and has created stresses between the old and the new that have resulted in normative confusion. Unfortunately, it appears that increases in and high levels of violence are a price Russians must pay for the path chosen by their leaders and others.

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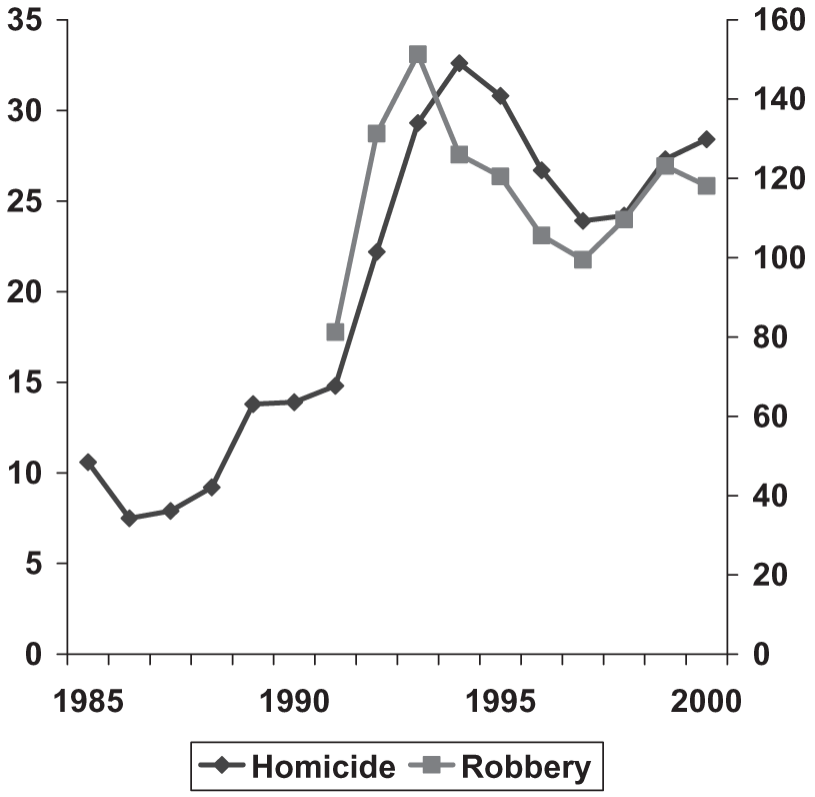

FIGURE 1.
Homicide Victimizations (Primary Y-Axis) and Recorded Robberies (Secondary Y-Axis) per 100,000 Residents in Russia, 1985-2000.

TABLE 1

Means and Standard Deviations for Dependent and Independent Variables, and Correlation Matrix (n = 78)

	1	2	3	4	5	6	7	8	9	10
1. Δ Homicide	1.00									
2. SE change	.44	1.00								
3. Ln inequality	-.02	.74	1.00							
4. Singles	.47	.27	.14	1.00						
5. Alcohol	.46	.05	-.25	.22	1.00					
6. Ln education	-.26	-.13	.39	-.14	-.30	1.00				
7. Ln polity	-.34	-.10	-.05	-.45	-.26	.04	1.00			
8. Urban	-.15	-.25	.34	.14	-.13	.65	-.13	1.00		
9. Ln males	.10	.24	-.01	.29	.03	-.20	-.34	-.02	1.00	
10. N. Caucasus	-.28	.01	.09	-.30	-.41	.14	.26	-.15	-.37	1.00
Mean	13.6	1.4	6.0	15.6	28.7	27.0	69.3	39.0	15.3	
SD	8.6	1.1	2.8	2.1	17.5	13.8	4.6	16.5	1.2	

Notes: Means and standard deviations are for initial values, before any log transformations. The mean and standard deviation for homicide change are based on raw change scores. In the correlation matrix and model estimation, the change score is the difference between the observed rate for 2000 minus the predicted rate for 2000 based upon the 1991 rate (see text).

TABLE 2

Results for Change in Homicide Rates (1991-2000) Regressed on Negative Socioeconomic Change Index (Models 1 and 2) and on Individual Components of Socioeconomic Change Index (Model 3) and Control Variables

	Model 1			Model 2			Model 3		
	b(*β*)	**SE**	***p*-value**	**b(*β*)**	**SE**	***p*-value**	**b(*β*)**	**SE**	***p*-value**
Intercept	130.98	58.93	.015	149.23	58.79	.007	278.30	78.61	<.001
SE change	3.25 (0.36)	0.91	<.001	3.35 (0.37)	0.92	<.001			
Ln inequality	1.05 (0.03)	4.00	.397	1.26 (0.04)	4.16	.382	0.92 (0.03)	3.26	.387
Singles	1.06 (0.25)	0.48	.016	1.00 (0.24)	0.48	.021	0.66 (0.25)	0.51	.023
Alcohol	0.16 (0.33)	0.07	.012	0.14 (0.28)	0.08	.042	0.13 (0.22)	0.06	.052
Ln education	-1.89 (-0.10)	2.41	.217	-1.67 (-0.09)	2.50	.253	-2.79 (-0.07)	2.43	.299
Ln polity	-20.70 (-0.16)	11.52	.039	-21.25 (-0.16)	11.17	.031	-38.92 (-0.27)	13.47	.003
Urban	-0.01 (-0.02)	0.07	.434	-0.03 (-0.05)	0.07	.344	0.04 (0.00)	0.07	.492
Ln males	-18.23 (-0.15)	13.48	.091	-23.54 (-0.19)	13.72	.046	-32.95 (-0.24)	14.19	.015
Caucasus				-3.55 (-0.13)	1.98	.039	-3.55 (-0.12)	2.15	.055
ΔUnemployment							0.80 (0.27)	0.31	.013
ΔPopulation size							0.00 (0.08)	0.01	.203
Privatization							-0.40 (-0.34)	0.12	<.001
Foreign investment							0.00 (-0.03)	0.01	.360
Adjusted R^2		.46			.47			.55	

Note: Given unidirectional hypotheses, *p*-values are for one-tailed tests.