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Anomic Strain and External Constraints: A Reassessment of Merton's Anomie/Strain Theory Using Data From Ukraine

Olena Antonaccio[1], William R. Smith[2], and Feodor A. Gostjev[1]

Abstract

This study provides a new assessment of Merton's anomie/strain theory and fills in several gaps in the literature. First, using the data from the sample of adolescents in an especially suitable and interesting setting, post-Soviet Ukraine, it investigates the applicability of the theory to this context and reveals that predictive powers of anomic strain may be influenced by larger sociocultural environments. Second, it evaluates the possibility of theoretical elaboration of Merton's theory through identifying contingencies such as external constraints on behavior and finds limited support for moderating effects of perceptions of risks of sanctioning and social bonds on anomic strain–delinquency relationships. Finally, it confirms that additional clarifications of the concept of anomic strain may be promising.

Keywords

Merton, anomie/strain theory, delinquency, Ukraine

Merton's (1938, 1968) strain/anomie theory of crime and delinquency is considered one of the dominant paradigms in the study of criminal behavior. Over the years, the theory has become a classic work in the criminological tradition of strain theories,

[1]University of Miami, Coral Gables, FL, USA
[2]North Carolina State University, Raleigh, NC, USA

Corresponding Author:
Olena Antonaccio, Department of Sociology, University of Miami, 5202 University Dr., Merrick Bldg., Room 120, Coral Gables, FL 33146, USA.
Email: oantonaccio@miami.edu

inspired much theoretical following (e.g., Agnew, 1992; Cohen, 1965; Messner & Rosenfeld, 1994), and undergone numerous empirical evaluations (see Burton & Cullen, 1992). Nevertheless, the theory also has been criticized for its ambiguity and has been open to differing interpretations of its arguments (e.g., Baumer, 2007; Tittle, 1995). Furthermore, accumulated empirical evidence on a micro-level version of strain/anomie theory has been generally unfavorable to it (Burton & Cullen, 1992).

There are two possible reasons for a weak empirical support of Merton's account of crime. First, as many scholars have noted, the failure of the research to support the theory may have resulted from misinterpretations of the theory such as, for example, neglect of contingencies and inadequate operationalizations of the concept of Merton's anomic strain (Agnew, Cullen, Burton, Evans, & Dunaway, 1996; Baron, 2011; Baumer, 2007; Burton, Cullen, Evans, & Dunaway, 1994). Yet, the research on moderators of anomic strain–crime relationships has been extremely limited, with many likely conditioning factors never considered so far. In addition, almost no studies of Merton's theory have evaluated alternative operationalizations of anomic strain simultaneously. Second, Merton (1938) argued that criminal adaptations to strain caused by the inability of individuals to achieve highly desired materialistic goals through legitimate channels were more likely in more anomic environments. Yet, despite numerous tests, the theory has never been assessed in sociocultural contexts that can be regarded as truly anomic. In fact, most of empirical evaluations of the theory have been conducted with the samples from the United States, perhaps because original Merton's writings portrayed American sociocultural context as especially anomic. The recent research has cast some doubt on such characterization of the United States and actually shown that other countries, especially those from the former Soviet Union, could be more accurately described as anomic (Chamlin & Cochran, 2007). However, to date, there have been no empirical studies on individual-level propositions from Merton's theory using the data from such contexts.

Our study aims to make two important contributions to the extant research on Merton's theory. First, it assesses whether the theoretical structure of classic strain theory may be improved by incorporating external constraint variables such as sanction threats and social bonds as individual-level contingencies to anomic strain–delinquency relationships. Second, using the data from the sample of adolescents in an especially suitable and unusual setting, the city of Lviv in post-Soviet Ukraine, it evaluates predictive powers of anomic strain in such arguably more anomic societal context. In addition, the research also presents a robust test of those issues by considering alternative measures of anomic strain and a wide range of delinquent behaviors.

Merton's Strain/Anomie Theory and the Empirical Research

In his seminal article, Merton (1938) argued that, in unbalanced societies, disparity between the approved success goals and endorsement of legitimate means to achieve them combined with the limited availability of legitimate opportunities produced the state of *anomie.* He further suggested that anomic conditions at the societal level were

more likely to induce strain in individuals and individual-level criminal behavioral adaptations. In particular, according to his classic strain/anomie theory, those who have high aspirations for financial success but were not sufficiently regulated by norms of the society may be more likely to "innovate" by resorting to illicit avenues in the absence of legitimate channels to success. Following Merton's original writings regarding those individual-level adaptations, early empirical tests commonly examined the goals-means discrepancy operationalizing anomic strain as the disjunction between individual aspirations and expectations for educational/occupational goals but, overall, found a very weak empirical support (see Burton & Cullen, 1992 for a review). In pursuit of more adequate operationalizations of anomic strain, the scholars have also measured it in terms of monetary dissatisfaction, blocked opportunities, or relative deprivation (e.g., Agnew et al., 1996; Baron, 2006; Burton & Cullen, 1992; Farnworth & Leiber, 1989; Vowell and May 2000). Whereas those studies generally have been more supportive of Merton's theory, they have shown that the effects of those measures of anomic strain were not robust in the presence of other predictors of crime (e.g., Burton et al., 1994).

Another direction in the contemporary research on classic anomie/strain theory has been exploration of individual-level contingencies in criminogenic effects of anomic strain. As several scholars have pointed out (e.g., Agnew et al., 1996; Baumer, 2007), Merton (1968) did not suggest that involvement in crime was an inevitable adaptation to anomic strain. To the contrary, he clearly stated that, even under anomic conditions, the modal individual response to strain was conformity. Although he briefly mentioned that other factors such as norm commitment might influence the types of behavioral adaptations to strain that individuals select, Merton did not discuss in depth under what conditions strained individuals were most likely to opt for deviant adaptations. However, for classic strain theory to become a more precise explanation of crime, various contingencies should be articulated in more details (Baumer, 2007; Tittle, 1995). For example, in addition to moral norms, other crime-inhibiting factors such as perceived risk of punishment or social bond may serve as contingencies under which the impact of anomic strain may be more or less pronounced. In particular, individuals who experience anomic strain but have strong social bond or perceive risks of the imposition of either formal or informal punishment as more certain may be dissuaded from misbehavior. Therefore, the effects of anomic strain on criminal involvement may be amplified at lower levels of perceptions of sanction certainty and social bonds.

To date, the empirical research on conditional effects of anomic strain has been scarce. To our knowledge, only four empirical studies (Agnew et al., 1996; Baron, 2006, 2011; Özbay & Özcan, 2006) have attempted to test any propositions of conditionality of Merton's strain and crime association with mixed results. Two of these studies have found that deviant peer association might magnify the effect of financial strain and relative deprivation on crime and delinquency among street youth and a sample of adolescents (Agnew et al., 1996; Baron, 2006; but see Baron, 2011). Another study has shown significant amplifying effects of monetary dissatisfaction and blocked access to legitimate economic opportunities on the magnitude of association between the monetary goals-commitment to legitimate means interaction and projected

property crime (Baron, 2011). However, other studies have revealed no significant moderating effects of cultural support, social modeling, or gender in effects of anomic strain on delinquency (Baron, 2011; Özbay & Özcan, 2006).

Furthermore, the research on interrelationships of anomic strain and external constraints in their effects on crime is practically nonexistent. In general, previous studies have found that some external controls have direct influences on crime and delinquency. Deterrence theory is credited with identifying fear of formal and informal sanctions as a constraint to criminal behavior (Tittle, 1980). According to the most recent meta-analysis of deterrence literature, while the mean effect sizes were modest, measures of perceived certainty of formal sanctions and fear of informal sanctions have been found to be associated with crime (Pratt, Cullen, Blevins, Daigle, & Madensen, 2006). Furthermore, the crime-preventive effects of social bonds (i.e., attachment, commitment, involvement, and belief) are emphasized by social control theory (Hirschi, 1969). A review of research testing it has indicated that the attachment and commitment in two domains, family and school, have the hypothesized direct effects on involvement in misbehavior while the effects of the other two elements of social bond are less consistent (Kempf, 1993). However, only one study (Baron, 2011) has investigated possible moderating impact of those external constraints and found none. It relied only on one indicator of risk perceptions (the threat of getting caught) and one outcome (one type of property crime). No empirical assessment of possible conditioning effects of perceptions of informal sanctions and social bonds on relationships between anomic strain and crime has been conducted so far.

Another understudied area in the research on Merton's theory is possible contextual influences on criminogenic effects of anomic strain. Merton (1938) argued that *anomic macro-level* conditions in any society were likely to produce anomic strain among *individuals* living in these environments and possibly invoke *individual-level* criminal responses. Ideally, testing these ideas would require multilevel data from samples of individuals within many societies with various degree of anomie. In the absence of such data, at least evaluations of individual-level effects of anomic strain in samples of respondents from especially anomic societies could be informative and provide some initial evidence on this argument. However, most studies on individual-level classic strain have been conducted in the United States, perhaps because Merton's original discussion of anomie focused heavily on the American culture and structure as an especially fruitful ground for breeding crime induced by anomie and because in some subsequent writings, the United States was assumed to be exceptional in that sense (Cohen, 1965; Messner & Rosenfeld, 1994). Yet, the more recent research has cast some doubt on this assumption of Merton's theory showing that a contemporary United States might be mislabeled as a truly anomic environment (Chamlin & Cochran, 2007). Instead, it has shown that the emphases on material success goals and overall cultural anomie were much more prominent in other countries of the world such as former Soviet Union republics (Chamlin & Cochran, 2007). Surprisingly, little is known about the applicability of these arguments to various cross-national contexts with only one study conducted using a non-Western sample (school students from Ankara, Turkey), and producing mostly negative findings (Özbay & Özcan, 2006).

But, to date, no research on them has been conducted in such arguably more anomic sociocultural contexts as former Soviet countries.

Our research site in post-Soviet Ukraine appears to be an especially suitable locale for collecting individual-level data for an evaluation of Merton's individual-level propositions. Since the break-up of the former Soviet Union, drastic political, economic, and sociocultural changes have taken place in Ukraine and other countries that previously comprised the Union of Soviet Socialist Republics (USSR). Politically, independent Ukraine, though formally considered a democratic state, has been undergoing numerous governmental disputes and political fracturing. Economically, the transition from the socialistic mode of production characterized by the state ownership of the means of production to capitalism marked by the dominance of private ownership has been accompanied by the erosion of the welfare state that was a staple of the socialist state and by dramatic increases in economic inequality and the gap between the rich and the poor (e.g., Foglesong & Solomon, 2001; Kalman, 2002). Other byproducts of those transitions include deterioration in many traditionally strong institutions such as education. Whereas under the communist regime, universal and free access to educational and professional opportunities for youth and benefits of educational and professional growth were taken for granted, young people growing up in new free market conditions face a more uncertain future with more limited legitimate opportunities to advance academically and professionally. For example, in contemporary Ukraine, many professional jobs requiring advanced education are not well paid and cannot satisfy most financial needs. Thus, many Ukrainians in those occupations still have to depend on alternative sources of income such as participation in secondary labor markets, spousal financial support, remittances from relatives abroad, and so on.

Various official indicators of the country's well-being confirm some unfortunate consequences of these societal upheavals. Modern Ukraine is characterized by significantly lower life expectancy than the United State (68 vs. 78), high percentages of population in poverty (29% vs. 12%), low freedom ratings, and is among the most corrupt countries in the world (Central Intelligence Agency, 2008; Transparency International, 2008). Moreover, although national homicide rates are lower than in the mid-90s, they remain significantly higher than in Western countries. For instance, the homicide rate in Ukraine in 2004 was 8.5 per 100,000 residents, compared with 4.8 in the United States (United Nations Office on Drugs and Crime, 2006). In addition, crime victimization studies and other self-report surveys conducted in Ukraine have shown a high level of violent crime (Antonaccio & Tittle, 2008; Kostenko, 1999-2000).

Furthermore, these transitions have also included substantial sociocultural transformations that are pertinent to Merton's account of societal anomie. Whereas, in a socialist totalitarian Ukraine, idealized communitarian values and objectives prevailed and the means of achieving them were rigidly prescribed, in a contemporary Ukraine, value orientations and behavioral regulations accompanying them have undergone significant changes necessary for adapting to a new capitalistic environment (Antonaccio & Tittle, 2008; Kalman, 2002). In particular, achievement of individual financial success has increasingly emerged and is seen as a principal goal desirable by

the majority in the country where the economic inequality and the gap between the rich and the poor is now much more visible and where Ukrainian nouveau riche without hesitation demonstrate publicly their newly found wealth. In addition, legitimate means of achieving societally approved goals are clearly de-emphasized in this social context. In fact, laws are often circumvented to benefit individual interests and corruptive practices among governmental officials and ordinary citizens are widespread and virtually go unpunished, undoubtedly, helping promote the idea that wealth and status in Ukraine can be gained through illegal channels (Markovskaya, Pridemore, & Nakajima, 2003; Spector, Winbourne, O'Brien, & Rudenshiold, 2006).

Not surprisingly, in this situation one can hardly refrain from using Mertonian terminology such as "*anomic*" to describe contemporary conditions in Ukraine. Moreover, this characterization of post-Soviet Ukraine has been also supported by recent cross-national research. According to Chamlin and Cochran (2007), more than half of the Ukrainian sample (53%) report that monetary compensation is the most important reason for employment and less than half (49%) agree that less emphasis should be placed on money material possessions whereas the corresponding figures for the American respondents are 32% and 69%, respectively. Therefore, if Merton's account is correct and more "anomic" macro-level economic and sociocultural characteristics interact with micro-level strain to increase the probability of criminal behavior (Baumer, 2007), then enhanced criminogenic effects of anomic strain might be found in a more socially disorganized environment like contemporary Ukraine.

Current Study

This study attempts to fill in some gaps in the research on Merton's theory. First, this research is the first empirical attempt to evaluate moderating effects of multiple individual-level constraining factors such as threats of formal and informal sanctioning and several types of social bonds. Second, using unique data on juvenile delinquency from post-Soviet Ukraine, this study provides the first empirical assessment of Merton's individual-level theoretical arguments regarding anomic strain in a sociocultural environment that can be truly described as "anomic." The study will test the following hypotheses:

Hypothesis 1: The levels of anomic strain experienced by individuals are positively associated with involvement in crime and delinquency.
Hypothesis 2: Lower perceptions of certainty of formal and informal sanctioning will enhance the effects of anomic strain on involvement in crime and delinquency.
Hypothesis 3: Weaker attachment and commitment will magnify the effects of anomic strain on involvement in crime and delinquency.

In addition, all hypotheses will be evaluated using alternative measures of anomic strain and indicators of a wide range of delinquent behaviors.

Method

Data

The data for this study come from a self-report self-administered survey of a random sample of high school students conducted in the city of Lviv, Ukraine, in May 2006. The data collection project was approved by the U.S. university institutional review board and the services of SOCIS, Center for Social and Marketing Research, the leading and largest professional survey organization in Ukraine, were used to perform data collection procedures. The survey sample consisted of the ninth graders in Lviv public schools. The selection of exclusively ninth graders was warranted to obtain a maximally diverse sample of school students because in Ukraine compulsory public education consists of 9 years of schooling and only those who are more academically oriented stay in school after the ninth grade. This age group is also especially suitable for assessing effects of anomic strain because at this point of their lives, Ukrainian adolescents face various stressful decisions and circumstances related to aspirations and expectations emphasized in Merton's theory.

The participating students were randomly chosen using a two-stage sample selection procedure. First, a random sample of schools was selected from the list of all 118 city public schools in six city districts. Second, one class of ninth graders was randomly chosen from each of the selected schools out of the pool of all classes of ninth graders (these classes had 30-35 students in each class). The participants filled in self-administered questionnaires in Ukrainian (back translated and pretested). The response rate was 85% and the final sample is 600 students (297 males and 303 females) in 18 schools.

Variables

Dependent variables. The dependent variables in this study include several measures of respondents' past and projected involvement in delinquent behavior. They are constructed from 27 survey items asking respondents their past and projected likelihood of future involvement in delinquent activities (see the appendix). Most of the items were extracted from the Normative Deviance Scale designed specifically for the purpose of measuring reliably a range of delinquent behaviors in which adolescents are likely to be involved independently of cultural definitions of deviance (see Vazsonyi, Pickering, Junger, & Hessing, 2001, for a detailed discussion of this scale). The original response categories are from 1 to 7 (never, once, twice, 3-5 times, 6-10 times, 11-50 times, more than 50 times) for past delinquency items and from 1 to 4 (from "*very unlikely*" to "*very likely*") for projected delinquency items. Both self-reports of past misbehavior and projections of future deviance have been used by criminologists and the validity of both measures have been supported (e.g., Cantor & Lynch, 2000; Pogarsky, 2004). However, to be more confident in our results, we use the measures of both past and projected future delinquency as dependent variables.

To verify robustness of the results, the measures of several types of past delinquency (total delinquency, past violence, theft, vandalism, general deviance) were

Table 1. Descriptive Statistics.

Variables	Range	*M*	*SD*	Alphas	*n*
Dependent variables					
Past vandalism	5-25	9.60	4.72	.77	600
Past theft	6-30	7.27	3.37	.86	600
Past violence	4-20	6.22	3.26	.77	599
Past general deviance	8-40	14.17	6.29	.81	597
Past total delinquency	23-110	37.25	14.90	.91	596
Logged total delinquency	3.14-4.70	3.55	0.34		596
Projected 4-offense delinquency	4-19	6.30	2.69	.75	599
Logged projected 4-offense delinquency	1.39-2.94	1.76	0.38		599
Independent variables					
Economic strain	−4-4	1.45	1.36		600
Combined relative strain	−12.45-21.19	0.00	5.16	.74	600
Mediating and conditional variables					
Formal sanctioning	−6.99-3.69	0.00	2.20	.58	600
Informal sanctioning	−7.99-7.75	0.00	3.57	.76	600
Parental supervision	−9.62-8.44	0.00	3.55	.75	600
Parental attachment	−8.57-5.17	0.00	2.69	.83	600
School commitment	−12.97-9.58	0.00	3.57	.63	600
Control variables					
Male	0-1	0.495	0.505		600
Family intactness	0-1	0.19	0.39		600
Family socioeconomic status	1-5	3.27	0.62		600
Past 4-offense delinquency	4-18	6.35	2.89	.61	599
Logged past 4-offense delinquency	1.39-2.89	1.77	0.39		599

created by summing up individual item scores (prior to summing, the last three response categories for past delinquency were collapsed into one to alleviate skewness). In addition, the additive index of projected delinquency and matching index of past delinquency (to be used as a control in the analyses involving the projected future delinquency as a dependent variable) were computed (the alphas for these and other measures are shown in Table 1). All additive indices were log transformed to adjust for skewness further (from a range of 1.1-3.8 to a range of 0.5-2.8). Initially, all analyses were conducted using all seven measures of crime and delinquency described above. However, because the findings did not differ substantially by the offense type, we report our results using only the two most comprehensive measures (past total delinquency and projected four-offense delinquency).

Anomic strain measures: Economic and relative strains. To construct our first measure, anomic economic strain, we directly assess the disparity between financial aspirations and expectations.[1] Following Burton et al. (1994), to calculate it, we subtracted individual scores on the survey item of economic expectations from the scores on the item

on economic aspirations (see the appendix for the list of items and response categories). Higher computed scores indicate higher degrees of economic strain. In addition, some scholars emphasize that individual perceptions of their standing on different factors including access to legitimate opportunities relative to that of other important reference groups may be a more salient way of tapping anomic strain (Burton & Dunaway, 1994; Cohen, 1965). Because such anomic experiences may be especially salient in the context of post-Soviet Ukraine characterized by increasing economic inequality, we construct an index of relative anomic strain. Drawing on previous research (Burton et al., 1994), this additive index combines *z* scores of the six survey items tapping perceptions of limited opportunities for success and three survey items indicating feelings of relative deprivation (see the appendix).[2] Higher scores on this measure reflect more relative strain experienced by individuals.

Perceptions of sanctions. As perceived certainty of punishment has been shown to be the most effective crime-preventive dimension of sanctioning in Western and non-Western samples (Paternoster, 1987; Tittle, Botchkovar, & Antonaccio, 2011), our research focuses on perceptions of likelihood of punishment. In addition, because the past studies have found perceptions of informal sanctioning to be predictors of offending (Pratt et al., 2006), it includes the indicators of threats of both formal and informal punishment. Drawing on the previous research on deterrence variables (e.g., Jensen, Erickson, & Gibbs, 1978; Tittle, 1980), we construct a general index of perceived risk of formal sanctioning by adding *z* scores on the three items asking about the likelihood of being arrested, imprisoned for breaking the law, and going unpunished for a theft (see the appendix). Likewise, a general index of perceived fear of informal sanctioning is constructed by summing *z* scores on five survey items asking respondents about possibility of losing respect of valued people if they are involved in misconduct (see the appendix). Higher scores on both measures indicate perceptions of higher probabilities of formal and informal sanctioning.

Social bonds. We create three measures of the two established components of the social bond, attachment, and commitment (Kempf, 1993). In particular, the indices of two dimensions of parental attachment were constructed by summing the *z* scores (see the appendix). Both indices are based on the individual survey items from the 1979 and 1997 National Longitudinal Survey of Youth that have been used to measure similar concepts (Bureau of Labor Statistics, 2005). The first index taps direct social control (parental supervision) and consists of five survey items. The second index reflects an emotional component of the bond of attachment, parental support, and consists of the average of the sum of the *z* scores on the four survey items on maternal support and the four items on paternal support or, in cases where only one parent was available, on support from either parent. Finally, the measure of school commitment was calculated by summing *z* scores on the six survey items asking respondents about their school experiences. Higher scores on each measure reflect stronger social bonds.

Control variables. We incorporate into our analyses several variables to control for antecedent influences. These are gender (0 = *male*, 1 = *female*), family intactness (0 =

living with both biological parents, 1 = *other*), and family socioeconomic status (perceptions of respondents' family income relative to other Ukrainian families on the five-point scale from "*far below average*" to "*far above average*"). We do not control for age as all survey respondents are from the same age group. Finally, to account for other relevant unmeasured prior influences and verify the robustness of the results, the four-offense additive index of past delinquency is utilized as a control in the analyses where projections of future delinquency are a dependent variable. Descriptive statistics for all variables are presented in Table 1. Note that, in those few instances where values of independent and control variables are missing (less than 0.3% on any survey item with the exception of two items with about 3.5% of values missing), they are imputed using the Expectation Maximization algorithm method.

Analysis

A number of alternative analytic techniques are used to evaluate the research hypotheses of this study. First, we use ordinary least squares (OLS) regression with log-transformed dependent variables. Second, we re-estimate all of the OLS models with robust standard errors to account for clustering in the survey data. Third, we utilize negative binomial regression and conduct all analyses with dependent variables in the original metric measure, which are treated as pseudocounts of numbers of delinquent acts. We find virtually the same patterns of substantive results using these techniques with the only few differences observed. Therefore, we report the results from the OLS regression models, noting any divergent findings. In addition, conducted diagnostic tests detected no multicollinearity (no Variance Inflation Factors exceeded 2.5) and no undue influential cases (Cook's D_i were well under 1).

Results

Table 2 displays the bivariate correlations between all variables used in the study. First, we explore zero-order associations between economic and relative measures of anomic strain and two dependent variables, logged past total delinquency and logged projected four-offense delinquency. The results of bivariate analyses concerning economic strain are mixed. This operationalization of anomic strain is significantly and positively related to past delinquency (.12), but there is no significant association between it and projected involvement in delinquency. However, relative strain is significantly associated with both dependent variables in the predicted direction (.19 and .18, respectively).

Next, the results of multivariate analyses are reported in Table 3 (for past delinquency) and Table 4 (for projected delinquency) and bear more evidence regarding Hypothesis 1 on associations between anomic strain and delinquency. These figures confirm that the observed bivariate associations are quite robust. Economic strain (in Model 1, Table 3, predicting past delinquency) and relative strain (in Model 2 in Tables 3 and 4, predicting both past and projected delinquency) continue to exert positive significant effects on misbehavior when all controls are incorporated, even though the

Table 2. Correlations Between Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Past total delinquency															
2. Past total delinquency (ln)	**.98**														
3. Past 4-offense delinquency	**.86**	**.84**													
4. Past 4-offense delinquency (ln)	**.83**	**.84**	**.98**												
5. Project 4-offense delinquency	**.60**	**.60**	**.56**	**.55**											
6. Project 4-offense delinquency (ln)	**.58**	**.60**	**.55**	**.55**	**.98**										
7. Economic strain	**.12**	**.12**	**.09**	**.09**	.07	.05									
8. Relative strain	**.19**	**.19**	**.19**	**.19**	**.19**	**.17**	**.23**								
9. Formal sanctioning	**−.33**	**−.34**	**−.28**	**−.27**	**−.35**	**−.35**	.04	−.10							
10. Informal sanctioning	**−.25**	**−.26**	**−.19**	**−.19**	**−.23**	**−.23**	.02	**.15**	**.33**						
11. Parental supervision	**−.33**	**−.36**	**−.33**	**−.35**	**−.26**	**−.27**	−.06	**−.16**	**.27**	**.22**					
12. Parental attachment	**−.13**	**−.13**	**−.17**	**−.17**	**−.15**	**−.15**	.00	**−.22**	**.18**	**.10**	**.34**				
13. School commitment	**−.31**	**−.32**	**−.29**	**−.29**	**−.26**	**−.26**	−.08	**−.15**	**.29**	**.27**	**.38**	**.31**			
14. Gender Female = 0	**−.37**	**−.39**	**−.27**	**−.27**	**−.22**	**−.23**	−.03	.02	**.18**	**.12**	**.25**	**−.10**	**.22**		
15. Family intactness	.03	.03	.04	.04	.02	.01	.03	−.01	.00	−.05	−.07	**−.17**	−.08	02	
16. Family socioeconomic status	.05	.04	−.01	−.01	−.02	−.01	**−.10**	**−.26**	−.02	−.07	.07	**.12**	.01	−.06	**−.09**

Note. Bold font coefficients indicate that correlation is statistically significant at $p < .05$ level, two-tailed test.

Table 3. Regression Coefficients Representing the Effects of Anomic Strains and External Constrains on Logged Past Total Delinquency (n = 596).

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Economic strain	.03*				.03*		.02*		.03*		.02*		.03*		.03*	
	(.01)				(.01)		(.01)		(.01)		(.01)		(.01)		(.01)	
	.11				.13		.10		.12		.10		.11		.11	
Relative strain		.01*				.01*		.01*		.01*		.01*		.01*		.01*
		(.00)				(.00)		(.00)		(.00)		(.00)		(.00)		(.00)
		.21				.22		.15		.21		.15		.17		.17
Formal sanctions			−.04*		−.04*	−.03*			−.04*	−.03*			−.03*	−.02*	−.03*	−.02*
			(.01)		(.01)	(.01)			(.01)	(.01)			(.01)	(.01)	(.01)	(.01)
			−.23		−.24	−.20			−.24	−.20			−.18	−.15	−.18	−.16
Informal sanctions			−.01*		−.01*	−.02*			−.01*	−.02*			−.01*	−.01*	−.01*	−.01*
			(.00)		(.00)	(.00)			(.00)	(.00)			(.00)	(.00)	(.00)	(.00)
			−.14		−.14	−.18			−.13	−.18			−.10	−.14	−.10	−.14
Parental supervision				−.02*			−.02*	−.02*			−.02*	−.02*	−.02*	−.02*	−.02*	−.02*
				(.00)			(.00)	(.00)			(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
				−.22			−.21	−.21			−.21	−.20	−.17	−.16	−.17	−.16
Parental attachment				−.01			−.01	−.00			−.01	−.00	−.00	−.00	−.01	−.00
				(.01)			(.01)	(.01)			(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
				−.05			−.05	−.02			−.05	−.02	−.04	−.00	−.04	−.01
School commitment				−.02*			−.02*	−.01*			−.01*	−.01*	−.01*	−.01*	−.01*	−.01*
				(.00)			(.00)	(.00)			(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
				−.16			−.15	−.15			−.14	−.15	−.10	−.09	−.09	−.09
Strain × Formal Sanctioning									.00	.00					.00	−.00
									(.00)	(.00)					(.00)	(.00)
									.02	−.03					.02	−.00

(continued)

Table 3. (continued)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Strain × Informal Sanctioning									−.01*	.00					−.01*	.00
									(.00)	(.00)					(.00)	(.00)
									−.13	.01					−.12	.00
Strain × Parental Supervision											.00	.00			.01*	−.00
											(.00)	(.00)			(.00)	(.00)
											.05	−.04			.09	−.05
Strain × Parental Attachment											.00	.00			−.00	−.00
											(.00)	(.00)			(.00)	(.00)
											−.01	−.02			−.04	−.02
Strain × School Commitment											−.01	.00			−.00	.00
											(.00)	(.00)			(.00)	(.00)
											−.07	−.03			−.03	−.04
Gender	−.26*	−.27*	−.26*	−.21*	−.22*	−.23*	−.21*	−21*	−.22*	−.23*	−.21*	.21*	−.19*	−.19*	−.19*	−.19*
	(.03)	(.03)	(.03)	(.03)	(.03)	(.02)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)
	−.38	−.39	−.33	−.30	−.32	−.33	−.30	−.30	−.32	−.33	−.30	−.30	−.28	−.28	−.28	−.28
Family intactness	.03	.04	.03	.00	.02	.03	.00	.01	.03	.03	.00	.01	.00	.01	.01	.01
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)
	.04	.05	.03	.00	.03	.04	.00	.01	.03	.04	.00	.01	.00	.02	.01	.01
Family socioeconomic status	.02	.04*	.01	.03	.01	.04	.03	.05*	.01	.04	.03	.05*	.02	.04*	.02	.04*
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
	.03	.08	.01	.05	.03	.07	.06	.08	.02	.07	.06	.09	.04	.07	.04	.08
Adjusted R^2	.16	.19	.24	.25	.25	.28	.25	.27	.26	.28	.26	.27	.28	.31	.31	.31

Note. Unstandardized regression coefficients are above and standardized regression coefficients are below the parentheses. Standard errors are in the parentheses.

*$p < .05$, two-tailed.

Table 4. Regression Coefficients Representing the Effects of Anomic Strains and External Constrains on Logged Projected Four-Offense Delinquency (n = 599).

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Economic strain	.00				.00		.00		.00		−.00		.00		.00	
	(.01)				(.01)		(.01)		(.01)		(.01)		(.01)		(.01)	
	−.00				.01		.01		.01		−.00		.01		.01	
Relative strain		.01*				.01*		.01		.01*		.01		.01*		.01*
		(.00)				(.00)		(.00)		(.00)		(.00)		(.00)		(.00)
		.08				.09		.07		.09		.07		.08		(.09)
Formal sanctions			−.03*		−.03*	−.03*			−.03*	−.03*			−.03*	−.03*	−.03*	−.03*
			(.01)		(.01)	(.01)			(.01)	(.01)			(.01)	(.01)	(.01)	(.01)
			−.19		−.19	−.18			−.19	−.18			−.18	−.17	−.18	−.17
Informal sanctions			−.01*		−.01*	−.01*			−.01*	−.01*			−.01	−.01*	−.01	−.01*
			(.00)		(.00)	(.00)			(.00)	(.00)			(.00)	(.00)	(.00)	(.00)
			−.08		−.08	−.09			−.07	−.10			−.07	−.09	−.06	−.09
Parental supervision				−.00			−.00	−.00			−.00	−.01	−.00	−.00	−.00	−.00
				(.00)			(.00)	(.00)			(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
				−.04			−.04	−.04			−.04	−.04	−.01	−.01	−.01	−.01
Parental attachment				−.01			−.01	−.00			−.01	−.00	−.00	−.00	−.00	−.00
				(.01)			(.01)	(.00)			(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
				−.03			−.03	−.03			−.04	−.03	−.02	−.01	−.02	−.01
School commitment				−.01*			−.01*	−.01*			−.01*	−.01*	−.00	−.00	−.00	−.00
				(.00)			(.00)	(.00)			(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
				−.08			−.08	−.08			−.08	−.07	−.04	−.03	−.04	−.03
Strain × Formal Sanctioning									.00	.00					.00	.00
									(.00)	(.00)					(.01)	(.00)
									.02	−.01					.02	.00

(continued)

Table 4. (continued)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Strain × Informal Sanctioning									−.00	.00					−.00	−.00
									(.00)	(.00)					(.00)	(.00)
									−.06	−.04					−.06	−.03
Strain × Parental Supervision									.00	.00					.00	.00
									(.00)	(.00)					(.00)	(.00)
									−.00	.03					.02	.03
Strain × Parental Attachment									.00	.00					.00	.00
									(.00)	(.00)					(.00)	(.00)
									.03	.03					.02	.02
Strain × School Commitment									−.01	−.00*					−.00	−.00*
									(.00)	(.00)					(.00)	(.00)
									−.04	−.08					−.02	−.08
Gender	−.07*	−.07*	−.05	−.06*	−.05	−.05*	−.06*	−06*	−.05	−.05	−.06*	−.06*	−.04	−.05	−.05	−.05
	(03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)
	−.09	−.09	−.06	−.07	−.06	−.07	−.07	−.08	−.06	−.06	−.08	−.08	−.06	−.06	−.06	−.06
Family intactness	−.01	−.00	−.01	.02	−.01	−.00	−.02	−.01	−.01	−.00	−.02	−.02	.01	−.01	−.01	−.01
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)
	−.01	−.00	−.01	−.02	−.01	−.00	−.02	−.01	−.01	−.00	−.02	−.05	−.01	−.01	−.01	−.01
Family socioeconomic status	−.01	.01	−.01	−.00	−.01	.01	−.00	.01	−.01	.00	−.01	.01	−.01	.00	−.01	.01
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
	−.01	.01	−.02	−.01	−.02	.00	−.01	.01	−.02	.01	−.01	.02	−.01	.00	−.02	.01
Past delinquency	.51*	.49*	.45*	.47*	.45*	.43*	.47*	.46*	.44*	.43*	.47*	.46*	.44*	.42*	.43*	.42*
	(.03)	(.04)	(.02)	(.04)	(.03)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)
	.53	.51	.60	.49	.47	.45	.49	.48	.45	.45	.49	.47	.45	.44	.45	.44
Adjusted R^2	.30	.31	.35	.31	.35	.35	.31	.32	.35	.35	.31	.32	.35	.35	.35	.35

Note. Unstandardized regression coefficients are above, and standardized regression coefficients are below the parentheses. Standard errors are in the parentheses.
*$p < .05$, two-tailed.

sizes of its standardized coefficients are small to moderate (from .08 to .21). The findings also reveal that variables representing likelihood of formal and informal sanctioning have a negative and significant effect on past and projected delinquency, net of all controls (Model 3 in Table 3 and Table 4), even though the additional sensitivity analyses show that significant effects of informal sanctions on projected delinquency are not robust once standard errors are adjusted for clustering. Finally, the results presented in Model 4 of Table 3 demonstrate that two out of three measures of social bonds—parental supervision and school commitment—are negatively and significantly related to past delinquency, although this association holds up only for school commitment in the model predicting projected delinquency (Model 4, Table 4).

Notably, the association between economic strain and past delinquency (Model 5, Table 3) and relative strain and both past and projected delinquency remain statistically significant net of the effects of fear of formal and informal sanctions (Models 6 in Tables 3 and 4). No regression coefficients for these measures of anomic strain are attenuated by the inclusions of likelihood of sanctioning. Thus, the effects of economic and relative strains on past and projected delinquency seem to be independent of these external constraint variables. Somewhat similar results are observed in models that consider the effects of economic strain (Model 7, Table 3) and relative strain (Model 8, Table 3) on past delinquency, net of the social bond variables. Although slight reductions in the regression coefficients for economic and relative strain occur in those instances, these coefficients, nonetheless, remain significant. Furthermore, in the equation predicting projected delinquency, the inclusion of the measures of social bond renders the regression coefficient for relative strain nonsignificant (Model 12, Table 4). However, in the most inclusive Models 13 and 14 that incorporate all control variables as well as both sets of external constraint variable, robustness of effects of anomic strain is further demonstrated as associations between economic strain and past delinquency and associations between relative strain and both past and projected delinquency remain significant. Furthermore, these results are also confirmed in the analyses using all alternative techniques discussed above.[3] Moreover, the comparison of standardized coefficients in those models suggest that the impact of relative strain is, though quite modest, is still comparable with some of other significant predictors of delinquency such as perceptions of risks of sanctioning. Overall, then the results appear to provide at least partial support for Hypothesis 1 when anomic strain is operationalized as economic strain and stronger support for it when anomic strain is operationalized as relative strain.

Next, Models 9 and 10 in Tables 3 and 4 present the regression coefficients that bear evidence concerning Hypothesis 2 on the conditioning effects of fear of formal and informal sanctioning on the link between classic strains and delinquency. The examination of these coefficients reveals that any moderating effects may be limited to one measure of anomic strain and one indicator of fear of sanctioning. One significant interaction term between economic strain and fear of informal sanctioning is found in the equation predicting past juvenile delinquency (Models 9 and 15, Table 3). As expected, the interaction between economic strain and fear of informal

sanctioning is negative, indicating that criminogenic effects of classic strain are more pronounced for those with less fear of informal sanctioning. In particular, the figures for estimated effects of economic strain on delinquency at different levels of conditioning variables computed using unstandardized regression coefficients from Model 9 demonstrate that economic strain is predicted to have no crime-enabling effects at all for those with the higher (one *SD* above the mean) levels of fear of informal sanctions (−.01), whereas the positive effect of economic strain on past delinquency is the greatest for those with the lower (one *SD* below the mean) levels of fear of informal sanctioning (.07). The standardized coefficients in Models 9 and 15, Table 3, also indicate that the size of this conditional effect (.13 and .12) is somewhat larger than that of the main effect of economic strain on past juvenile delinquency. Yet, the evidence on the robustness of this interaction effect is mixed. Although this finding has been replicated in the models predicting past assault, vandalism, and general deviance and projected delinquency without a control for prior misbehavior, it is not significant in the OLS model including prior delinquency as a control and in negative binomial regression models.

Similarly, we find little consistent evidence of conditioning effects of social bonding variables on the associations between our measures of anomic strains and past and projected delinquency outlined in Hypothesis 3 (Models 11 and 12 in Tables 3 and 4). Only the interaction between relative strain and school commitment in the equations predicting projected delinquency is significant (Models 12 and 15, Table 4) and, as expected, negative, indicating that positive effects of relative strain on projected delinquency are stronger for adolescents with lower school commitment. However, this interaction is quite small (a standardized regression coefficient −.08) and its robustness has not been supported in any additional analyses. Finally, another marginally significant interaction between economic strain and parental supervision found in Model 15, Table 4, is not in the predicted direction and has not been confirmed in any other models or additional analyses.

Discussion

This study has accomplished several goals. First, it has assessed whether criminogenic effects of anomic strain are more pronounced among adolescents with lower perception of certainty of sanctioning and weaker social bonds. Second, it has explored potential influences of a larger macro-level sociocultural context on predictive powers of anomic strain by testing it with unique data from a sample of Ukrainian adolescents. In addition, it has compared several alternative operationalizations of anomic strain and evaluated their impact on a wide range of delinquent behaviors. Overall, several interesting findings emerge from our analysis.

First, with respect to independent effects of anomic strain, the results of our analyses illuminate both strengths and weaknesses of Merton's classic strain/anomie theory. Consistent with Merton's arguments, the concept of anomic strain, especially when it is operationalized in terms of relative strain, arises as a valid predictor of

involvement in delinquency in the sample of adolescents from Lviv, Ukraine. This finding is also surprisingly robust. In particular, the significant positive associations between relative strain and adolescent misbehavior persist in the presence of control variables including that of prior delinquency, multiple measures of deterrence and social bonds as well as several other influential predictors of crime that have been investigated in the sensitivity analyses. This quite consistent pattern of results stands in contrast to the mixed findings of the research on anomic strain conducted mostly in Western countries showing not robust or at best conditional effects of similar measures of anomic strain (e.g., Baron, 2011; Burton et al., 1994). Furthermore, corroborating Merton's argument about the applicability of his theory to both utilitarian and nonutilitarian deviance (Merton, 1968, p. 232), criminogenic effects of the more promising measures of classic strain do not seem to be crime-specific and are very similar for such different types of delinquency as assault, theft, vandalism, and general deviance. Thus, in general, as expected, in the arguably more anomic context of post-Soviet Ukraine, some measures of anomic strain are consistently related to delinquency.

The findings of our study also shed more light on predictive powers of various operationalizations of anomic strain. In accord with the findings of most research conducted with Western samples, our investigation confirms that traditional measures of disjunctions between educational and occupational aspirations and expectations are not good predictors of adolescent misbehavior. The results also reveal that the most promising way of conceptualizing anomic strain is by incorporating perceptions of individuals' relative standing on different factors such as opportunities for success or various aspects of financial deprivation as well as negative feelings associated with them. At least, our results suggest that such "relative anomic strain" appears to be particularly salient for adolescents in post-Soviet Ukraine. At the same time, it is also obvious that an overall explanatory power of even the best measures of anomic strain is quite modest, suggesting that the theory needs to be refined to provide a more satisfactory account of juvenile delinquency.

Next, the results of our analyses uncover more direct evidence suggesting that Merton's explication of crime may be too simplistic. Merton's theory clearly failed to incorporate into its explanatory framework in any consistent way several external constraints to crime that have been featured as central variables in such established criminological theories as deterrence and social bond (Hirschi, 1969). However, our findings corroborate the arguments of those theories and indicate that some of their principal concepts such as perceptions of certainty of formal and informal sanctioning and direct social control and school commitment may also play an important role in the etiology of delinquency in Ukraine, independently of anomic strain.

Finally, the results of our analyses speak to the question of whether elaboration of Merton's theory through the introduction of additional individual-level contingencies is promising. Overall, crime-instigating effects of anomic strain do not appear to be conditioned by deterrence or social bond variables as we find little

consistent evidence of significant interactions between anomic strain and perceptions of sanctions or social bonds. Although, in few instances, the results suggest that higher perceptions of certainty of informal sanctioning or higher levels of school commitment may attenuate criminogenic effects of anomic strain, the evidence regarding robustness of those interactions is generally weak. As previous studies have also failed to find a conditioning effect of perceived risk of getting caught on strain and crime relationship (Baron, 2011), it is possible that the effects of anomic strain and external constraints on crime are independent of each other. Yet, we also cannot rule out the possibility that those findings may have been affected by the unique sociocultural context of Ukraine. In a more socially disorganized environment of Ukraine, effects of anomic strain may be more powerful than usual and thus may be able to stand out as potent independent predictors of juvenile delinquency that operate with the same strength at all levels of external constraints experienced by adolescents. Thus, we hesitate to make any decisive conclusions about the existence of possible moderating effects until more research on this issue is conducted and one of those interpretations is substantiated further.

Overall, the findings from the study have several important implications for further research on Merton's theory. First, they confirm that clarifications and elaborations of the concepts and ideas from Merton's theory may prove to be a fruitful theoretical exercise. For example, some promising ways of improving the concept of anomic strain include assessments of individual standing on different factors (such as perceptions of opportunities for success) in comparison with other individuals or relative financial deprivation resulting in frustration and negative feelings. Furthermore, although the findings regarding contingencies involving anomic strain and deterrence and social bond variables are largely negative, the results of this research demonstrate that anomic strain and a number of external constraints have consistent independent influences on adolescent misbehavior. Therefore, empirical evidence seems to point to the necessity of some kind of theoretical integration of the classic strain/anomie account of crime with external control theories considered in this study (deterrence and social bond). As all of these factors appear to be independent pieces of a puzzle of delinquent behavior, the ultimate way of improving Merton's anomie/strain theory (as well as other strain theories) may be to construct a comprehensive theory of "constrained motivation" that includes at minimum strain as a motivational factor and several inhibitory factors as constraint variables. Finally, the last notable finding of this research conducted in a unique sociocultural setting of Ukraine is discovering the importance of contextual influences that may make micro-level effects of anomic strain more criminogenic. In an arguably more anomic context of contemporary Ukraine, effects of anomic strain on adolescent crime and delinquency are found to be persistent and robust, and endure even when other predictors of juvenile delinquency such as fear of sanctions and social bonds are also taken into consideration. Overall, it appears that a larger sociocultural environment also may serve as a contingency for the operation of individual-level processes and affect nature of relationships between theoretical

predictors such as anomic strain and misconduct. Therefore, potential differential societal influences and sociocultural effects should also have their place in any adequate strain theory.

Nevertheless, the study has a number of limitations that should be considered. First of all, like any data from self-report surveys, these data may suffer from problems of telescoping, memory losses, attempts at cognitive consistency, and so on. Whereas it is not possible to exclude such biases completely, we are more confident in the reliability of these results because many patterns of the findings are similar to those revealed by other studies. In addition, as any other survey data collected from students attending schools, they are subject to possible attrition bias due to the fact that more delinquent students may be especially likely to skip school and not be present during survey administration. Unfortunately, Ukrainian public schools do not provide any statistics on sociodemographic characteristics of their student bodies making impossible any comparisons between our final sample and the overall body of ninth graders in the public schools of Lviv. Yet, because our survey response rate is comparable or higher than those usually obtained in the U.S. school delinquency surveys such as Add Health or Monitoring the Future (Carolina Population Center, 2013; Office of Juvenile Justice and Delinquency Prevention, 2013), we suspect that the likelihood of such bias is not any higher than in any other comparable research. Furthermore, our sample is age limited and further research with more representative samples is certainly needed to verify our findings. Finally, although we have attempted to establish correct causal sequencing by utilizing retrospective and prospective measures, the cross-sectional character of our data does not permit to do it unambiguously.

Despite these limitations, our study represents an important first step in evaluating Merton's account of crime in unusual sociocultural contexts of post-Soviet states. It uses interesting data from adolescents who are sampled at the time when they have to make important life-changing decisions and face many uncertainties in an anomic social environment and extends the extant literature by exploring additional individual-level contingencies to relationships between anomic strain and crime. Finally, the results of this study point to several avenues for further research on classic strain theory. In particular, other sources of strain such as those outlined in Agnew's (1992, 2006) general strain theory should be examined in the context of contemporary Ukraine, and internal constraints like self-control and morality should be considered for further elaboration of Merton's account. Finally, the results of this study should be replicated in other sociocultural contexts and with different samples.

Appendix

Survey Items Concerning Delinquency, Anomic Strain, and External Constraints

Delinquency

Past delinquency

1. Intentionally damaged or destroyed property that did not belong to you (e.g., property belonging to your parents, other family members, school, or any other property—signs, windows, mailboxes, etc.)
2. Slashed or in any way damaged seats on a bus, in a movie theater, or something at another public place
3. Written graffiti on a bus, on school walls, on restroom walls, or on anything else in a public place
4. Smashed bottles on the street, school grounds, or other areas
5. Committed acts of vandalism when coming or going to a football game or other sports event
6. Stolen, taken, or tried to take something worth $1 or less (e.g., newspaper, pack of gum, mail, money, etc.)
7. Stolen, taken, or tried to take something worth between $1 and $100 (e.g., shirt, watch, cologne, video game cartridge, shoes, money, etc.)
8. Stolen, taken, or tried to take something worth more than $100 (e.g., leather jacket, car stereo, bike, money, etc.)
9. Bought, sold, or held stolen goods or tried to do any of these things
10. Stolen, taken, or tried to take something that belonged to "the public" (e.g., street signs, construction signs, etc.)
11. Stolen or tried to steal a motor vehicle (e.g., car or motorcycle)
12. Physically hurt another person on purpose (e.g., your parents, other students/peers, or anybody else)
13. Been involved in gang fights or other gang activities
14. Used force or threatened to beat someone up if they didn't give you money or something else you wanted
15. Beaten someone up or hurt someone on purpose so badly they required medical attention
16. Been on someone else's property when you knew you were not supposed to be there
17. Failed to return extra change that you knew a cashier gave you by mistake or tried to deceive a cashier to your advantage (e.g., flash a larger bill and give a smaller one)?
18. Let the air out of the tires of a car or bike
19. Lied about your age to get into a nightclub/bar
20. Made nuisance/obscene telephone calls
21. Avoided paying for something (e.g., movies, bus or subway rides, food, etc.)
22. Shaken/hit a parked car just to turn on the car's alarm
23. Stayed out all night without informing your parents about your whereabouts?

(continued)

Appendix (continued)

Projected delinquency

1. Intentionally damage or destroy property that does not belong to you
2. Steal, take, or try to take something worth $1 or less
3. Steal, take, or try to take something worth more than $100
4. Physically hurt another person on purpose

Anomic strain

Economic strain (five response categories from 1 "*strongly disagree*" to 5 "*strongly agree*")

1. I'd like to make a lot of money in my life.
2. Realistically, I don't think I'll make as much money as I'd like.

Combined relative strain (five response categories from 1 "*strongly disagree*" to 5 "*strongly agree*")

1. In this country, people like me cannot succeed because laws are not executed in a proper manner.
2. I believe people like me may be treated unfairly when it comes to getting a good job.
3. Our society does not reward hard work in school.
4. No matter how hard I work, I will never be given the same opportunities as other kids.
5. I will never succeed in life because my family does not have connections.
6. Good education does not help you to succeed in life.
7. It bothers me that most people have more to live on than our family.
8. It's frustrating to see people driving nicer cars and living in nicer homes than our family does.
9. I get angry when I see people having a lot more money than our family does spend their money on foolish things.

External constraints

Fear of formal sanctioning (five response categories from 1 "*strongly disagree*" to 5 "*strongly agree*")

1. If you break the law, you will wind up being charged by police.
2. If you break the law, you will wind up being sent to a correctional institution.
3. I think I could steal from a store and not get caught.

Fear of informal sanctioning (five response categories from 1 "*strongly disagree*" to 5 "*strongly agree*")

1. Most of the people whose opinions I value would lose respect for me if I stole, take, or tried to take something worth $1 or less.
2. Most of the people whose opinions I value would lose respect for me if I drank alcohol without my parents' permission.
3. Most of the people whose opinions I value would lose respect for me if I physically hurt another person on purpose.
4. Most of the people whose opinions I value would lose respect for me if I used an illegal drug.
5. Most of the people whose opinions I value would lose respect for me if I stole, take, or tried to take something worth more than $100.

(continued)

Appendix (continued)

Parental supervision (five response categories from 1 "*knows nothing*" to 5 "*knows everything*")
1. How much do your parents know about your close friends, that is, who they are?
2. How much do your parents know about your close friends' parents, that is, who they are?
3. How much do your parents know about who you are with when you are not at home?
4. How much do your parents know about who your teachers are?
5. How much do your parents know about what you are doing in school?

Parental attachment (five response categories from 1 "*strongly disagree*"/"*never*" to 5 "*strongly agree*"/"*all the time*")
1. I think highly of my mother.
2. My mother is a person I want to be like.
3. How often does your mother praise you for doing well?
4. How often does your mother help you do things that are important to you?
5. I think highly of my father.
6. My father is a person I want to be like.
7. How often does your father praise you for doing well?
8. How often does your father help you do things that are important to you?

School commitment (five response categories from 1 "*strongly disagree*"/"*not important at all*" to 5 "*strongly agree*"/"*very important*")
1. Overall, what grades do you receive in school?
2. How important is it to you to achieve your educational goals?
3. How important would you say your grades are to your own satisfaction?
4. I take pride in my school.
5. My schoolwork requires me to think to the best of my ability.
6. I am proud of my schoolwork.

Declaration of Conflicting Interests

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Notes

1. We also constructed and tested two traditional measures of Merton's strain as the disjunctions between educational/occupational aspirations and expectations found no statistically significant effects of those measures (the results are not presented but available from the authors upon request).

2. All analyses were conducted using the combined measures of relative anomic strain as well as its two components (blocked opportunities and relative deprivation) and revealed no differences in the patterns of substantive findings. Therefore, the results are presented using only the more parsimonious combined measure.
3. In additional robustness analyses (not shown here), effects of relative strain on several types of delinquency also remained significant when other important predictors of crime such as self-control, morality, or peer delinquency were controlled.

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