

# Assessing the Relevance of Anomie Theory for Explaining Spatial Variation in Lethal Criminal Violence: An Aggregate-Level Analysis of Homicide within the United States

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# Assessing the Relevance of Anomie Theory for Explaining Spatial Variation in Lethal Criminal Violence: An Aggregate-Level Analysis of Homicide within the United States

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One of the most influential statements in the anomie theory tradition has been Merton's argument that the volume of instrumental property crime should be higher where there is a greater imbalance between the degree of commitment to monetary success goals and the degree of commitment to legitimate means of pursuing such goals. Contemporary anomie theories stimulated by Merton's perspective, most notably Messner and Rosenfeld's institutional anomie theory, have expanded the scope conditions by emphasizing lethal criminal violence as an outcome to which anomie theory is highly relevant, and virtually all contemporary empirical studies have focused on applying the perspective to explaining spatial variation in homicide rates. In the present paper, we argue that current explications of Merton's theory and IAT have not adequately conveyed the relevance of the core features of the anomie perspective to lethal violence. We propose an expanded anomie model in which an unbalanced pecuniary value system – the core causal variable in Merton's theory and IAT – translates into higher levels of homicide primarily in indirect ways by increasing levels of firearm prevalence, drug market activity, and property crime, and by enhancing the degree to which these factors stimulate lethal outcomes. Using aggregate-level data collected during the mid-to-late 1970s for a sample of relatively large social aggregates within the U.S., we find a significant effect on homicide rates of an interaction term reflecting high levels of commitment to monetary success goals and low levels of commitment to legitimate means. Virtually all of this effect is accounted for by higher levels of property crime and drug market activity that occur in areas with an unbalanced pecuniary value system. Our analysis also reveals that property crime is more apt to lead to homicide under conditions of high levels of structural disadvantage. These and other findings underscore the potential value of elaborating the anomie perspective to explicitly account for lethal violence.

Robert Merton (1938) suggested several decades ago that rates of deviance, and especially levels of property crime, would be significantly higher in social collectivities in which the population has a relatively strong commitment to monetary success goals and a relatively weak commitment to legitimate means for pursuing such goals. He argued further that this result was more likely to occur where the social structure provided insufficient opportunities for members of the population to achieve valued monetary success goals through legitimate avenues (see also Merton 1949,

1957, 1964, 1968). These core arguments of Merton's classic anomie theory have been influential in stimulating and shaping subsequent theoretical contributions on crime and violence in the United States and elsewhere (e.g., Bernburg 2002; Cole 1975; Orru 1987). Most recently, Messner and Rosenfeld (1994, 2007) integrate many of the central causal elements of Merton's theory with insights from Parsons, Marx, and others in outlining an argument for spatial variation in serious violence that has become widely known as "Institutional Anomie Theory" (IAT). Messner and Rosen-

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feld's IAT shares with Merton's theory a core emphasis on the criminogenic tendencies of a relatively strong commitment to monetary success goals and a relatively weak commitment to legitimate means for pursuing monetary goals. But Messner and Rosenfeld's theory (2007) also extends Merton's perspective in several important respects, including a major elaboration on the sources of spatial variation in value commitments, a much more nuanced treatment of the range of social structural forces that may be relevant for regulating how people respond to cultural prescriptions, and a significant broadening of its scope conditions to encompass goal attainment "by any means necessary," including lethal criminal violence. The present study focuses on assessing the theoretical and empirical utility of the last of these recent expansions of anomie theory, or in other words on addressing the relevance of classic and contemporary anomie theories for explaining variation in levels of *homicide* across social collectivities.

Although Merton does not fully spell out limits to the scope conditions of his anomie theory, he emphasizes money generating property crime as a key innovative response to the pecuniary cultural and structural imbalances upon which he focuses and, as far as we can tell, he is notably silent on lethal violence in his writings on anomie. In contrast, Messner and Rosenfeld (1994, 2007) explicitly state that the proper scope conditions for IAT are serious criminal activities, and they include homicide as a prominent example of the kind of outcome relevant to their explanation. Moreover, virtually all of the existing empirical studies with stated ties to IAT incorporate homicide rates as an outcome variable; most studies do so exclusively, omitting other serious crimes such as robbery, burglary, auto theft, or the distribution of illicit drugs, which on their face seem more directly relevant to the core theoretical arguments of classic and contemporary anomie theories (for a review of IAT empirical tests, see Messner and Rosenfeld 2006; Pratt and Cullen 2005). This is surprising at a conceptual level given that the internal logic of Merton's anomie theory and Messner and Rosenfeld's IAT point easily to predictions of spatial variation in instrumental crimes that will facilitate the acquisition of money (Chamlin and Cochran 1995). Moreover, in our view these theories do not clearly specify why members of a population would resort to *lethal*

violence to achieve such objectives aside from the relatively infrequent instances in which property crimes go wrong and end in death (see also Beeghley 2003). While it could be argued that homicide is a particularly expedient way to achieve a desired end, it appears that homicide is typically committed for reasons other than enhancing one's financial circumstances and it is rarely a repeated behavior regardless of the motivation (e.g., Maume and Lee 2003; Reidel and Walsh 2008; Savolainen, Messner, and Kivivuori 2000). This does not necessarily invalidate anomie theory as a potential explanation of spatial variation in homicide, but it does suggest that the direct effect of anomic social conditions on homicide presumed in much of the extant theoretical and empirical literature might be modest at best and, more generally, it points our attention to a consideration of possible intervening causal mechanisms that might explain why social collectivities with a strong commitment to monetary success goals and a relatively weak commitment to legitimate means for pursuing monetary success goals might exhibit higher homicide rates.

As we elaborate below, we see several plausible ways in which the social conditions emphasized in classic and contemporary anomie theories might yield higher levels of lethal criminal violence, but in our view the relevant mechanisms for describing these linkages have not been clearly articulated in previous theoretical explications or tested in existing empirical research. In this paper we propose a slightly expanded anomie perspective that explicitly links anomic social conditions to lethal criminal violence. Our model highlights the possibility that the combination of a strong commitment to monetary success and a weak commitment to legitimate means of pursuing monetary success (what we refer to as an "unbalanced pecuniary value system" or "unbalanced pecuniary value commitments") give rise to higher levels of gun prevalence, higher levels of illicit drug market activity, and higher levels of instrumental property crime (e.g., robbery, burglary, auto theft, and larceny), which in turn translate into higher levels of homicide for reasons elaborated below. Given that a modest percentage of homicides occur in the context of illicit activities designed to yield monetary gain, we also expect and test for a direct effect on overall homicide rates of a combined strong commitment to monetary success and weak com-

mitment to legitimate means of pursuing monetary success. Further, drawing from Merton (1938) and Messner and Rosenfeld (2007) we anticipate that any observed direct effects of this type of unbalanced pecuniary value system on homicide or the proposed mediators (gun prevalence, illicit drug activity, and property crime) will be conditioned by certain aspects of the social structure. Finally, we hypothesize that the effects of gun prevalence, illicit drug market activity, and property crime on homicide will be amplified where this unbalanced value system is prevalent among members of the population.

We begin by outlining the basic theoretical model implied in classic and contemporary anomie theories. We then present an expanded model geared toward more explicitly clarifying the ways in which the core social arrangements emphasized in anomie theory might translate into high levels of lethal criminal violence. We derive several hypotheses from this modified anomie model of *lethal* violence, and then test these hypotheses with aggregate cross-sectional data from the United States that combines survey data from the American General Social Survey (GSS) on levels of commitment to monetary success goals and on levels of commitment to institutionalized means with data from a variety of U.S. sources on several other features of social aggregates, including levels of firearm prevalence, illicit drug market activity, property crime, and homicide. We close with a discussion of the implications of our study for classic and contemporary anomie theories and for existing research on spatial variation in lethal violence both within and across nations.

## 1. Theory and Hypotheses

### 1.1. Anomie Theory and Instrumental Property Crime

Baumer and Gustafson (2007) recently specified a theoretical model that integrates some of the central arguments

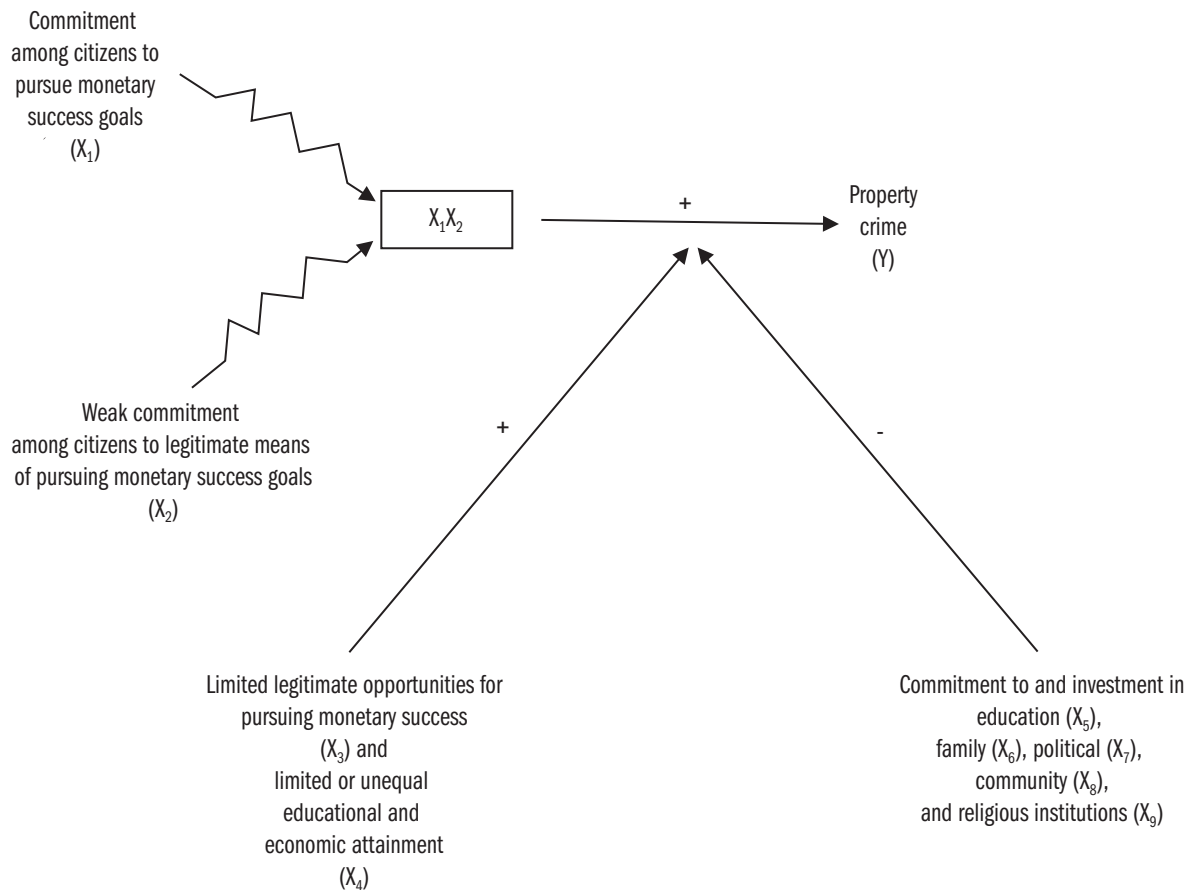
found in Merton's classic anomie perspective and in Messner and Rosenfeld's contemporary Institutional Anomie Theory (IAT). They interpret these anomie theories as specifying cultural and structural influences that affect levels of crime mainly by shaping value commitments of members of a population. Specifically, in their representation of the two theories, greater exposure to a distinctive type of cultural structure (a strong cultural emphasis on monetary success and a weak cultural emphasis on legitimate or institutionalized means of pursuing monetary success) yields—through a process of socialization—a larger percentage of persons in a given population who have a particular type of value complex: a strong commitment to pursuing monetary success goals and a weak commitment to doing so through legitimate means. Social collectivities with a higher prevalence of persons who identify with this “unbalanced pecuniary value system” will likely exhibit higher levels of instrumental property crime because such behavior emerges as one of the expedient means by which to facilitate the attainment of culturally valued goals (619–22). Thus, as shown in Figure 1, Baumer and Gustafson (2007) suggest that as outlined in classic and contemporary anomie perspectives, differences across social collectivities in instrumental property crime are primarily a function of differences in the percentage of community members who are strongly committed to pursuing monetary success goals and who are weakly committed to pursuing monetary goals through legitimate means.<sup>1</sup> Drawing from Merton, Baumer and Gustafson note further that the link between this value complex about the prescriptions and proscriptions of pursuing monetary success goals may be amplified in contexts of limited access to legitimate opportunities and low levels of achievement and, borrowing from Messner and Rosenfeld (1994, 2007), they suggest that they may be dampened in contexts of high levels of commitment to non-economic social institutions (622–27).<sup>2</sup>

<sup>1</sup> See Baumer (2007) for an extended discussion of the internal logic implied in Merton's theory for linking cultural and structural conditions to deviant behavior.

<sup>2</sup> To accommodate the three-way statistical interactions implied in the anomie theories of Merton and Messner and Rosenfeld, Baumer and Gustafson (2007) use saw-toothed arrows to represent the key two-way interaction (i.e., the interaction between commitment to monetary success goals and commitment to legitimate means) as a distinct variable, designated in Figure 1 as  $X_1X_2$  (see also Bollen

1998; Bollen and Paxton 1998). To convey how other factors moderate this two-way interaction effect, as implied in the two theoretical models (i.e., to form the implied three-way interactions), the more common approach of drawing an arrow from the specified moderator to the causal path that represents the two-way interaction effect is used.

Figure 1: Baumer and Gustafson's integrated anomie model of property crime



Although several empirical studies have examined hypotheses relevant to Merton's theory and IAT, the core linkages implied in these theories have rarely been examined (see also Messner and Rosenfeld 2006). For example, in a pioneering empirical test of Institutional Anomie Theory, Chamlin and Cochran (1995) examined the effect of poverty on property crime rates, and the extent to which that effect is conditioned by the strength of non-economic institutions. Though it might be argued that poverty is a rough proxy for the desire for material gain coupled with blocked opportunities, we still know little about whether instrumental property crime rates are greater in social collectivities with a high level of commitment to monetary success goals coupled with a weak level of commitment to using legitimate means to pursue monetary success goals, a key construct of both versions of anomie theory. Also, little is

known about whether an insufficient supply of legitimate educational and economic opportunities and a high degree of involvement in non-economic social institutions serve to moderate the effect of this largely unmeasured unbalanced value complex.

Baumer and Gustafson (2007) address these issues in a preliminary way with a cross-sectional analysis of data from U.S. counties and metropolitan areas that yielded mixed findings on the empirical validity of the integrated anomie model shown in Figure 1. Their findings suggest that instrumental property crimes tend to be highest in areas in which members of the population express both a strong commitment to pursuing monetary success goals and a weak commitment to legitimate means for doing so. Further, although they do not find that the criminogenic

tendencies of this unbalanced pecuniary value system are enhanced by low levels of access to legitimate economic and educational opportunities or low levels of achievement, as suggested by Merton, the results support Messner and Rosenfeld's contention that such tendencies are dampened in the context of high levels of welfare support and contact between family members.

Perhaps the most notable finding that emerged from Baumer and Gustafson's study is that the fundamental argument of classic and contemporary anomie theories – that rates of instrumental crime are highest in places with a relatively strong commitment to monetary success and weak commitment to legitimate means – has empirical merit. Their study also leaves some important questions unaddressed, however. One thing that remains to be seen, for example, is whether the central predictions of these anomie perspectives (i.e., the main and interactive effects of an unbalanced pecuniary value system) also are relevant to explaining spatial variation in *lethal criminal violence*. In our view, this is more than merely an empirical exercise in determining whether similar results would emerge if homicide rates were swapped out with instrumental *property* crime. It raises first a basic theoretical question, often taken for granted, of whether classic and contemporary anomie theories yield clear predictions for geographic differences in levels of homicide. Stated more directly, while the expectation of higher instrumental crime rates flows quite logically from the causal structure of classic and contemporary anomie theories, do their scope conditions encompass lethal criminal violence, or in other words do they also support the prediction that a strong commitment to monetary success goals coupled with a weakened commitment to legitimate means would yield higher levels of *homicide*? If so, what are the mechanisms that link an unbalanced pecuniary value system to lethal criminal violence? These are the questions to which we now turn.

### 1.2. Anomie Theory and Lethal Criminal Violence

In his discussion of “modes of adaptation,” Merton (1938, 1968) mentions several possible behavioral responses that might flow from a high level of commitment to monetary success goals and a weakened commitment to legitimate means. To our knowledge, however, he does not include

homicide as a likely response. In contrast, Messner and Rosenfeld (1994, 2007) explicitly outline the scope conditions relevant to their theory, stating that it encompasses serious crimes, which they define as “violations of criminal law involving significant bodily injury, the threat of bodily injury, or, in the case of nonviolent offenses, significant economic harm to victims” (2007, 47). The range of crimes covered by Messner and Rosenfeld's definition of serious crimes is broad, including both “street crimes” and “suite crimes,” but in various places they emphasize robbery and homicide as prominent examples of the types of serious crimes to which their perspective is likely most relevant (e.g., 2007, 19–22, 47–49).

Perhaps stimulated in part by Messner and Rosenfeld's explicit statement of scope conditions, several studies during the past decade or so that examine empirical predictions relevant to anomie theory, and in particular IAT, have focused on the explanation of overall homicide rates (Maume and Lee 2003; Messner and Rosenfeld 1997; Piquero and Piquero 1998; Pratt and Godsey 2003; Pridemore 2008; Savolainen 2000; Stucky 2003; for reviews, see Messner and Rosenfeld 2006; Pratt and Cullen 2005). The vast majority of these studies have examined whether the effects on homicide rates of absolute or relative economic disadvantage are moderated by factors such as welfare support, political participation, church membership, and family stability. These studies have advanced our understanding of spatial variation in homicide rates, and many have revealed support for the idea that high levels of commitment to non-economic social institutions or other buffers to free-market economies (e.g., the decommodification of labor) can dampen criminogenic influences of high rates of poverty and inequality. The extant research on anomie and homicide has not addressed, however, an arguably more central explanatory question of relevance to classic and contemporary anomie theories: are homicide rates higher in social collectivities in which a larger fraction of the population is strongly committed to monetary success goals and weakly committed to legitimate means for pursuing monetary goals?

Some scholars have questioned the relevance of anomie theory (however operationalized) for explaining differences in lethal criminal violence across social collectivities (Agnew

1999; Beeghley 2003; Felson forthcoming; Pare and Felson 2007). Although this theme has not been developed extensively in the literature, in essence the critics suggest that classic and contemporary anomie perspectives do not encompass a proximate theory or explanation of how people might become motivated to use violence, something they see as essential to explaining why the criminogenic “pressures” that emanate from a social context in which there is a high level of emphasis on pursuing monetary success and a low level of emphasis on using legitimate means to do so would lead to lethal outcomes. One of the proposed extensions to the anomie perspective that emerges from extant literature is to integrate elements of the general frustration/aggression violence perspective. For example, Agnew (1999) suggests that a significant portion of the observed variation in levels of violence across social collectivities, including lethal violence, is due to variation in levels of frustration, anger, and other states of negative affect.

The issue of whether “frustration” is central or even relevant to the basic anomie argument under examination here has been the subject of heated debate (cf., Agnew 1987; Bernard 1987). Our position on the matter is that it is plausible to suggest that the combination of a strong degree of commitment to monetary success and weak commitment to legitimate means, the key process emphasized in the anomie theories of Merton and of Messner and Rosenfeld, could give rise to high levels of frustration or anger, especially when accompanied by relatively low levels of access to legitimate (and realistic) means for achieving monetary success or few buffers from competitive market conditions. And higher levels of frustration or anger in an area may yield higher levels of violence (Agnew 1999). Nevertheless, this modification fundamentally alters the anomie theoretical framework, de-emphasizes the key concepts and, in our view, is not necessary for illuminating the relevance of classic and contemporary anomie theories for explaining cross-sectional differences in levels of lethal criminal violence (see also Bernard 1987). Indeed, a distinctive feature of Merton’s anomie theory and IAT is that they describe both the forces that might provide the impetus or motivation for deviance and also the forces that might regulate such motivation (see also Messner and Rosenfeld 1994). Given this, we do not see the need to elaborate the anomie theoretical model with an

additional “motivational” component (e.g., a frustration-aggression argument) to explain variation in levels of lethal violence. But we do find merit in the critique that, while anomie perspectives provide a logical explanation for why certain socially structured pressures related to economic goal attainment would yield higher levels of crimes whose intended purpose is to enhance one’s financial circumstances, they do not adequately explain how those pressures would translate into higher levels of lethal criminal violence, except of course for the modest proportion of cases in which money-generating crime turns deadly.

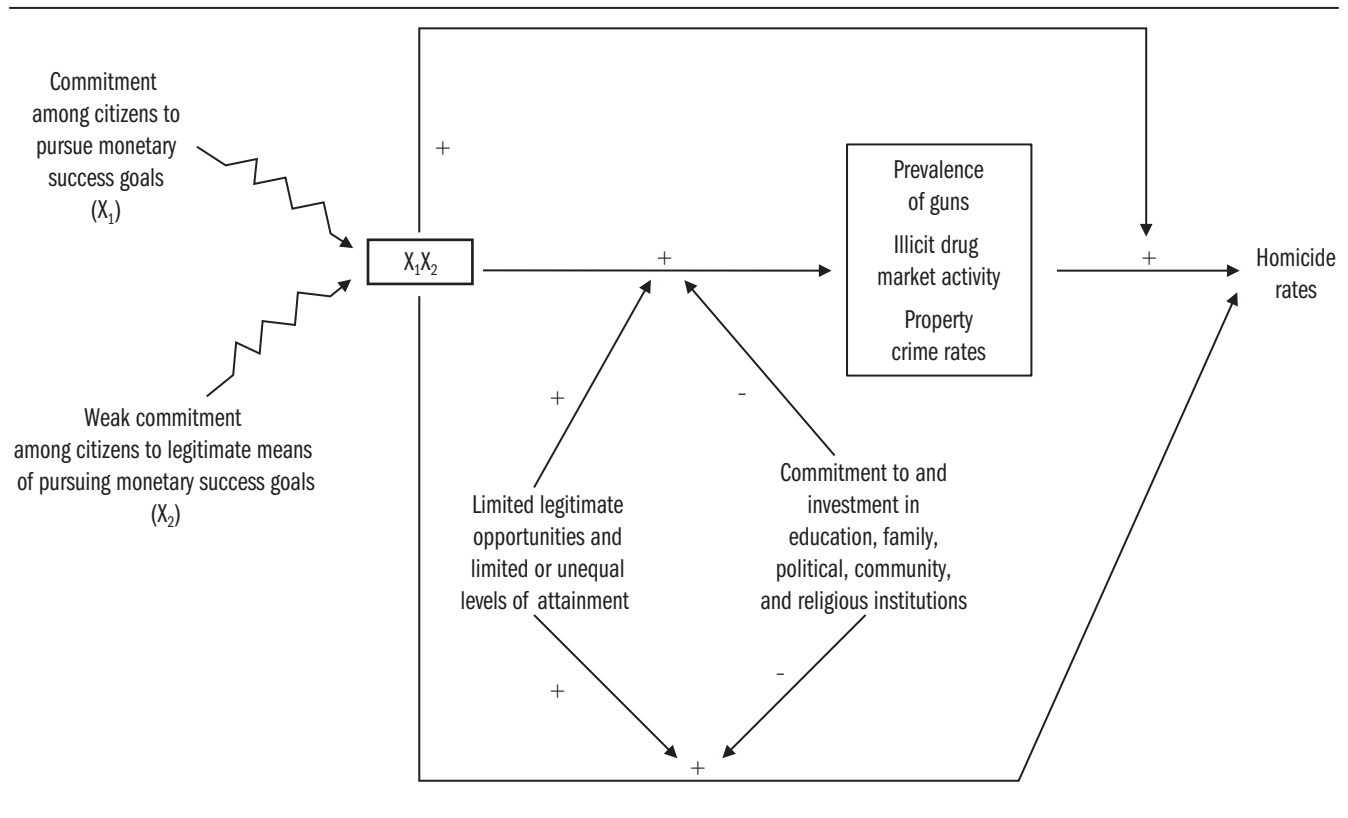
In another critique of the relevance of anomie theory for explaining variation in levels of lethal violence, Beeghley (2003) argues that key factors identified in prior research as sources of variation in homicide rates are ignored or dismissed as unimportant. He contends that although anomie perspectives are useful and highly relevant for understanding the nature of American society, these theories cannot explain the unusually high rate of homicide in the United States since they do not account for other highly correlated structural characteristics such as the widespread availability of guns and the rapid expansion of drug markets. While recognizing the potential of anomie perspectives to explain variation in economically motivated crimes, Beeghley argues that “crime and homicide ought to be considered as separate problems” because “the high rate of lethal violence in the United States has more specific structural sources than the anomic character of American Society” (p.95).

We concur with Beeghley (2003) on the value of questioning the ability of classic and contemporary anomie theories to explain variation in any form of crime other than those with a purpose of economic gain, and particularly homicide since it is emphasized in much of the theoretical and empirical literature. There are extensive, long-standing literatures detailing the connection between numerous macro-social characteristics and homicide rates that should be recognized in any fully specified theoretical account of aggregate patterns in lethal violence. Outlining the full details of such a theory is not the main purpose of Messner and Rosenfeld’s anomie theory (2007), but it is noteworthy that recent statements of the theory have attended more directly to the potential importance of guns and illicit drugs

in generating high levels of lethal violence. In fact, Messner and Rosenfeld (2006) emphasize not only the importance of examining the proximate effect of the availability of guns and the prevalence of illicit drug use and drug market activity on homicide rates, but also the importance of explaining why there is such a high level of variability across social collectivities in the prevalence of gun, drug use, and drug market activity. They do not fully develop such an explanation in their writing on IAT, but as we explain next, the core anomie theoretical argument is potentially useful in this regard and, consequently, by elaborating the anomie argument in a simple and straightforward manner it is possible

to broaden the scope of the perspective to include not only economically motivated forms of property crime, but also both instrumental and expressive forms of lethal violence. We illustrate in Figure 2 an elaborated anomie theoretical model that integrates some well-known covariates of lethal criminal violence (gun prevalence, illicit drug use, and property crime) and summarizes how they might link the central causal element of classic and contemporary anomie perspectives – unbalanced pecuniary value commitments – to spatial variation in homicide. We describe this elaborated model in more detail below while also specifying the empirical predictions that we examine in our analyses.

Figure 2: Modified integrated anomie model of lethal criminal violence.





### 1.3. Indirect Effects of Unbalanced Pecuniary Values on Lethal Violence

The original formulations of current and classic versions of anomie theory do not clearly explicate the ways in which anomic conditions can be linked with variation in levels of lethal violence. One possibility is that unbalanced pecuniary value commitments can influence homicide rates indirectly through their effects on some of the structural characteristics that have been the focus of previous homicide research. Two such factors are the availability of guns and illicit drug market activity, both of which have been the subject of extensive, albeit sometimes contentious, discussion in the criminological literature. A third potential mediating factor is property crime itself. As we have already described, anomie theories clearly include in their scope conditions the ability to explain variation in levels of economically motivated crime. If a link can be drawn between rates of property crime and homicide, there is potential for anomie to explain the latter through its influence on the former. We now discuss the potential effect of an unbalanced pecuniary value system on each of these three factors, and their subsequent influence on homicide rates.

Data from the early 1980s through the 1990s show that the dramatic increase and subsequent decrease in homicide rates in the United States was almost entirely precipitated by changes in gun-related homicide (Blumstein and Wallman 2006). The strong correlation between gun prevalence and rates of lethal violence led Blumstein, Rivara, and Rosenfeld (2000) to argue that “the role of weapons must figure centrally in any credible explanation of U.S. homicide trends over the past 2 decades” (510), and Zimring and Hawkins (1997) state that guns are “so prominently associated with the high death rate from violence that starting from any other topic would rightly be characterized as an intentional evasion” (106). Yet, there is intense debate about the causal meaning and direction of the guns-homicide connection, with some even arguing that the apparent relationship between them is simply a coincidence (Kates and Polsby 2000; Kleck 1991). In response, Zimring and Hawkins (1997) recognize that gun availability is neither a necessary nor sufficient explanation of high rates of homicide, but they consider gun prevalence to be a contributing cause that, in combination with the willingness to use maximum force, is the most important contribution to high rates of violence.

But what might explain this willingness to use guns for lethal violence, and how does this relate to classic and contemporary anomie theories? Messner and Rosenfeld (2006) note that gun availability may be an important factor in explaining variation in homicide rates, but that such explanations are typically incomplete because they “fail to consider why firearms are so abundant and so often used in violent confrontations” (19). We propose that anomie theory may be useful for explaining both levels of gun prevalence and the extent to which this translates into high rates of lethal violence. One of the hallmarks of the anomie perspective is that when strong commitments to monetary success are paired with weak commitments to using legitimate means, innovative and technically expedient means to achieving success goals are more likely to be used. Given that possessing and being prepared to use a firearm is a particularly efficient means for obtaining desired goods, solving disputes, and generally imposing one’s will, it is plausible that such a value system could lead to higher rates of gun ownership. This logic, along with research linking gun prevalence and homicide (Cohen, Gorr, and Singh 2002; Rosenfeld, Baumer, and Messner 2007), suggests an indirect path whereby anomic conditions influence both instrumental and expressive forms of homicide through their influence on gun availability. More specifically, we expect the prevalence of guns will at least partially mediate the positive effect of unbalanced pecuniary value commitments on rates of lethal violence.

Another way in which contemporary and classic anomie theories might explain variation in rates of lethal violence is through the increase in illicit drug use and market activity that an unbalanced pecuniary value system may engender. Literature on the link between illicit drug markets and lethal violence in the United States is extensive, with much of it highlighting the similar longitudinal trends exhibited by levels of drug market activity and homicide in the 1980s and 1990s (Blumstein 1995; Blumstein, Rivara, and Rosenfeld 2000; Blumstein and Wallman 2006; Cork 1999). After reaching a peak in 1980, the U.S. homicide rate declined for the next five years, and then began edging upward again, predominantly driven by dramatic increases in the homicide offense rate among juveniles (Blumstein 1995). Many researchers attribute this trend to the arrival, and subse-

quent rapid expansion, of crack cocaine in U.S. cities during this same period, and the disproportionate level of involvement of juveniles in the drug trade (Baumer 1994; Baumer, et al. 1998; Blumstein 1995; Cork 1999; Ousey and Lee 2007).

The most common explanation of the connection between drugs and crime comes from Goldstein's "tri-partite" conceptualization (1985; 1989) which suggests three ways in which drugs and violence may be related. First, the pharmacological effect of ingesting an illicit substance may cause mood changes that lead to violent behavior or violent victimization. Second, drug users may engage in economically motivated violence to support their habit. Third, violence is often a regular means of doing business in the illicit drug trade, including the violent enforcement of norms within drug networks, solving disputes over territory, retaliation among drug dealers, killings resulting from disagreements during drug sales, and punishment for failing to pay debts. Lethal violence as "self-help" is deemed necessary in the absence of legal mechanisms for solving disputes and the lack of property rights enjoyed by those in legal markets (Black 1983; Grogger 2005). Other work suggests a fourth component of the drugs-crime connection whereby this systemic readiness to engage in violence can diffuse into areas outside of the direct domain of drug markets, such as when the norms and behavior that dominate the drug industry influence the behavior of individuals within the broader community who are not directly involved with the drug trade (Anderson 1999; Blumstein 1995).

The evidence for a link between the prevalence of illicit drug activity and homicide rates is strong, but how might this connection be related to, and perhaps explained by, anomie theory? We believe the preceding discussion implies several ways in which unbalanced pecuniary value commitments may indirectly affect levels of lethal violence by influencing drug use and market activity, and may also condition the effect of drug use and market activity on homicide rates. With regard to drug use, Merton (1938) suggested that retreating into drug use and addiction is one way in which individuals may adapt to the strain that stems from a discrepancy between their commitment to the pursuit of monetary success and the availability of and commitment to using legitimate means. To the extent that

drug use relates to violence, either pharmacologically or stemming from economic need, rates of drug use may serve as a potential link between anomic conditions and rates of homicide. Likewise, this unbalanced set of value commitments can lead to increased rates of participation in drug markets as individuals seek ways to pursue monetary success goals using any available means. Indeed, ethnographic research has illustrated the similarities between the drug trade and legitimate paths to success, with some researchers highlighting a common strategy of moving back and forth between legal and illegal work, whichever is most available and profitable (Adler 1995; Bourgois 2003; Freeman 1996). When combined with the literature linking drugs and violence, this leads us to the expectation that levels of drug use and drug market activity will at least partially mediate the positive effect of unbalanced pecuniary value commitments on rates of lethal violence.

A final intervening link that we propose as an explanation of the relationship between anomie and lethal violence is property crime. Though prior literature is less precise in explicating the link between rates of property crime and homicide, there are several reasons to believe that the two may be conceptually distinct and causally related (Katz 1988; see also Rosenfeld 2008).

One way in which property crime might yield higher levels of lethal violence is by channeling guns into the hands of participants of street culture and illegal markets. Ethnographic research on burglary reveals that guns are a prized commodity and are often sought out during break-ins (Wright and Decker 1994). Although the available data are imperfect, it is believed that several hundred thousand guns are stolen each year in the United States, and that a non-trivial proportion of the guns used during the commission of crimes were either stolen by their users or obtained from sources that likely acquired the guns through a theft of some sort (Sheley and Wright 1993; Zawitz 1995). And, as noted above, although the evidence is mixed a higher prevalence of guns in local areas has been linked to higher homicide rates (e.g., Cohen et al. 2002; Rosenfeld et al. 2007).

Prior research also has found that the victims of crime are often criminal offenders themselves (Hindelang, Got-

tfredson, and Garofalo 1978; Lauritsen, Sampson, and Laub 1991). Some suggest that this is due to risky lifestyles that increase the likelihood of both offending and victimization (Baron 1997; Dobrin 2001; Gottfredson 1981), but victimization of criminal offenders may also occur during transactions within the broader criminal market, such as between burglars and fences. Participants in these markets obviously do not enjoy the same legal protection of their property rights as participants in legal markets, and in the absence of such formal recourse for solving disputes, violence becomes more likely as a means of social control (Black 1983; Goldstein 1985; Grogger 2005). Where property crime is prevalent, such illegal markets are likely to emerge and expand, thus increasing the potential for lethal violence as a response to property crime victimization.

Finally, as discussed earlier with regard to illicit drug markets, the reliance on violence or the threat of violence as a means of social control and conflict resolution can diffuse beyond criminal markets and emerge as a prevailing norm in the broader community. Indeed, some have found that areas characterized by high levels of crime, isolation, and disadvantage are likely to have high rates of violence and incidents of retaliatory homicide as residents increasingly rely on informal methods of control (Anderson 1999; Jacobs and Wright 2006; Kubrin and Weitzer 2003). In his ethnographic study of an inner-city Philadelphia ghetto, Anderson (1999) found that the approval of and willingness to engage in violence that dominated the street culture had become the predominant view even among “decent” families that otherwise subscribed to typical middle-class values and norms. In these contexts, violence, and even lethal violence, can be seen as an appropriate response to the personal affront of property crime victimization (Jacobs and Wright 2006). Taken together, these arguments and prior research lead to the expectation that areas characterized by high rates of property crime are likely to also have high rates of lethal violence.

The theoretical connection between anomie and property crime is well established (Merton 1938; Messner and Rosenfeld 2007) and empirical research has been supportive (Baumer and Gustafson 2007; Chamlin and Cochran 1995). The expectation is that areas where the population

is strongly committed to the pursuit of economic goals and weakly committed to using legitimate means will tend to have higher rates of economically motivated crime. If property crime is, in turn, related to levels of lethal violence as suggested above, then we would expect that the property crime rate will at least partially mediate the positive effect of unbalanced value commitments on homicide rates.

#### 1.4. Direct Effect of Unbalanced Pecuniary Values on Lethal Violence

So far we have outlined several ways in which anomie theory might explain variation in homicide rates. Social collectivities predominantly characterized by strong commitments to monetary goals but weak commitments to legitimate means are likely to have a greater prevalence of guns, active drug markets, and higher rates of property crime, all of which may be associated with increased levels of lethal violence. In addition to having these distal effects on homicide, as we illustrate in Figure 2 our review of the theoretical literature also suggests that anomic social conditions can have a more proximate effect. It is clear that both classic and contemporary anomie theories expect that an unbalanced pecuniary value system will lead directly to increased levels of instrumental crime. This suggests the possibility of a direct effect of anomic conditions on levels of lethal violence since some homicides are instrumental in nature, given that their primary purpose is “not to hurt the other person, but to gain something else from the violence, such as money or property” (Block, et al. 2000, 94). This type of homicide falls squarely within the scope conditions of anomie theories. From Merton’s perspective, this form of lethal violence represents the most perversely innovative response to pressures for economic success when legitimate means are not equally emphasized. From Messner and Rosenfeld’s perspective, lethal violence can be viewed as a powerful, expedient, and universally available means for monetary gain, which is culturally prescribed as the very definition of success and self-worth. Therefore, where value commitments are unbalanced, lethal violence is more likely to be used as a direct means for achieving material goals.

Estimates vary regarding the proportion of all homicides committed with the goal of material gain, largely due to the difficulties inherent in classification and measurement. Though not a direct measure of the instrumental nature of

homicide, Savolainen et al. (2000) find that about 22 percent of U.S. homicides occur during the commission of another crime, meaning more than three-fourths were committed with murder as the sole intent. Unfortunately, the largest category of homicides in this study consisted of those for which the circumstance was unknown, and of particular importance for the current study, there was no indication of whether or not the crime that led to homicide was, in fact, instrumental in nature. Using the same data source, but for different years and with the explicit purpose of identifying instrumental and expressive homicides, Meithe and Drass (1999) found similar numbers with only about 20 percent of homicides classified as instrumental. By comparison, Maume and Lee (2003) found in their sample of 454 counties that, on average, instrumental homicides constitute a little over one-third of all homicides. Using data from the St. Louis Police Department for the period 1985–89, Decker (1993) found that 47 percent of homicides were instrumental in nature. Thus, despite considerable variation across these studies, one consistent finding is that instrumental homicides, though not the modal type, represent a non-trivial proportion of all homicides. This leads us to the expectation that even after controlling for mediating factors, unbalanced pecuniary value commitments will have a direct positive effect on rates of lethal violence.

### 1.5. Social Structural Moderation of Unbalanced Pecuniary Values

Our discussion to this point about possible direct and indirect effects of an unbalanced pecuniary value system on homicide rates has purposely overlooked an important feature of the classic and contemporary anomie perspectives under review: the implied *conditional* effects on deviance of unbalanced pecuniary value commitments. Specifically, as we illustrate in Figure 2, Merton (1938) argued that the supply and distribution of legitimate opportunities and realization of economic achievement shapes the likely responses of a population when there is a high level of commitment to pursuing monetary success goals and a low level of commitment to legitimate means. According to Merton, when individuals confront obstacles to satisfying monetary success goals through legitimate means, or perceive that the supply of legitimate opportunities is inadequate or unevenly distributed, the likelihood of using illegitimate means will increase. Empirically, we interpret Merton's argument (1938,

1968) as implying that the tendency for unbalanced pecuniary values to translate into higher levels of property crime, illicit drug market activity, firearm prevalence, and homicide will be amplified under conditions of limited access to legitimate means for pursuing monetary success goals and low levels of economic attainment (see also Baumer and Gustafson 2007). This represents possible three-way interactions between commitment to monetary success goals, commitment to legitimate means, and indicators of access to legitimate opportunities and absolute and relative levels of economic achievement.

Using similar logic, but incorporating a broader view of the social structure, Messner and Rosenfeld (2007) highlight the potential importance of several key social institutions in regulating the criminogenic tendencies of an unbalanced pecuniary value system. They emphasize the relative strength of economic, political, educational, and familial institutions in the United States and suggest that a greater level of investment or participation in key non-economic social institutions will temper the ways in which people pursue monetary success goals in a context of weakened levels of commitment to legitimate means. More specifically, Messner and Rosenfeld argue that where non-economic social institutions are stronger there is likely to be greater exposure to external social controls and social supports, as well as a healthier dose of anti-deviant/pro-legitimate socialization with respect to proscriptions for pursuing monetary success goals. Empirically, this suggests that the tendency for unbalanced pecuniary values to translate into higher levels of property crime, illicit drug market activity, firearm prevalence, and homicide will be mitigated where there is greater participation and investment in non-economic social institutions that work to counter such an imbalance. These arguments imply three-way statistical interactions between commitment to monetary success goals, commitment to legitimate means, and indicators of non-economic social institutional strength.

### 1.6. Unbalanced Pecuniary Values and the Amplification of Lethal Violence

Although classic and contemporary anomie theories, at least as articulated by Merton and Messner and Rosenfeld, highlight the possibility that the effect of an unbalanced

pecuniary value system on crime might be conditioned by social structure, we think it is also plausible that the presence of such an imbalance itself might condition other causal factors, namely by amplifying the extent to which the prevalence of firearms, illicit drug market activity, and property crime yield high levels of lethal violence.

As noted above, available firearms serve as expedient and innovative, albeit illegal, aids in pursuing pecuniary goals. However, the wide availability of guns does not necessarily translate into higher levels of homicide; people must also be willing to use those guns for lethal violence. We contend that the elevated willingness to use any means necessary that is expected in a context characterized by unbalanced pecuniary value commitments would increase not only the prevalence of guns in that context as discussed above, but also the likelihood that the prevalence of guns will translate into higher levels of lethal violence. This suggests that, in addition to having an indirect effect on homicide rates, an unbalanced pecuniary value system may also condition the relationship between gun prevalence and rates of lethal violence. Empirically, we expect that the positive effect of gun prevalence on homicide rates will be larger in areas where the population has a strong commitment to pursuing monetary success goals and a weak commitment to legitimate means for doing so.

We also explained above how the unbalanced value system emphasized in anomie theory can increase homicide rates indirectly through its effect on illicit drug activity. But, in a similar way to our arguments concerning gun prevalence, it is possible that this value complex will also increase the likelihood that drug use and participation in the drug market will lead to lethal outcomes. The prevailing willingness to use any means necessary in the pursuit of monetary goals that emerges under anomie conditions is likely to increase the willingness to use lethal force in the pursuit of drugs, in drug transactions, and in the regular daily business surrounding the drug market. Cross-national comparisons are telling in this regard. Nearly all Western industrialized nations outlaw the same set of substances as the United States, and they have also experienced increases in rates of drug use and the emergence and proliferation of illicit drug markets (Ruggiero and South 1995; United Nations 2007).

Yet, there is little indication of a linkage between illicit drug markets and lethal violence in these countries (Zimring and Hawkins 1997). One explanation of the unusually lethal nature of the drug trade in the United States is the exaggerated anomic cultural orientation that is also unique to that country (Messner and Rosenfeld 2007). This suggests to us that across the counties and metropolitan areas in our sample, where the population has a strong commitment to monetary success goals and a weak commitment to legitimate means, the positive effect of drug use and drug market activity on lethal violence will be greater.

As with gun prevalence and drug markets, we also expect that the effect of property crime rates on homicide rates will be conditioned by the imbalance between commitments to economic goals and the legitimate means for pursuing those goals. Where there is greater willingness to use any means necessary to pursue goals, and a preference for the most expedient tools available, the response to property crime victimization is more likely to be violent and lethal in nature. Likewise, where such anomic conditions predominate, it is more likely that property crimes will end in violence when unanticipated circumstances arise such as a homeowner or third-party interrupting a burglary or other theft. This may not be common, but given the large number of property crimes relative to homicides, even a small number of property-crimes-turned-homicide could yield a sizable increase in the homicide rate (see Rosenfeld and Fornango 2007, 742, for a similar argument). Formally speaking, then, we expect that the positive effect of property crime rates on homicide rates will be stronger in areas characterized by unbalanced pecuniary value commitments.

In summary, classic and contemporary anomie theories make a compelling argument for how the combination of a high level of commitment to monetary success goals and a low level of commitment to legitimate means may translate into higher levels of instrumental property crime. Property crimes occasionally lead to lethal outcomes, so anomie theory also may be useful for explaining variation in instrumental homicides across social collectivities. However, the utility of the anomie perspective for explaining variation in overall homicide rates is questionable because existing explanations have not spelled out why the value orientations

central to the perspective would lead to lethal violence in more general ways. We suggest an elaborated anomie model above in which a strong level of commitment to monetary success goals and weak commitment to legitimate means of economic goal attainment translate into higher homicide rates by increasing levels of gun prevalence, illicit drug market activity, and instrumental property crime. Further, according to Merton (1938), the main effects of this unbalanced pecuniary value system on “innovative” responses, such as homicide, property crime, drug market activity, and gun prevalence, should be amplified in contexts of limited legitimate opportunities and low economic attainment, and as argued by Messner and Rosenfeld (2007) these effect should be dampened where there is a high level of commitment to or participation in non-economic social institutions. Finally, we suspect that the causal effects of firearms, drug markets, and property crime on lethal violence will be amplified where there is a relatively strong commitment to monetary success goals and a weak commitment to legitimate means.

## 2. Data and Methods

### 2.1. Data

We examine the relationships highlighted above with data from several sources that describe levels of lethal violence, instrumental property crime, illicit drug market participation, the availability of firearms, levels of commitment to pursuing monetary success goals, levels of commitment to using legitimate means to pursue monetary success goals, and several other aggregate-level characteristics across seventy-four geographic areas in the United States for the mid-to-late 1970s. Our sample is somewhat smaller than the one used by Baumer and Gustafson (2007) because we could not locate data for all cases on our proposed mediating variables, but the overall patterns revealed in our data (e.g., means, variances, correlations) are virtually identical to the patterns they report.

### 2.2. Units of Analysis and Sample

The units of analysis for our study represent seventy-four of the eighty-seven metropolitan areas and non-metropolitan counties that compose the sampling frame for the American General Social Survey (GSS).<sup>3</sup> We adopt these units of analysis because they permit us to construct measures of some of the key constructs emphasized in classic and contemporary anomie theories. Most notable in this regard are the indicators of levels of commitment to monetary success and to legitimate means, which cannot be derived from other sources and are only asked on a consistent basis in the GSS during the mid-to-late 1970s. The GSS sampling units are selected with the purpose of generating a nationally representative sample of households in the continental United States and, given this sampling scheme, the units chosen reflect a broad sample of geographic areas across the nation. Moreover, because samples drawn within these units are “self-representing,” aggregated responses from the sample units are designed to be representative of the population from which they are drawn (for a more detailed discussion of GSS sampling methods, see Davis and Smith 1998, Appendix A). Capitalizing on this feature of the data collection, a growing number of studies have aggregated individual responses from the GSS for purposes of constructing measures of key theoretical constructs that are not readily available from alternative sources (e.g., Baumer, Messner, and Rosenfeld 2003; Kleck 2004; Moody and Marvell 2005; Rosenfeld, Messner, and Baumer 2001). We follow the lead of the latter studies by using the GSS to aggregate responses within our sample units to construct aggregate-level measures of concepts that are central to evaluating the empirical validity of the mediating and moderating hypotheses derived above from the elaborated model of anomie theory.

### 2.3. Measures

To preserve the temporal order implied in the elaborated anomie model outlined above, we assess the effects of

<sup>3</sup> Past research on crime and social control has shown that the GSS sample of counties and metropolitan areas generates aggregate-level findings that are very similar to analyses based

on more conventional samples of cities, counties, and metropolitan areas (e.g., Rosenfeld, Messner, and Baumer 2001; Stults and Baumer 2007).

explanatory measures constructed from the GSS and other sources estimated approximately for 1975–76 on levels of instrumental property crime, illicit drug use and market activity, firearm prevalence, and homicide rates estimated for 1977. In doing so, we assume that the value discrepancy that is central to classic and contemporary anomie theories (i.e., a strong commitment to monetary success goals coupled with a weak commitment to legitimate means) exhibits a short lag in generating higher levels of property crime, drug use and drug market activity, and firearm prevalence, and that these phenomena have a contemporaneous effect on levels of lethal violence. As noted above, the general time frame for our research—the mid-to-late 1970s—was dictated by the unique opportunity this period offers to measure aggregate-level constructs relevant to anomie theory in the GSS, most notably the central construct based on our reading of Merton’s theory and IAT (i.e., the degree to which social collectivities exhibit an unbalanced pecuniary value complex).

### 2.3.1. Dependent Variable

*Homicide rate.* The dependent variable in our study is the overall rate of homicide, which we constructed using data on homicides and population counts from the National Center for Health Statistics (NCHS) compressed mortality file. Given that homicide is a relatively rare event, especially in some of the non-metropolitan areas in our sample, we followed conventional practice and constructed a three year average homicide rate centered around 1977. Specifically, we obtained the average annual number of deaths recorded between 1976 and 1978 which had homicide as an underlying cause and the annual estimated population for this period to compute the homicide rate for our sample units, defined as the number of homicides per 100,000 residents.

### 2.3.2. Hypothesized Mediating Variables

A large portion of our analysis is devoted to examining whether firearm prevalence, levels of illicit drug use and drug market activity, and property crime rates mediate any observed effect on homicide of levels of commitment to monetary success and levels of commitment to legitimate means. Thus, measures of these constructs serve as key explanatory variables in our analysis.

*Firearm prevalence.* We combine two indicators shown in prior research to be the best available means by which to capture spatial variation in levels of gun prevalence: a survey-based estimate of the percentage of households that contain at least one handgun, and public health data on the percentage of suicides committed with a firearm. The literature suggests that survey-derived measures are the “gold standard” for gauging levels of firearm prevalence across geographic areas, and several recent assessments have concluded that among the many other indicators used to measure gun prevalence, the fraction of suicides committed with a firearm is superior with respect to criterion validity (Azrael, Cook, and Miller 2004; Cook and Ludwig 2004; Kleck 2004; Rosenfeld, Baumer, and Messner 2007). Accordingly, we used the geocoded GSS described above to construct a measure of the percentage of households in our sample areas that contained one or more pistols, and we used data from the NCHS to estimate the percentage of suicides committed with a firearm. The GSS measure was created by aggregating within our sample units responses to an item asked between 1975 and 1977 that inquires about whether there is a pistol in the home (see also Kleck 2004; Rosenfeld, Fornango, and Rengifo 2007). The firearm suicide measure was created by obtaining estimates of total suicides and firearm suicides in our sample units for 1977 and using these two counts to compute the percentage of all suicides that involved a firearm. Prior research has documented that these two measures are highly correlated across geographic areas (e.g., Kleck 2004), so we standardized and summed the items to form a single index, which we label firearm prevalence ( $\alpha=88$ ).

*Illicit drug use and drug market activity.* Measuring illicit drug use and drug market activity for local areas within the United States has proven to be challenging (National Research Council 2001). Absent sufficient survey data on drug use patterns and routine or widespread data collection on drug market conditions for subnational geographic units, previous studies have relied mainly on police-based data sources and medical records from emergency rooms and coroner’s offices. The indicators most often used in aggregate-level crime studies in the United States have been arrest rates for drug sales and drug-induced death rates (e.g., Baumer et al. 1998; Blumstein 1995; Fryer et al. 2007; Messner et al. 2007; Ousey and Lee 2004; Rosenfeld,

Fornango, and Rengifo 2007; Warner and Coomer, 2003). Although other indicators (e.g., drug testing results from arrestees, drug pricing data) are available for specific periods and places, drug arrest rates and drug mortality rates have been shown in recent research to exhibit the greatest degree of shared variance among available measures (Fryer et al. 2007). Accordingly, we draw from UCR arrest data to construct a measure of the number of arrest for the sale or manufacture of illicit drugs per 100,000 and from NCHS data to construct a measure of the number of drug-induced deaths per 100,000 in our sample units for circa 1977. In both cases, the estimates are based on data pooled between 1976 and 1978 to increase the stability of the measures. Also, because the drug mortality rate was positively skewed, we applied a log transformation to the measure. The two drug activity indicators are only moderately correlated in our sample ( $r=.35$ ), so we analyzed them separately in the analysis presented below.<sup>4</sup>

*Property crime.* The indicator of property crime used in our analysis is a composite variable that captures differences across places in the relative frequency of crime geared primarily toward the acquisition of money or goods that could be converted to cash. We used county-level data from the Uniform Crime Reporting (UCR) program to construct this measure, which reflects the number of robberies, burglaries, larcenies, and auto thefts known to the police per 100,000 residents in our sample units for 1977.

### 2.3.3. Explanatory Variables

The key explanatory variables in our analysis are levels of commitment to monetary success and levels of commitment to legitimate means. We used the GSS to construct indicators of these concepts, which we view as the centerpiece of classic and contemporary anomie theories, at least as articulated by Merton (1938, 1968) and by Messner and Rosenfeld (1994, 2007). Specifically, we combined GSS data from 1973 to 1976 and aggregated survey responses within our sample units to construct estimates of the degree of

commitment among members of the population to pursuing monetary success and the degree of commitment to legitimate means of pursuing monetary success goals. The degree of commitment to monetary success goals is measured with an item from the GSS that taps whether residents of the sample communities agreed with the statement that “next to health, money is the most important thing.” The measure used in our study represents the percentage of community respondents who indicated that they agree with that statement. We interpret higher values on this variable to reflect a stronger commitment by community members to pursuing activities directed at maximizing monetary success. The degree of weak commitment to legitimate means for pursuing monetary success goals is measured by aggregating, within sample units, responses to a GSS item that assesses whether respondents agree with the statement that “there are no right or wrong ways to make money, only hard and easy ways.” The measure used in our analysis reflects the percentage of persons who agree with this statement, and we interpret higher scores on this measure as being reflective of a weaker commitment by community members to pursue monetary success through legitimate means. On the basis of the theoretical discussion outlined above, if anomie has a role in explaining variation in lethal violence, we would expect the greatest levels of homicide to be experienced in sample jurisdictions in which there is a relatively high level of commitment to monetary success goals and a relatively weak commitment to legitimate means, a situation we would label as an unbalanced pecuniary value complex.

We use the two measures just described to form a product term where higher values represent a more highly unbalanced pecuniary value system. As elaborated below, an important step in assessing our mediation hypotheses is to test for an effect of this product term on homicide and the proposed mediators—firearm prevalence, illicit drug activity, and property crime. In doing so, we test both for

<sup>4</sup> The strength of this relationship is weaker than the correlations presented by Fryer et al. (2006) for cocaine/heroin arrest rates and cocaine death rates across relatively large social aggregates

in America. This may be because our sample contains a more diverse mix of areas, including relatively small non-metropolitan counties.



a possible “main effect” of our indicator of an unbalanced pecuniary value system and for several interaction effects that evaluate the moderating role of the social structural elements emphasized in the anomie theories articulated by Merton (1938) and Messner and Rosenfeld (2007). To reiterate, Merton (1938) suggested that an insufficient stock of opportunities suitable for members of the population to pursue monetary success goals and the degree to which available opportunities fail to yield achievement of monetary success for all may amplify the criminogenic effects of an unbalanced pecuniary value system. Messner and Rosenfeld (2007) argued that stronger commitments to and investments in non-economic social institutions may mitigate the likelihood of illegitimate responses to an unbalanced pecuniary value system. Given these arguments, we incorporate measures aimed at capturing variation across social collectivities in the availability of legitimate opportunities for pursuing monetary goals, the degree of economic achievement, and the strength of educational, familial, political, religious, and community social institutions. The specific measures are summarized in Appendix A and described more fully by Baumer and Gustafson (2007).

#### 2.3.4. Control Variables

We also include in our analysis several measures directed at capturing key concepts emphasized in some of the most prominent alternative aggregate-level theoretical perspectives (e.g., routine activities theory, social disorganization theory) as well as other known correlates of crime (e.g., Kopsowa, Breault, and Harrison, 1995; Land, McCall, and Cohen, 1990). These control variables include time spent watching television, population structure, police officers per capita, age structure, structural disadvantage, and regional location. For a thorough discussion of the rationale for the inclusion of these variables and for further details about the

sources from which they were drawn and how they were constructed, see Baumer and Gustafson (2007). We briefly summarize the specific measures used in Appendix A, but to conserve space and maintain focus on key coefficients of interest, we omit the control variables from the other tables (results available upon request).

#### 2.4. Analytical Strategy

We use OLS regression to examine the effects of the explanatory and control variables on instrumental crime rates.<sup>5</sup> Our analysis proceeds in the following manner. We begin by briefly describing descriptive statistics and bivariate correlations for the sample and measures employed in the study. We then estimate a series of multivariate regression models that examine the empirical predictions outlined above. Our initial focus in the regression analysis is on examining whether homicide rates are significantly higher in areas with a high level of commitment to monetary goals and a low level of weak commitment to using legitimate means for pursuing monetary success, which we test by incorporating a two-way interaction term that reflects the product of these two indicators. The empirical expectation is for a statistically significant positive coefficient for the interaction term. The next stage of our analysis involves testing whether any observed effect of this two-way interaction term (i.e., our indicator of unbalanced pecuniary value commitments) on homicide is mediated by the indicators of firearm prevalence, illicit drug use and drug market activity, and property crime rates, as suggested earlier. Technically, our analysis represents an example of a complex form of mediation (mediated moderation), but standard procedures for assessing mediation remain appropriate (see MacKinnon, Fairchild, and Fritz 2007). Specifically, after establishing whether the interaction term representing unbalanced pecuniary value commitments is associated with homicide,

<sup>5</sup> We tested for normality and homoscedasticity of error variance in the homicide models using standard diagnostic tests. These tests revealed no major deviations from normality among the residuals. A plot of the residuals against the fitted values revealed no signs of significant heteroscedasticity, but the two formal tests we applied (White’s test and the

Breusch-Pagan test) yielded inconsistent evidence and suggested the possibility of mild heteroscedasticity in our data. We thus estimated models in OLS with and without a correction for heteroscedasticity (the HC3 estimator) and we estimated all the models of interest using negative binomial regression. In each case, the estimated parameters were very similar

and the substantive conclusions were identical. We therefore present the unadjusted OLS results below. We also assessed the potential ill effects of multicollinearity by inspecting closely standard errors across models as well as standard diagnostics. The VIFs and tolerance levels associated with the models displayed below were well within the acceptable range.

we examine whether this interaction term exerts significant effects on the hypothesized mediating variables and then we compare its estimated effects on homicide in models that include and exclude the mediators. An additional issue we examine in this process is whether the magnitude of the effects of our indicator of unbalanced pecuniary value commitments on homicide, property crime, illicit drug activity, and firearm prevalence is conditioned by social structural conditions such as the availability of legitimate opportunities, absolute and relative levels of economic and educational achievement, and the strength of non-economic social institutions. This analysis involves testing for three-way statistical interactions (e.g., commitment to monetary success X weak commitment to legitimate means X availability of legitimate opportunities). Finally, we also evaluate whether any observed tendency for the three potential mediating variables in our analysis—property crime, illicit drug activity, and firearm prevalence—to elevate homicide rates is amplified in the context of a high degree of commitment to monetary goals and a weak commitment to using legitimate means to do so. This analysis also involves testing for possible three-way interactions, in this case between the proposed mediators and our indicator of unbalanced pecuniary value commitments.<sup>6</sup>

### 3. Results

Before turning to the regression results, it is instructive to consider the descriptive statistics for the key variables represented in our hypotheses, presented here in Table 1. The average homicide rate for the seventy-four areas represented

in our sample is 8.20 per 100,000 residents, which is very similar to the national rate for this period. There is considerable geographic variation in homicide rates, however, with a few of the smaller non-metro areas experiencing no homicides and other areas experiencing more than 20 homicides per 100,000.

Many of the explanatory variables exhibit comparable variability across the geographic areas in our sample. For instance, on average, 21 percent of all households in the areas reported that there was a pistol in their residence, but this varied from 0 to 46 percent. Also, more than a quarter (29.6 percent) of persons across these areas agreed that “next to health, money is the most important thing,” which we use as an indicator of relative commitment to monetary success, but this sentiment varied across places from about 15 percent to 49 percent. Similarly, on average, nearly one-quarter (23.3 percent) of persons expressed a weak commitment to using legitimate means to pursue monetary success as indicated by their agreement that “there are no right or wrong ways to make money, only hard and easy ways,” but agreement with this statement ranged from under 5 percent to more than 41 percent across our sample areas. The indicators of the availability of employment opportunities, economic attainment and inequality, and commitment to and participation in non-economic institutions exhibit substantial variability across places as well. It remains to be seen, however, whether these factors affect instrumental crime in the manner posited by Merton and by Messner and Rosenfeld.

<sup>6</sup> To enhance the interpretability of the interactions estimated in our regression models, each of the predictor variables hypothesized to form multiplicative relationships was mean centered (Aiken and West 1991; Jaccard and Turrisi 2003).

**Table 1: Descriptive statistics for dependent variable and explanatory variables (N=74)**

Dependent variable	Mean	SD
Homicide rate (per 100,000)	8.20	5.69
Mediating variables		
Firearm prevalence <sup>a</sup>	0.00	1.87
% of suicides committed with firearm	58.37	17.83
% of households with pistol	21.56	10.37
Drug arrest rate (per 100,000)	227.72	148.12
Drug mortality rate (per 100,000)	-0.18	1.20
Property crime rate (per 100,000)	5,466.37	1,929.13
Explanatory variables		
Value commitments		
Commitment to monetary success	29.61	8.10
% agreeing that next to health, money is most important		
Weak commitment to legitimate means	23.29	7.73
% agreeing there are no right or wrong ways to make money		
Social structural position		
Limited job availability	0.97	0.09
Low educational and economic attainment <sup>a</sup>	0.00	4.23
Educational and income inequality <sup>a</sup>	0.00	1.78
Strength of non-economic social institutions		
Educational		
% government expenditures on education	50.46	7.66
Pupils per teacher	21.09	5.38
Familial		
Time spent with family <sup>a</sup>	0.00	2.49
Commitment to marriage <sup>a</sup>	0.00	1.70
Political		
Voter participation <sup>a</sup>	0.00	1.91
Welfare assistance <sup>a</sup>	0.00	1.71
Religious		
Civically engaged church adherence rate	19.41	9.19
Community		
Social capital <sup>a</sup>	0.00	3.26

<sup>a</sup>Multi-item standardized additive scale.

We display correlations between the key variables in Table 2. As noted by Baumer and Gustafson (2007), there is a significant positive, albeit relatively weak, linear relationship between levels of commitment to monetary success and weak commitment to legitimate means ( $r=.265, p < .05$ ). Neither of these variables exhibits a significant linear association with homicide rates. This is perhaps not surprising in light of the strong emphasis in classic and contemporary anomie theories on their presumed interactive effects, an issue that will be explored in the multivariate analysis. For the same reason, it is perhaps not surprising that neither of these commitment measures is independently related to the hypothesized mediating variables—firearm prevalence,

drug arrest rates and drug mortality rates, and property crime rates. However, it is notable that each hypothesized mediating variable exhibits a statistically significant moderate association with the homicide rate. This provides some initial favorable evidence that these indicators could serve as meaningful ways to link anomie theory, and in particular an unbalanced pecuniary value system, to lethal criminal violence. Finally, many of the other explanatory variables emphasized in prior research and theory, including indicators of non-economic institutional strength highlighted in IAT, yield significant negative relationships with homicide rates.

**Table 2: Bivariate correlations for dependent and explanatory variables (N=74)**

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
(1) Homicide rate	1.000																		
(2) Firearm prevalence	0.332*	1.000																	
(3) Drug arrest rate	0.496*	0.136	1.000																
(4) Drug mortality rate	0.290*	-0.121	0.346*	1.000															
(5) Property crime rate	0.495*	-0.003	0.526*	0.529*	1.000														
(6) Commitment to monetary success	0.127	-0.045	0.038	0.047	0.124*	1.000													
(7) Weak comm. to legitimate means	-0.086	-0.089	-0.098	-0.158	-0.080	0.265*	1.000												
(8) Limited job availability	0.024	-0.177	0.149	0.128	-0.051	0.200	0.231	1.000											
(9) Low educational and economic attainment	0.171	0.361*	-0.033	-0.080	-0.382*	0.055	-0.105	0.257*	1.000										
(10) Educational and income inequality	0.264*	0.273*	0.137	-0.031	-0.222	0.149	0.049	0.183	0.699*	1.000									
(11) % government expenditure on education	-0.135	0.180	-0.248*	-0.116*	-0.467*	-0.003	0.012	0.154	0.488*	0.373*	1.000								
(12) Pupils per teacher	0.031	0.306*	0.083	-0.131	0.003	0.013	-0.086	-0.019	0.011	-0.034	-0.236*	1.000							
(13) Time spent with family	0.106	0.219	-0.233*	-0.239*	-0.442*	0.013	-0.030	0.082	0.613*	0.447*	0.390*	0.083	1.000						
(14) Commitment to marriage	-0.267*	0.280*	-0.307*	-0.439*	-0.667*	-0.082	-0.024	0.022	0.485*	0.243*	0.387*	0.100	0.366*	1.000					
(15) Voter participation	-0.297*	-0.274*	-0.183	-0.081	-0.200	-0.146	0.023	-0.147	-0.076	-0.183	0.104	-0.097	-0.085	0.309*	1.000				
(16) Welfare assistance	-0.071	-0.146	0.013	0.045	-0.240*	0.048	-0.143	0.085	0.632*	0.444*	0.144	-0.067	0.413*	0.256*	0.112	1.000			
(17) Church adherence rate	-0.430*	0.034	-0.406*	-0.550*	-0.567*	-0.164	0.077	-0.312*	-0.024	-0.117	0.145	-0.077	0.138	0.497*	0.296*	-0.097	1.000		
(18) Social capital	-0.561*	-0.352*	-0.282*	-0.189*	-0.125	-0.164	-0.031	-0.286*	-0.350*	-0.407*	-0.045	-0.125	-0.257*	0.217	0.449*	-0.027	0.408*	1.000	

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

### 3.1. Direct Effects of Unbalanced Pecuniary Value Commitments

The first stage of our multivariate analysis involves evaluating the effect of unbalanced pecuniary value commitments on homicide rates while controlling for other relevant factors. This is substantively interesting itself, and it also allows

us to determine whether there is an effect of an unbalanced value complex on homicide that might be explained by variation in the hypothesized mediating variables. The first column of Table 3 provides unstandardized OLS coefficients and standard errors for such a model.

**Table 3: Regression of homicide rates, firearm prevalence, illicit drug activity, and property crime on unbalanced pecuniary value commitments and other factors.**

Independent variables	(1) Homicide rate	(2) Firearm prevalence	(3) Drug arrest rate	(4) Drug mortality	(5) Property crime rate
Commitment to monetary success X	0.018*	0.001	0.695*	0.002	11.106**
Weak commitment to legitimate means	(0.008)	(0.003)	(0.303)	(0.002)	(2.443)
Commitment to monetary success	-0.107	0.0002	-1.961	0.002	17.693
	(0.060)	(0.019)	(2.250)	(0.017)	(18.161)
Weak commitment to legitimate means	0.055	0.009	0.474	-0.014	40.270
	(0.070)	(0.023)	(2.615)	(0.020)	(21.104)
Limited job availability	-7.117	-5.004*	123.192	-0.507	-2275.441
	(6.049)	(1.953)	(225.592)	(1.705)	(1820.603)
Low educational and economic attainment	0.408	0.069	-10.259	0.072	37.182
	(0.248)	(0.080)	(9.247)	(0.070)	(74.624)
Educational and income inequality	-0.447	-0.260	-17.151	-0.057	-298.870*
	(0.463)	(0.150)	(17.266)	(0.130)	(139.345)
% Government expenditures on education	-0.186*	-0.004	-3.948	-0.004	-85.071**
	(0.072)	(0.023)	(2.667)	(0.020)	(21.523)
Pupils per teacher	-0.109	0.059*	1.948	-0.025	-15.974
	(0.084)	(0.027)	(3.127)	(0.024)	(25.238)
Time spent with family	-0.549*	-0.166*	-26.195**	-0.122	-220.613**
	(0.252)	(0.082)	(9.416)	(0.071)	(75.987)
Commitment to marriage	0.674	0.293*	3.090	-0.083	-250.109*
	(0.407)	(0.131)	(15.184)	(0.115)	(122.543)
Voter participation	0.142	-0.090	1.076	0.073	128.495
	(0.273)	(0.088)	(10.200)	(0.077)	(82.317)
Welfare assistance	-0.277	-0.258	32.616	0.134	97.068
	(0.447)	(0.144)	(16.679)	(0.126)	(134.603)
Civically engaged church adherence rate	-0.071	-0.011	-3.318	-0.033	-59.093**
	(0.070)	(0.023)	(2.607)	(0.020)	(21.042)
Social capital	-0.409*	-0.122	-6.817	-0.017	66.363
	(0.201)	(0.065)	(7.496)	(0.057)	(60.498)
R <sup>2</sup>	0.649	.661	.278	.370	.723

\*p < .05, two-tailed test. Note: Estimates shown are unstandardized regression coefficients with standard errors in parentheses.

The control variables also were included in the estimation of the models shown.

The results show that several of the explanatory variables exert significant effects on homicide rates. Net of other factors, homicide rates were lower in the late 1970s in U.S. geographic areas where education comprised a larger share of overall spending, families spent more time together, and levels of social capital were higher. Also, consistent with past research, one of the control variables (the indicator of resource deprivation, a scale that combines percent black and percentage of families headed by a female) exerts a strong positive effect on homicide rates (not shown). Most importantly given the focus of our research, after controlling for many other factors we observe in Model 1 a statistically significant interaction effect for the variable that represents the product of levels of commitment to monetary success goals and weak commitment to legitimate means for pursuing monetary goals ( $b=.018$ ,  $p < .05$ ). This interaction effect is in the theoretically expected direction; including it yields a significant improvement in model fit compared with a model that excludes it, and the magnitude of the interaction is non-trivial. For example, setting the other variables to their sample means, Model 1 yields a predicted homicide rate in areas with very high levels of commitment to monetary success and very low levels of commitment to legitimate means (i.e., 2 standard deviations above the mean on these variables) that is about 44 percent higher than the predicted rate in areas with low levels of commitment to monetary success and strong commitment to legitimate means (9.74 homicides per 100,000 compared to 6.77 per 100,000).

The remaining four models in Table 3 regress each of the hypothesized mediating variables on the explanatory and control variables used in the previous model. A significant effect of unbalanced pecuniary value commitments on these variables will suggest the potential for mediation in the relationship between anomie and homicide. Indeed, we find that two of the four mediating variables—drug arrest rate and property crime rate—are significantly influenced

by unbalanced value commitments. These effects are in the expected direction, such that areas with unbalanced value commitments tend to have higher rates of drug arrests and property crime. However, we find no evidence that unbalanced value commitments lead to higher rates of drug mortality or firearm prevalence. In fact, none of the explanatory variables listed in the table is significantly related to the drug mortality rate, though one of the control variables that we do not include in the table—police per capita—does exert a significant effect at conventional levels and several other variables considered (e.g., time with family, civically engaged church adherence, and population structure) yield theoretically expected effects that attain significance using a one-tailed test.

### 3.2. Indirect Effects of Unbalanced Pecuniary Values on Lethal Violence

The significant positive effect on homicide of our indicator of unbalanced pecuniary value commitments reported in Table 3 suggests that classic and contemporary anomie theories are relevant to explanations of lethal criminal violence, but as noted above, why would unbalanced monetary value commitments in an area translate into a higher rate of *homicide* given that only a modest proportion of crimes motivated by financial interests directly lead to murder? We explore three possible avenues in the regression models displayed in Table 4 where we regress homicide rates on the same set of variables as shown in the previous tables along with each of the potential mediating variables added one-by-one in subsequent models and then simultaneously in a final summary model. For ease of comparison, we display in Model 1 of Table 4 the results reported in Table 3 for the significant positive effect on homicide of our indicator of unbalanced pecuniary value commitments. The other four regression models reported in Table 4 are relevant to assessing whether this effect can be explained by firearm prevalence (Model 2), illicit drug use and drug market activity (Model 3), property crime (Model 4), or a combination of these factors (Model 5).

**Table 4: Regression of homicide rates on firearm prevalence, illicit drug activity, property crime, unbalanced pecuniary value commitments, and other factors (N=74)**

Independent variables	(1)	(2)	(3)	(4)	(5)
Commitment to monetary success X	0.018*	0.018*	0.011	0.005	0.002
Weak commitment to legitimate means	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)
Firearm prevalence	--	0.270	--	--	-0.015
	--	(0.428)	--	--	(0.392)
Drug arrest rate	--	--	0.012*	--	0.009
	--	--	(0.003)	--	(0.004)
Drug mortality rate	--	--	-0.287	--	-0.444
	--	--	(0.451)	--	(0.448)
Property crime	--	--	--	0.001*	0.001*
	--	--	--	(0.0004)	(0.0004)
Commitment to monetary success	-0.107	-0.107	-0.084	-0.128*	-0.104
	(0.060)	(0.061)	(0.056)	(0.057)	(0.055)
Weak commitment to legitimate means	0.055	0.053	0.046	0.007	0.007
	(0.070)	(0.071)	(0.065)	(0.068)	(0.066)
Limited job availability	-7.117	-5.767	-8.689	-4.375	-6.474
	(6.049)	(6.449)	(5.586)	(5.774)	(5.866)
Low educational and economic attainment	0.408	0.389	0.548*	0.363	0.503*
	(0.248)	(0.251)	(0.234)	(0.234)	(0.231)
Educational and income inequality	-0.447	-0.377	-0.265	-0.087	-0.039
	(0.463)	(0.479)	(0.430)	(0.454)	(0.441)
% Government expenditures on education	-0.186*	-0.185*	-0.142*	-0.084	-0.072
	(0.072)	(0.072)	(0.067)	(0.077)	(0.074)
Pupils per teacher	-0.109	-0.125	-0.139	-0.090	-0.123
	(0.084)	(0.088)	(0.078)	(0.079)	(0.081)
Time spent with family	-0.549*	-0.504	-0.280	-0.283	-0.155
	(0.252)	(0.264)	(0.253)	(0.256)	(0.257)
Commitment to marriage	0.674	0.595	0.614	0.976*	0.844*
	(0.407)	(0.428)	(0.377)	(0.398)	(0.405)
Voter participation	0.142	0.166	0.150	-0.013	0.044
	(0.273)	(0.278)	(0.254)	(0.263)	(0.257)
Welfare assistance	-0.277	-0.207	-0.616	-0.394	-0.618
	(0.447)	(0.463)	(0.429)	(0.423)	(0.436)
Civically engaged church adherence rate	-0.071	-0.068	-0.042	0.000	0.000
	(0.070)	(0.070)	(0.067)	(0.070)	(0.068)
Social capital	-0.409*	-0.376	-0.335	-0.489*	-0.416*
	(0.201)	(0.209)	(0.186)	(0.191)	(0.192)
R <sup>2</sup>	0.649	0.645	0.703	0.689	0.716

\*p < .05, two-tailed test. Note: Estimates shown are unstandardized regression coefficients with standard errors in parentheses. The control variables also were included in the estimation of the models shown.

We find no evidence that firearm prevalence is associated with elevated homicide rates or that it explains any of the observed effects of the variable designed to gauge unbalanced pecuniary value commitments (Model 2). This conclusion persists in supplementary analyses in which we substitute (one by one and simultaneously) the two individual measures of firearm prevalence for the composite index shown in the table. We also reach the same conclusion from two-stage least squares (2SLS) models in which, following past research, we use exclusionary restrictions (percentage of residents who are hunters, levels of conservatism, percentage of residents who have served in the military) as an instrument for firearm prevalence (Kleck 2008; Rosenfeld, Baumer, and Messner 2007).

In Model 3 we see that one of the indicators of illicit drug activity—the drug arrest rate—exerts a statistically significant effect on homicide rates ( $b=.012$ ,  $p < .05$ ), a finding that is consistent with other recent studies in the United States (Baumer et al. 1998; Baumer 2008; Ousey and Lee 2004). Also, after adding drug arrest rates to the model the coefficient for the product term representing differences in unbalanced pecuniary value commitments falls by more than one-third and drops below conventional levels of statistical significance. Unsettled questions about the validity of drug arrest rates as an indicator of illicit drug market activity and drug use vs. police activity, coupled with possible endogeneity concerns with the link between drug arrest rates and homicide, should serve as reminders to be cautious in drawing strong conclusions from these results. Nevertheless, the findings suggest that one reason a high level of commitment to monetary success goals and weak commitment to legitimate means may translate into higher homicide rates is that it stimulates participation in illicit drug markets.

We assess the mediational role of property crime rates in Model 4. As expected, the indicator of property crime exhibits a statistically significant positive effect on homicide rates ( $b=.001$ ,  $p < .05$ ). The unstandardized coefficient is relatively small because of scaling, but evaluating the standardized coefficients (not shown) reveals that property crime rates exert the second strongest effect on homicide among the variables considered (the resource deprivation control variable has the strongest effect). And, consistent

with expectations, property crime rates account for more than two-thirds of the observed main effect of the interaction term for commitment to monetary success and weak commitment to legitimate means, an interaction that is no longer statistically significant once property crime rates are incorporated. This is consistent with the idea that an unbalanced pecuniary value complex elevates lethal violence because it stimulates involvement in property crimes that can directly or indirectly lead to homicides.

We add all the hypothesized mediators in Model 5, and the conclusions mirror those drawn in the previous models. In this specification, we again see that of the proposed mediators, only drug arrest rates and property crime rates are significantly associated with homicide rates. These effects are in the expected direction and they result in a substantial attenuation (more than 80 percent) of the coefficient for the product term capturing the central tenet of classic and contemporary anomie theories as we have interpreted them: the interactive effect of a strong commitment to monetary success and a weak commitment to legitimate means. These findings contradict claims that “crime is not the problem” (Zimring and Hawkins 1997). Indeed, crime levels as measured by property crime rates and drug arrest rates emerge in our study as an important consideration in explaining cross-sectional variation in lethal violence and in helping to describe possible linkages between core anomie concepts and lethal violence.

### 3.3. Social Structural Moderation of Unbalanced Pecuniary Values

As described above, both Merton (1938) and Messner and Rosenfeld (2007) argue that certain social structural conditions may moderate the tendency for a higher degree of imbalance in pecuniary value commitments to translate into a higher prevalence of what these theorists refer to as “innovative” behaviors, which would include property crime, involvement in illegal drug markets, and under some conditions the acquisition of firearms. Evaluating these arguments is of considerable theoretical importance in its own right but, in addition, if significant moderation of this form is found it has potentially important implications for our assessment of the amount of mediation we attribute to the hypothesized mediators and it would alter estimates of the magnitude of both direct and indirect effects of



unbalanced pecuniary values on homicide.<sup>7</sup> To explore this possibility, we estimated several additional models with homicide and the hypothesized mediators treated as outcome variables. These models examined whether effects observed for the two-way interaction between commitment to monetary success and weak commitment to legitimate means are conditioned by the three indicators of relevance to Merton's theoretical arguments about how an insufficient and unequally distributed supply of legitimate opportunities may amplify the effects of unbalanced pecuniary values (i.e., limited job availability, low educational and economic attainment, and educational and income inequality) and the eight indicators geared toward capturing Messner and Rosenfeld's arguments about how a higher level of commitment to and investment in non-economic social institutions might dampen such effects (e.g., government spending on education, pupils per teacher, time with family, commitment to marriage, voter participation, welfare assistance, civically engaged church adherence, and social capital). We began this assessment by re-estimating the homicide equation displayed in Model 5 of Table 4 several times, adding to the model the implied two- and three-way interaction terms needed to evaluate whether the social structural indicators condition the effects of unbalanced pecuniary value commitments. We did this separately for each of the social structure variables, a process that yielded eleven additional homicide models. We then repeated this process for the other outcomes (firearm prevalence, illicit drug activity, and property crime).<sup>8</sup> Showing the results of these analyses (forty-four models overall) in tabular form would require a substantial amount of space, so we briefly summarize them and their implications in the text. In general, the dominant story that emerges from these analyses is that we found few instances of significant moderation of our indicator of unbalanced pecuniary value commitments. However, we highlight more specifically four noteworthy patterns that emerged from this portion of our analysis.

First, we found no evidence that the indicators of social structure considered in our study moderate the effects of unbalanced pecuniary value commitments on rates of *homicide*. These findings hold both with and without the proposed mediators in the model. This is an important finding with regard to our primary goal of evaluating the mediating role of gun prevalence, illicit drugs markets, and property crime, as it suggests that our assessment of the extent to which these factors mediate the effect on homicide of an unbalanced pecuniary value system is not influenced by the elements of social structure examined. These null results could be due to the difficulties associated with detecting higher-order interactions in non-experimental research (see McLelland and Judd 1993), but the evidence generated by the data at hand suggests that the social structural conditioning influences implied in classic and contemporary anomie theories do not operate for homicide, at least not directly. However, as we elaborate below, some of these factors have relevance for homicide indirectly.

Second, using a slightly smaller sample and more expansive empirical specification, we replicated the results for property crime reported in Baumer and Gustafson (2007). They showed that the positive effect of a high level of commitment to monetary goals paired with a weak commitment to legitimate means on property crime rates was not amplified under conditions of fewer available jobs, low levels of economic achievement, or high levels of inequality, but that this effect was significantly dampened by higher levels of welfare assistance and greater amounts of time spent with family members. Although the magnitude of the significant three-way interaction effects observed in our study was slightly smaller, we found the same pattern in our analysis, providing further support for Messner and Rosenfeld's institutional anomie theory.

<sup>7</sup> To elaborate: if the effect of our indicator of unbalanced pecuniary value commitments on homicide rates is moderated by the social structural factors emphasized in the classic and contemporary anomie theories under review, our estimate of the amount of mediation would be contingent on values of those

moderating variables. Also, if certain factors significantly moderate the effects of unbalanced pecuniary value commitments on the hypothesized mediating variables, estimates of indirect effects of such value commitments on homicide would be contingent on values of those factors (MacKinnon et al. 2007).

<sup>8</sup> To account for the multiple testing involved in these assessments, we adjusted the conventional alpha level of .05 using the procedures for multiple independent tests outlined by Benjamini and Hochberg (1995).

Third, in modeling the drug arrest rate we found a statistically significant effect for a three-way interaction term that combines our two indicator term for unbalanced pecuniary value commitments with the indicator of low levels of educational and economic achievement. Consistent with insights drawn from Merton, this suggests that the observed positive effect of unbalanced pecuniary value commitments on participation in illegal drug markets (measured with drug arrest rates) is significantly stronger when large segments of a population are not realizing legitimate monetary success.

Fourth, although we observed no significant main effect of unbalanced pecuniary value commitments on firearm prevalence (Table 3), we found that this effect was significantly moderated by the availability of jobs and time spent with family. Specifically, consistent with Merton (1938), the results revealed a statistically significant positive effect for a three-way interaction term that combines commitment to monetary success, weak commitment to legitimate means, and the indicator of limited job availability. The results imply that unbalanced pecuniary value commitments yield a higher prevalence of firearms primarily when the labor market is particularly tight. In line with Messner and Rosenfeld's institutional anomie theory (2007), we also find a significant negative three-way interaction involving the two indicators of value commitments and the indicator of time spent socializing with family. This finding parallels the patterns observed for property crime and suggests that the tendency for a high level of commitment to monetary success and a low level of commitment to legitimate means to translate into higher levels of firearm ownership is significantly dampened in areas where families spend more time together.

Overall, these results reveal patterns that are meaningful for general assessments of the relevance of classic and contemporary theoretical arguments about how features of the social structure may condition the likelihood of "innovative" behavioral responses to an unbalanced pecuniary value system. We found no evidence that the direct effect of unbalanced pecuniary value commitments on homicide was significantly moderated by elements of the social structure, which renders our assessment of mediation

unchanged. However, our results do suggest that the effects of this value complex on property crime and involvement in illegal drug markets—the two factors we find to be associated with homicide rates—are conditioned by some of the social structural conditions emphasized in classic and contemporary anomie theories (namely, the availability of jobs, time spent with family, and welfare assistance). This reveals one way in which these elements of the social structure are relevant for lethal violence, and from a practical standpoint it means that the overall magnitude of the indirect effect of the indicator of unbalanced pecuniary value commitments on homicide will vary depending on the prevalence of these factors.

### 3.4. Unbalanced Pecuniary Values and the Amplification of Lethal Violence

We now turn to a final issue that we feel is important to a full assessment of the relevance of anomie theory to lethal violence. Specifically, we examine whether an unbalanced pecuniary value complex amplifies the degree to which higher levels of firearm prevalence, illicit drug activity, and property crime translate into lethal violence. As noted earlier, in many ways the use of lethal violence is an extreme example of pursuing prescribed monetary goals "by any means necessary" and thus, we would expect the presence of firearms and involvement in property crime and illegal drug markets to more often yield lethal outcomes in contexts where there is a greater pecuniary value imbalance. This implies three-way statistical interaction effects on homicide involving each of the hypothesized moderating variables and our two indicators of value commitments. We tested for these effects by re-estimating Model 5 of Table 4 several times after adding the implied three-way interaction terms and corresponding lower-level interaction terms. The results of these models (not shown in tabular form) can be described succinctly: although the relevant coefficients are uniformly in the right direction, we find no evidence that the effects on homicide of firearm prevalence, illicit drug activity, and property crime rates are statistically contingent on the level of commitment to monetary success and legitimate means.

In supplementary analyses (not shown), we also considered a broader set of possible moderator variables of the gun,

drug, and property crime effects. We were motivated to do so because it appears that within the United States and cross-nationally there are contexts in which guns, drugs, and property crime are much more likely to translate into lethal violence than elsewhere (Zimring 2006). Thus, Europe has property crime rates that are similar to rates of property crime observed in the United States, yet much lower levels of lethal violence. Although less well documented, illicit drug markets in Europe also appear to generate much less violence than American drug markets. These interesting patterns stimulated us to evaluate in our data whether high levels of economic stress or firearm prevalence raise the proclivity of drug markets and widespread property crime to generate lethal violence. In only one instance did we detect a statistically significant interaction of this type: property crime exhibits a significantly stronger effect on homicide rates when achievement levels are depressed. Other dimensions of economic stress (e.g., inequality and poverty) or other factors (e.g., police numbers) do not play this type of moderating role in our data.

#### 4. Discussion and Conclusion

In recent years, efforts to explain variation in crime rates across social collectivities as a function of anomic social conditions have led to a growing number of empirical tests of classic and contemporary anomie theories. Despite a strong emphasis in the theoretical literature on explaining instrumental, money-generating crime, much of the empirical literature has examined variation in levels of *homicide*, with little justification for expanding the scope conditions to include lethal violence. Certainly some proportion of all homicides are economically motivated, and thus fall squarely within the stated scope of anomie theories, but these instrumental homicides comprise a small share of total homicides by most accounts. Yet, prior research does find a significant link between various indicators of anomie and homicide rates, which suggests that an expansion of the scope conditions of anomie theories to include homicide may be feasible.

The purpose of the current study was to identify and empirically test several potential ways in which an unbalanced pecuniary value system may influence spatial variation in levels of lethal violence. Our initial results indicated that

homicide rates tend to be higher in areas where a strong commitment to monetary success is paired with a weak commitment to legitimate means, even after controlling for a broad array of characteristics identified by various theoretical perspectives as predictive of homicide. However, after introducing several theoretically meaningful intervening mechanisms, we no longer found a direct effect of this unbalanced value system on rates of lethal violence. Specifically, we found that drug arrest and property crime rates reduced this effect by more than 80 percent and rendered it non-significant. We believe that although these indirect pathways are not explicitly identified in either classic or contemporary versions of anomie theory, they are nonetheless consistent with their core arguments, including the likelihood of criminal innovation in response to the pressures of achieving monetary success, and a willingness to use any means necessary to achieve material goals. These findings suggest an important elaboration of the anomie perspective by identifying the ways in which an unbalanced pecuniary value system can lead to increased homicide rates, thus providing an explicit justification for expanding the scope of anomie theory to include levels of *lethal* violence.

Our other expectations regarding the persistence of a direct effect of an unbalanced set of value commitments, the mediating influence of gun prevalence, and the moderating roles of drug markets, gun prevalence, and property crimes were not supported. Not only was there an absence of evidence that gun prevalence mediates the effect of unbalanced pecuniary value commitments on homicide rates, there was in fact no significant role of firearm prevalence anywhere in the causal chain. This is perhaps not surprising given the mixed results in extensive prior research examining the link between guns and homicide (Kleck 1991). Kates and Polsby (2000), for example, explain that during much of the period between 1973 and 1999, which includes the years of our study, the United States experienced a dramatic increase in firearm prevalence but a stable or decreasing homicide rate. Even when firearm availability and homicide rates do trend in the same direction, several explanations have been offered that contradict the claim of a recursive causal link from guns to lethal violence (Southwick 1997; Kleck, Kovandzic, and Schaffer 2005; Lott 2000).

In addition to the possibility that there is simply not a causal link between gun prevalence and homicide, and thus no potential for it to mediate the effect of unbalanced value commitments on homicide, we suggest an alternative explanation for the absence of a significant role of gun prevalence. Prior research has found that criminals typically acquire guns through transactions in the secondary market or by stealing them (Wright and Rossi 1986; Zawitz 1995; Sheley and Wright 1993). Thus, a substantial proportion of crime guns are initially purchased through legal primary markets, and then make their way through a series of transactions and events into the hands of criminals. This would seem to support the validity of a survey-based measure of household gun ownership as a proxy for measuring the extent to which guns are available for committing crime. However, this argument may only be applicable to the measurement of gun availability in periods with strict gun control laws, such as the 1994 enactment of the Federal Assault Weapons Ban and the Brady Act, both of which made it more difficult for criminals to acquire guns through legal channels. Since our measures of firearm prevalence are drawn from a period when there were fewer restrictions on the legal purchase of firearms, it is possible that our measure may not be strongly associated with the prevalence of guns “on the street” (Cohen, Engberg, and Singh 2002; Stolzenberg and D’Alessio 2000). Future research might examine alternative measures of gun prevalence, perhaps restricted to areas in and around illegal drug and property crime markets or restricted to younger persons, which may better reflect the supply of guns to would-be offenders. Likewise, analyses using more recent data may provide different results since measures of household gun ownership and gun-related suicide rates may be more valid proxy measures of the prevalence of crime guns in later time periods when there were more restrictions on the ability of criminals to purchase guns legally.

We also did not find support for our expectation that a direct effect of unbalanced pecuniary value commitments on homicide rates would persist, although greatly reduced, even after controlling for illicit drug market activity, property crime, and firearm prevalence. Since anomie theories explicitly purport to explain variation in money-generating crimes, we expected that including both instrumental and

expressive forms of homicide in our dependent variable would yield both direct and indirect effects of an unbalanced value system; any effect of anomic conditions on expressive homicide would operate indirectly, and any effect on instrumental homicide would be direct. The absence of a direct effect may provide support for the argument that instrumental and expressive forms of homicide are more similar to one another than they are unique (Felson 1993; Miethe and Drass 1999), but this requires further investigation. Conducting separate analyses for different types of homicide is beyond the scope of the current study and would present several complications because of the high prevalence of missing information in the data system in which homicide circumstances are recorded in the United States (i.e., the Supplementary Homicide Reports) and given that many of the smaller areas in our sample did not report such data for the period under review, but we see this is an important avenue for future research.

Both Merton’s anomie theory (1938) and Messner and Rosenfeld’s institutional anomie theory (2007) predict that features of the social structure may condition the effects on illegal activity of unbalanced pecuniary value commitments. We examined these predictions using available indicators of the availability of jobs, absolute and relative levels of economic achievement, and non-economic institutional strength. Our analyses suggest that the direct effect of an unbalanced pecuniary value complex on homicide is not conditioned by these factors. However, we found that this value complex is more apt to translate into high levels of illegal drug market activity when jobs are scarce and less likely to translate into high property crime rates when accompanied by more extensive socializing within families and greater levels of welfare support. This suggests that one heretofore unexamined way that the availability of jobs, time spent with family, and the degree of government welfare assistance influence homicide rates is by conditioning the extent to which unbalanced value commitments yield higher rates of instrumental crime (i.e., participation in property crime and illegal drug markets). These results may have relevance for patterns observed in cross-national research on homicide, which has shown that government policies that soften the negative consequences of free-market economies can mitigate the homicidal tendencies

of adverse economic conditions and associated pressures (Savolainen 2000; Pratt and Godsey 2003; Messner and Rosenfeld 1997). Although the extant research has assumed that these policies shape homicide in a relatively direct fashion by moderating presumed causes of *lethal violence* (e.g., inequality and other proxies for an unbalanced pecuniary value system), it could be instead that they condition the effects of unbalanced pecuniary value commitments on *property crime and illegal drug market activity*, which in turn influence homicide. Future research should explore this issue while also considering the importance of measuring not just the strength of noneconomic institutions and the extent to which residents are embedded within them, but also the variable effect that these institutions may have on serious crime depending on whether they have been penetrated by, and forced to accommodate, the dominance of the economy (Chamlin and Cochran 2007; Messner and Rosenfeld 2005). For example, strengthening education as an institution, or increasing political participation, may ameliorate the effect of unbalanced value commitments by strengthening commitments to legitimate means or by providing alternative definitions of success. However, if these institutions have been co-opted by the economy as Messner and Rosenfeld suggest, strengthening them could actually perpetuate or even exacerbate the effect of unbalanced pecuniary value commitments.

Another issue we wish to emphasize is that property crime, gun prevalence, and illegal drug markets are not inherently violent, as evidenced by their weak association with homicide in developed nations outside the United States. This suggests the need to explain the conditions under which they may translate into elevated levels of lethal violence. By evaluating a series of three-way statistical interactions, we explored the relevance of anomie theory in identifying these conditions. Our expectation that an unbalanced pecuniary value system would moderate the effects of illicit drug activity, gun prevalence, and property crime on homicide rates was not supported empirically. We suggest caution, however, in interpreting these results too strongly and perhaps prematurely rejecting the possibility of conditional effects of guns, drugs, and property crime on homicide. Our reluctance is partly due to the challenges inherent in detecting moderator effects in observational

data (McClelland and Judd 1993). Though we did find a significant two-way interaction in our initial model showing the effect of unbalanced value commitments on homicide rates, the difficulty in detecting moderation increases with higher-order interactions such as the three-way interactions required to estimate the moderating effects that we hypothesized, and this difficulty may be compounded by factors such as measurement error and our relatively small sample size (Aiken and West 1991).

A final issue that is important to consider in future scholarship on anomie theory concerns the relevance of the theoretical arguments and empirical relationships across different social and cultural contexts. With respect to theoretical relevance, in our view the classic and contemporary anomie perspectives considered above are general explanations for variation in crime and violence across social collectivities, and we see no *a priori* reason that the causal pathways implied in these perspectives would be more or less relevant across (i.e., moderated by) different social and cultural contexts. But some scholars have asserted otherwise, suggesting for example that anomie may be relevant only in highly developed Western societies (Chamlin and Cochran 2007), or in other words that levels of economic development might condition the effects of factors such as an unbalanced value commitment system. Further theoretical development of the underlying reasons for these types of conditioning effects and others that would predict variation across social and cultural contexts in the relevance of the causal processes implied in anomie theory would be a useful addition to the literature.

Even if we conclude that the theoretical relevance of anomie theory is not highly contingent on the social context in which it is applied, from an empirical standpoint there may be reason to believe that analyses that test the core ideas of anomie theory *vis a vis* homicide might yield different findings across different social contexts, including nation-states or territories within nations. Messner and Rosenfeld (2007) argue that the United States is “exceptional” in the sense that rates of serious crime in the United States are strikingly higher than in other developed nations, that American culture is uniquely characterized by an extreme imbalance between cultural pressures for monetary success and a weak cultural commitment to using legitimate means, and that

the economy dominates and subjugates other social institutions that might otherwise restrain these intense cultural pressures for monetary success. Though our empirical findings suggests heterogeneity across social collectivities within the United States with regard to these core elements of anomie theory, perhaps certain aspects of our empirical analysis would render different results when applied to the widely varying contexts across Europe. For example, one of the goals of our analysis was to identify the conditions under which high rates of property crime and illicit drug crime lead to elevated levels of lethal violence. Our failure to detect moderating effects of unbalanced pecuniary value commitments may be due to another aspect of “American exceptionalism”—a general desensitization to crime and an acceptance of violence in daily life (Messner and Rosenfeld 2007; Anderson 1999). Anderson (1999), in particular, believes that areas with high levels of crime, such as the illicit drug and property crimes that we identify as mediators, are characterized by a predominant belief that the use of violence, and even lethal violence, can be an acceptable response to personal affronts and an effective means of survival. If this is a commonly held belief surrounding property crime and illicit drug markets in our sample areas, we may not expect that unbalanced pecuniary value commitments would amplify the effect of property and drug crime levels on homicide rates. However, in nations other than the United States, criminal markets are not so uniformly violent and there may be more potential for unbalanced value commitments to condition the effects of property and drug crime rates on levels of homicide. Thus, we believe that applying this analytical model to social contexts outside of the United States would constitute an important advancement of the anomie perspective.

In conclusion, our primary goal in this study has been to question the relevance of classic and contemporary anomie theories for explaining variation in homicide rates, and hopefully to stimulate discussion of the ways in which anomie perspectives may be expanded to explicitly incorporate levels of lethal violence in their scope. While our findings do not invalidate prior research that assumes only a direct effect of anomic conditions on homicide rates, they do suggest that the processes through which an unbalanced pecuniary value system influences levels of lethal violence are complex and require additional attention. Though

further research is necessary to draw firm conclusions about these causal pathways both within and outside of the United States, we believe our findings present an important step in explicating the links between anomic social conditions and homicide.

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**Appendix: Description of selected variables included in the analysis of anomie and homicide**

Variable	Variable definition
<i>Social structural position</i>	
Limited job opportunities	Ratio of total persons aged 16 and older who are employed or seeking employment to number of jobs available.
Low educational and economic attainment	Six item standardized scale that combines the percentage aged 16-19 who are not high school graduates or currently in school, the percentage of persons aged 25 and older who did not finish high school, the percentage of persons in the civilian labor force who are unemployed, the percentage in the labor force employed in non-management and non-professional jobs, the percentage of families with incomes below the poverty line, and the mean self-reported social class standing of community residents (4=lower class . . . 1=upper class).
Educational and income inequality	Two item standardized scale that combines the Gini index of family income inequality and the Gini index of educational inequality.
<i>Strength of non-economic social institutions</i>	
Educational	
Pupils per teacher	Pupils per teacher for schools in sample areas.
% of government spending devoted to education	Percentage of government spending devoted to education.
Political	
Voter participation	Two item standardized scale combining the percentage aged 18 and older registered to vote and the percentage of registered voters who voted in the Presidential election.
Welfare Assistance	Two item standardized scale combining the percentage of poor families receiving welfare and the average monthly welfare payment per poor person, adjusted for local cost of living.
Familial	
Time with family	Three item standardized scale combining the percentage who socialized several times a month with siblings, parents, and other relatives.
Commitment to marriage	Two item standardized scale combining the percentage of respondents currently married and the percentage indicating support for laws making it more difficult to divorce.
Religious	
Civically engaged church adherence rate	The number of persons per 100,000 who adhere to civically engaged church denominations.
Community	
Social capital	Four item standardized scale combining the percentage who say that most people can be trusted, the percentage who say that most people try to be fair, the percentage who say that most people try to be helpful, and the per capita number of groups and associations to which respondents belong.
<i>Control variables</i>	
Daily television viewing	Mean number of hours residents spent watching television in a typical day.
Population structure	Two item standardized scale combining logged population size and logged population density.
Resource deprivation	Two item standardized scale combining the percentage of residents who are poor, the percentage of families with children headed by a female, the percentage of residents who are black, and median family income.
Age structure	Percentage age 16 to 34.
Police strength	Police officers per 100,000 residents.
Region	Dummy variable indicating community location in a Southern state (0=non-south; 1=south)