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# Disorganization Precursors, the Family and Crime: A Multi-Year Analysis of Canadian Municipalities

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**Abstract.** *Based on a macro-sociological adaptation of Shaw and McKay's (1942) social disorganization theory, this study examined the role of family disorganization as a mediator of the effects of poverty, mobility and ethnic heterogeneity on crime. Canadian municipal data in 1991, 1996 and 2001 were examined. The results revealed that poverty and mobility had negative effects on the family. Also, mobility and ethnicity had strong direct effects on crime, and poverty had a considerable indirect effect through family disorganization. These findings provided some support to Shaw and McKay's theory. The causal link between poverty, family disorganization and crime underscores the importance of providing community supports to the family, especially programs targeting families in poverty, and strong and cohesive family units, in turn, may help to buffer the negative impact of poverty on the community.*

**Keywords:** social disorganization theory; family disorganization; poverty; mobility

## Introduction

This study examines crime rates in Canadian municipalities using a macro-sociological adaptation of Shaw and McKay's (1942) social disorganization theory. Here, the theoretical model poses poverty, ethnic heterogeneity and mobility as the precursors of social disorganization whose effects on crime are partially mediated by family-related factors including the rates of married population, divorced population and single-parent families. The causal link through the family-related factors helps to establish social disorganization as an explanation of the effects of its precursors on crime. While this macro-sociological adaptation is a departure from Shaw and McKay's neighborhood-level ecological analysis, it captures the basic premise of social disorganization theory in terms of the relationship between structural factors of integration and the community's ability to control crime.

## Social Disorganization Theory

### *The Precursors of Social Disorganization*

Shaw and McKay's (1942) social disorganization theory proposes that poverty, ethnic minority population, and declining population are predictive of high rates of crime in urban areas. These three habitat factors contribute to a social and cultural environment that weakens the community's ability to control crime (Kornhauser, 1978; Smith and Jarjoura, 1988). Poverty depletes the community's resources and its ability to monitor and control criminal activities. Moreover, poverty, often as a result of unemployment or underemployment, causes difficulties for members in the community to meet their basic needs and thus increases the likelihood of some members using crime as a means to meet those needs.

With a high proportion of ethnic minority population, residents in the community are less likely to develop strong social networks due to the differences in their cultural backgrounds and language barriers (Osgood and Chambers, 2000). Without strong social networks, the community is less able to supervise its youths (Osgood and Chambers, 2000; Sampson, 1987b; Veysey and Messner, 1999) and effectively control crime and deviance (Smith and Jarjoura, 1988). It is also possible that there may be tension and conflict between the different groups (Flippen, 2001), thus leading to an increase in interpersonal violence (Green, Strolovitch, and Wong, 1998).

In depopulating city cores and communities, the young, skilled, productive, and middle-class members are leaving for jobs in more prosperous places or for better neighborhoods (Massey, 1996; Wilson, 1987). To that extent, the reduction in human and capital resources may cause disorganization which, in turn, reduces the ability of the community to control crime.

A few recent adaptations of social disorganization theory have modified two of the three predictors. Heterogeneity of ethnic or racial groups is often used in place of the proportion of ethnic minorities. Thus, it is the differences among the ethnic groups rather than the mere presence of ethnic minorities in the community *per*

*se* that explain the difficulty in forming social networks (Warner and Pierce, 1993).

Another modification of the theory uses the geographical mobility of the population as a substitute for population decline (Smith and Jarjoura, 1989; Warner and Pierce, 1993). The premise of using population mobility as an explanation of crime is that mobility causes instability in social relationships and the social structure which, in turn, weakens the community's ability to control crime. Presumably, the concept takes into consideration of three categories of migration, that is, moving from one address to another within the same community, moving into the community from another, and moving out of the community. However, due to limitations in data availability, most studies of social disorganization capture only the first two categories of migration and ignore the migration out of the community (Osgood and Chambers, 2000; Sampson, 1985; Smith and Jarjoura, 1988; Smith and Jarjoura, 1989; Warner and Pierce, 1993). Using this common yet peculiar measure of mobility, an expanding suburban community would be considered more mobile than a depopulating city core.

*Family Disorganization as a Measure of Social Organization*

Bursik (1988) remarked that Shaw and McKay (1942) did not separate the outcome of social disorganization from disorganization itself. That is, while crime, signs of incivility, and other social problems are the outcomes of social disorganization, they themselves could be used as indicators or measures of disorganization also. We may also add here that Shaw and McKay (1942) did not distinguish the measures of social disorganization from those of the precursors. At any rate, they did not provide concrete measures of social disorganization. Therefore, subsequent studies of social disorganization theory have to construct measures of the concept based on one's understanding and interpretation of the term "social disorganization" and the availability of data.

At the macro-sociological level, recent studies have used the divorce rate and percent single-parent families or percent female-headed households as measures of social disorganization (Bachman, 1991; Cubbin, Pickle, and Fingerhut, 2000; Figueira-McDonough, 1995; Gottfredson, McNeil, and Gottfredson, 1991; Hirschfield and Bowers, 1997; Osgood and Chambers, 2000; Sampson and Groves, 1989; Smith and Jarjoura, 1989; Veysey and Messner, 1999; Warner and Pierce, 1993). At the individual level, comparable measures include whether the parents are divorced and whether the child is living with both parents as opposed to other arrangements (Smith and Jarjoura, 1989; Yang and Hoffmann, 1998). Oftentimes the interpretation of the variables is based on the traditional point of view, with marriage and the two-parent family being the norm, and divorce and the single-parent family being the indicators of family disorganization.

In this study, we focus on family disorganization with the understanding that there are other indicators of social disorganization. Among these interrelated and sometimes overlapping indicators are two important categories developed by Sampson and his associates: collective efficacy in terms of informal control and social cohesion (Sampson, Raudenbush, and Earls, 1997; Browning, 2002; Browning, Feinberg, and Dietz, 2004), and community organization/disorganization in terms of local friendship networks, unsupervised peer groups and organizational participation (Sampson and Groves, 1989; Sun, Triplett, and Gainey, 2004; Veysey and Messner, 1999). Other organization/disorganization indicators include participation in employment and home ownership (Figueira-McDonough, 1995), political and organizational participation (Flippen, 2001), social capital (Saegert, Winkel, and Swartz, 2002) and organized social control (Hirschfield and Bowers, 1997).

*Family Disorganization as a Mediating Factor*

***Poverty and Family Disorganization.*** Sampson (1987b) notes that previous research often failed to find a direct relationship between structural economic factors on crime. However, he suggests that the relationship may be indirect through family disruption, especially in the case of African Americans. That is, unemployment and economic deprivation in the African-American communities increase the likelihood of female-headed households. Female-headed households, in turn, contribute to the increase in crime and delinquency due to lower levels of formal and informal social control. Although Sampson's (1987b) focus is on African-American communities, the explanation is applicable to other communities.

One of the reasons for the high number of female-headed households in African-American communities is the high number of men without employment (Sampson, 1987b; Wilson, 1987). Unemployed men are less able to support a family financially or engage in a marital or conjugal relationship. In other words, high male unemployment rates mean fewer marriageable males and more unwed mothers and female-headed families. In addition, unemployment and economic deprivation also contribute to divorce and separation. Other consequences of the

economic marginalization of African-American men may include out-of-wedlock childbearing, delay of marriage, and poor work and family roles (Massey and Sibuya, 1995; Shihadeh and Steffensmeier, 1994).

According to Sampson (1987b), female-headed households reduce the support for and participation in community organizations which, in turn, reduce the strength of the community's formal social control. In terms of informal social control, family disruption causes juvenile delinquency at both the family and neighborhood levels. At the family level, homes with only one parent are less able to effectively monitor, supervise and control the children, compared to homes with two parents. At the neighborhood level, compared to single-parent families, two-parent families provide more effective supervision and guardianship of the neighbors' children, especially the control of peer group activities that often lead to the involvements in gangs and delinquency. In addition, Shihadeh and Steffensmeier (1994) suggest that the weaker kinship ties and relative social isolation of single mothers also contribute to less effective informal control at both the family and neighborhood levels.

***Mobility and Family Disorganization.*** To some extent, family disorganization mediates the effect of mobility on crime. A high degree of population mobility may adversely affect the stability of friendship and kinship ties (Sampson, 1987c). A mobile population is less favorable for the formation and maintenance of relationships, including marital and conjugal relationships (see, for example, Glenn and Shelton, 1985; Myers, 2000; Shelton, 1987; South and Lloyd, 1995; Trovato, 1986). People who have to move for employment, education, and other reasons have a greater chance of separation from their spouse or family on a temporary or even long-term basis. The weak friendship and kinship ties in a mobile population also reduce the social and financial supports for families, leading to a higher probability of divorce or separation. Moving into a new and unfamiliar environment requires the family and its members to make adjustments and may cause them stress (e.g., the loss of income; see Jacobsen and Levin, 1997). Thus, it is reasonable to expect that mobility may increase the likelihood of family disorganization.

***Heterogeneity and Family Disorganization.*** Studies have found associations between racial or ethnic minority groups and female-headed households (Sampson, 1987b; Shihadeh and Steffensmeier, 1994; Stokes and Chevan, 1996), marriage (South and Crowder, 2000), divorce (Breault and Kposowa, 1987) and teenage pregnancy (Langille, Flowerdew, and Andreou, 2004; Seltzer, 2000; Singh, Darroch, and Frost, 2001). However, they tend to focus on the racial or ethnic status of the individual or the proportion of the minority population rather than heterogeneity. Few studies have offered the explanation of or research evidence on the relationship between racial heterogeneity and family disruption.

To be sure, racial heterogeneity increases the likelihood of interracial marriage, especially for the members of racial minority groups (Blau, Blum, and Schwartz, 1982). There is some research evidence that interracial marriages may be less satisfactory, especially for the wife (Fu, Tora, and Kendall, 2001) and more likely to result in divorce, possibly due to the status gap between the couple (Fu, 2006; Ho and Johnson, 1990). However, interracial marriages account for only about 5 percent of all married couples in the United States (Lee and Edmonston, 2005) and about 3 percent in Canada (Canada and the World Backgrounder, 2004), thus limiting the viability of interracial marriages as an explanation.

Perhaps a more viable explanation is organizational fragmentation. Heterogeneity, combined with a certain degree of segregation or fragmentation between the different groups, may deplete the social capital, reduce political participation, and weaken the ability of the community to organize itself (Costa and Kahn, 2003; Rotolo, 2000). As a result of weaker organization, the community is less able to provide supports and services to the family, causing it more difficult for its members to form or maintain the family.

While one may be inclined to extend the preceding argument and suggest that heterogeneity should reduce friendship ties, kinship ties, and interpersonal networking, just as it does community organization, it is not clear if that is actually the case. Gatherings of friends and relatives, frequent interactions and intimate communications do not require the mobilization of a large number of people or resources in the community. Also, even in a racially-homogeneous community, friendship choices and kinship ties are already segregated by education, occupation, income, religion, language, political preference, and other characteristics. Moreover, even if heterogeneity does reduce the number of interracial or inter-ethnic ties, those who are affected may turn to their own racial or ethnic group, relatives and family members for support, thus strengthening the intra-racial ties and the family (see McPherson, Smith-Lovin, and Brashears, 2006 for a discussion of heterogeneity and social ties).

Another viable explanation is cultural fragmentation. Different racial or ethnic groups may have different beliefs, values, ideals and practices regarding marriage and the family (McLoyd et al., 2000). Racial or ethnic heterogeneity, combined with cultural differences and

even conflicts, may weaken the community's consensus, especially regarding the traditional family. With the fragmentation of family norms and practices, the less traditional expressions or practices such as premarital sexual activity, teenage pregnancy, divorce and single-parenthood may be more tolerated or accepted, thus increasing the likelihood of family disruption.

In short, organizational and cultural fragmentations are proposed here as the explanations of the effects of racial or ethnic heterogeneity on family disruption.

## Research on Disorganization Precursors, the Family, and Crime

### *Disorganization Precursors and the Family*

***Poverty and the Family.*** Research studies have found considerable associations between family disruption and the direct and proxy measures of poverty. Figueira-McDonough (1995) studied census tract data in Phoenix, Arizona and observed that the percentage of female-headed families had a strong association with poverty. Using city-level data specifically for the black population, Shihadeh and Steffensmeier (1994) found that income inequality, the ratio of employed males per 100 females and welfare payment had significant effects on the percentage of female-headed households. Based on mixed-level data, Stokes and Chevan (1996) observed that low individual educational attainment and neighborhood unemployment increased the likelihood of female-headed families.

Studies have also found connections between poverty and teenage pregnancy (Berry et al., 2000; Khalili, 2005), socioeconomic status and teenage pregnancy (Corcoran, Franklin, and Bennett, 2000; Singh et al., 2001), poverty and marriage (Sullivan, 1993), neighborhood disadvantage and family formation and transitions (South and Crowder, 1999; South and Crowder, 2000; Crowder and Teachman, 2004), unemployment and divorce (Breault and Kposowa, 1987), and socioeconomic status and divorce (Hewitt, Baxter, and Western, 2005). These studies offered some support to the notion that poverty causes family disruption and, particularly, single-parenthood.

***Mobility and the Family.*** Shelton (1987) examined data from the General Social Survey and found that the city mobility rate increased the likelihood of divorce or legal separation (see also, Glenn and Shelton, 1985). Trovato (1986) analyzed Canadian provincial data between 1971 and 1979 and found a positive association between the divorce rate and the rate of inter-provincial migration. South and Lloyd (1995) used mixed-level analysis and reported a positive effect of county mobility rate on the individual's marital dissolution. In a study of marital stability in Finland, Finnäs (2001) reported that urban-to-rural migration increased the individual's likelihood of divorce.

Using data from the *Study of Marital Instability over the Life Course*, Myers (2000) examined the number of times a person moved between 1980 and 1992 and the person's marital outcomes in terms of staying single, cohabitation, and marriage. He found that frequent movers were more likely to cohabitate than to marry, perhaps due to lower levels of parental supervision, support, and related reasons. Data from the *Panel Study of Income Dynamics* showed that the number of times a woman moved during her adolescent years contributed to teen pregnancy (Crowder and Teachman, 2004) and premarital first births (Sucoff and Upchurch, 1998). To that extent, these studies supported the notion that mobility increases instability and uncertainty, reduces a person's social ties and support, and has adverse effects on marriage and the family.

Migrants who moved from a region with a low level of family disruption to a high-disruption region may also suffer from an increased likelihood of family disruption due to assimilation. For example, Tolnay and Crowder (1999) studied black children aged 0-14 who moved to northern cities from the south. They found that the longer these young migrants lived in the north, the more their families resembled their northern-born counterparts in terms of not having a father in the same home. To that extent, these south-to-north migrant families suffered from the "negative assimilation" of the northern pattern of family disruption.

***Heterogeneity and the Family.*** Using a number of survey data sets in the United States spanning from the 1950s to the 1990s, Costa and Kahn (2003) found that birthplace fragmentation and to a lesser extent racial fragmentation reduced the level of volunteering in the population. Birthplace fragmentation also reduced organization membership. However, both racial and birthplace fragmentations did not have any significant effect on the amount of time visiting friends or at parties. Comparing results from the General Social Survey in the United States between 1985 and 2004, McPherson et al. (2005) noted that racial heterogeneity had increased over the years. During the same period, while non-kin ties through voluntary associations and neighborhoods had decreased over the years, the connections to spouses and parents had increased over the years. Results from these studies supported the contention that heterogeneity affects community organizational involvement but not

necessarily interpersonal ties.

Phillips and Sweeney (2005) analyzed data from the 1995 National Survey of Family Growth and found that the rate of marital disruption was lowest for foreign-born Mexican Americans and highest for non-Hispanic Blacks and native-born Mexican Americans. In a survey of over 1,200 women in the Netherlands, Kalmijn, De Graaf, and Poortman (2004) showed that the belief in traditional versus emancipation values had a rather strong effect on the woman's risk of divorce and separation. While these two studies did not examine the link between heterogeneity, family norms and practices and family disruption, they offered some support to the possibility of such a connection.

*Poverty and Crime*

Massey (1996) noted that recent changes in technology and the economy in many countries had increased the concentration of poverty in urban areas and among racial minority groups. The concentration of poverty led to the increase in crime and violence. Based on data from U.S. and Ohio cities, Ackerman (1998) found that economic marginalization contributed to high rates of violence and property offenses. Comparing the U.S. and Canada, Ouimet (1999) noted that most of the serious offenses in the U.S. were found in large cities, perhaps due to the concentration of poverty in the population or ghettos. In contrast, the absence of clear-cut ghettos in Canadian cities contributed to a safer environment there.

Several studies reported a positive relationship between poverty and homicide. An analysis of Native American homicide by Bachman (1991) revealed that at the county level, economic deprivation had a positive effect on the homicide rate. Kposowa, Breault, and Harrison (1995) reported a positive effect of poverty on the homicide rate, based on U.S. county-level. Similarly, Lee, Maume, and Ousey's (2003) analysis of county-level data revealed that both socioeconomic disadvantage and concentration of poverty caused higher levels of homicide in metropolitan areas. In nonmetropolitan or rural areas, while the problem of poverty concentration may be less serious, socioeconomic disadvantage was still an important criminogenic factor, especially where there were significant losses of population (Barnett and Mencken, 2002). In their examination of city homicide rates, Haynie and Armstrong (2006) found that a composite measure of socioeconomic disadvantage predicted race-, gender- and relation-specific rates of homicide.

A number of studies found a positive relationship between poverty and other crimes. Smith and Jarjoura (1988) reported that the effect of poverty on violent crime was significant in neighborhoods with high levels of mobility, and its effect on burglary was mediated by the percentage of single-parent households. In a study of British communities, Sampson and Groves (1989) demonstrated that a higher percentage of the population with low socioeconomic status contributed to an increase in vandalism. Warner and Pierce (1993) examined calls to the police in sixty Boston neighborhoods and found that poverty had positive effects on assault, robbery and burglary. After examining crime rates in U.S. central cities, Oh (2005) found that the increase in the poverty rate between 1980 and 1990 had a positive effect on rape and larceny.

On the other hand, a few studies showed that poverty did not have a significant direct effect on crime or certain offenses, especially when some mediating or moderating variables were included in the analysis. Using city drug arrest rates, Mosher (2001) reported that race-specific measures of economic deprivation failed to predict the trafficking arrest rate. Oh (2005) reported that the increase in the poverty rate did not affect the rates of homicide, aggravated assault, robbery, burglary, and auto theft. Using county-level data, Lanier and Huff-Corzine (2006) found that poverty did not have any significant effect on the American Indian homicide rate.

Moreover, contrary to social disorganization theory, other studies reported a connection between crime and high socioeconomic status. Smith and Jarjoura (1989), for example, found that higher income households were more likely to be burglarized. Sampson and Groves (1989) reported that communities with a higher percentage of high SES population tended to have higher rates of burglary. Based on neighborhood data from seven U.S. cities, Sun et al. (2004) reported positive effects of SES on robbery and assault victimization. Osgood and Chambers (2000) reported that rural areas with higher rates of poverty population had lower rates of sexual assault and physical assault, perhaps due to the outward migration of men from relatively poor rural communities to other communities and metropolitan areas. Dobrin, Lee, and Price (2005) examined a sample of homicide victims and non-victims from Prince George's County, Maryland and found that the census-block poverty rate reduced the individual's homicide victimization.

In short, findings from research studies suggested that there was some relationship between poverty and crime. However, the direction of the relationship depended on the type of offense and other factors, thus suggesting that poverty alone was not a sufficient explanatory factor.

*Mobility and Crime*

Research studies found that the relationship between mobility and crime varied from community-to-community and from study-to-study. Some studies found that mobility increased crime. Using data on inter-provincial mobility, Hartnagel (1997) identified a strong and positive correlation between mobility and violent and property crime rates. Perhaps mobility was a destabilizing factor leading to a weaker structure of social control. Similarly, Osgood and Chamber (2000) observed that residential mobility in rural areas increased assaults. Sun et al. (2004) found that mobility had direct positive effects on robbery and assault.

Other studies revealed that the relationship between mobility and crime depended on other factors. Smith and Jarjoura (1989) found that mobility in the neighborhood at the aggregate level increased household burglary victimization whereas the relationship at the individual household level was not significant. In a similar study (Smith and Jarjoura, 1988), they reported that mobility increased violent crime rates in poorer neighborhoods but not in more affluent ones. Haynie and Armstrong (2006) reported that city residential mobility rate predicted African-American women's rates of intimate and family homicide but not the men's rates, thus demonstrating that the effect depended on gender, race and the victim-offender relationship.

Still a number of studies revealed that mobility did not increase crime. Sampson and Groves' (1989) study showed that residential stability did not affect violence and property victimization. Buckner, Bassuk, and Weinreb (1999) studied the effect of homelessness on children's behavior. They reported that the number of times children had moved did not predict behavior problems, suggesting that mobility *per se* was not an important factor. Browning (2002) observed that residential stability in the neighborhood did not have any significant effect on female victimization of intimate partner homicide (see also, Browning et al. 2004). Lanier and Huff-Corzine (2006) reported that the county-level mobility rate did not have any significant effect on the American Indian homicide rate.

Contradicting social disorganization theory in their findings, a few studies showed that mobility reduced crime. Warner and Pierce (1993) found that residential mobility reduced robbery and assault. Similarly, a negative correlation between residential mobility and homicide was reported by Sampson et al. (1997). Sun et al. (2004) reported the finding of negative effects of residential mobility on robbery and assault victimization through local friendship networks.

Given the above, one may conclude that mobility alone may not be a consistent predictor of crime. Perhaps the effect of mobility on crime has to be examined along with the other precursors of social disorganization.

*Heterogeneity and Crime*

The observed relationship between heterogeneity and crime varied from study to study. Sampson and Groves (1989) found that ethnic heterogeneity had considerable effects on robbery and burglary victimizations. Smith and Jarjoura (1989) reported a positive relationship between burglary victimization and racial heterogeneity. Green et al. (1998) revealed that racially motivated crimes against minorities were most frequent in the predominantly white areas where there had been an in-migration of minorities. Osgood and Chambers (2000) observed that ethnic heterogeneity (i.e., whites and nonwhites) in rural communities increased youth violence, including robbery, weapons offenses and simple assault. Lanier and Huff-Corzine (2006) observed a positive effect of ethnic heterogeneity on the American Indian homicide rate. A number of other studies also reported a positive effect of ethnic heterogeneity on crime (see, for example, Hirschfield and Bowers, 1997; Sampson et al., 1997; Sun et al., 2004).

However, a few studies found that the causal link between heterogeneity and crime was weak or dependent on other factors. Sampson and Groves (1989) reported that the effects of ethnic heterogeneity on personal violence, theft and vandalism were weak. Smith and Jarjoura (1989) found that racial heterogeneity was not a significant predictor of violent crime rates. Browning (2002) observed that immigrant concentration in the neighborhood did not have any significant effect on female victimization of intimate partner homicide. In addition, there was also the possibility that the effect of heterogeneity may depend on the level of poverty (Warner and Pierce, 1993).

In short, research studies have revealed that the effects of poverty, mobility and heterogeneity on crime varied in different studies. Perhaps individually, each of these social habitat factors is not necessarily a sufficient explanation of crime. This supports the use of them together as explanatory factors.

*Single-Parenthood*

Studies have shown a positive relationship between single-parenthood and criminal victimization. Based on the British Crime Survey, Sampson (1987a) found that single-adult households had more burglary victimization,

compared to households with two adults. Moreover, households located in neighborhoods with a concentration of single-adult households also experienced more burglary victimization. Smith and Jarjoura (1989) reported a causal link between burglary victimization and single-parent households in both individual-level and neighborhood-level analyses. In another analysis, they remarked that single-parenthood explained the effects of poverty and racial heterogeneity on crime (Smith and Jarjoura, 1988). Sampson and Groves (1989) reported that at the neighborhood level, the proportion of divorced and separated adults and the percentage of single-parent households predicted violent and property crime victimizations. Focusing on uxoricide in Canada, Wilson, Daly, and Wright (1993) observed that the rate of victimization was significantly higher for female-headed families.

Similarly, a few studies found a positive relationship between single-parenthood and criminal offending. Based on a sample of 156 U.S. cities, Sampson (1987b) found that the percentage of female-headed black households had a significant effect on the black robbery rate. Messner and Sampson (1991) examined race-specific offending rates for robbery and homicide in U.S. cities and observed a positive relationship between the percentage of female-headed households and crime for both black and white offending rates. Warner and Pierce (1993) observed that the neighborhood percentage of female-headed households was positively related to calls to the police for robbery and burglary. Shihadeh and Steffensmeier (1994) reported a positive effect of female-headed households on adult homicide rate in the black population. Ackerman (1998) found a strong, positive correlation between female-headed households and crime. Almgren et al. (1998) analyzed homicide rates in 75 communities in Chicago and found that communities with higher percentages of female-headed households also had higher homicide rates. A study by Cubbin et al. (2000), based on an examination of county-level data, demonstrated that homicide rates were predicted by the percentage of female-headed households. Similarly, Lanier and Huff-Corzine (2006) observed a positive effect of female-headed households on the American Indian homicide rate.

There are also reports of a positive correlation between single-parenthood and youth crime and other deviances. Shihadeh and Steffensmeier (1994) observed that cities with higher rates of female-headed black families also had higher levels of black juvenile homicide and robbery. Osgood and Chambers (2000) found that female-headed households caused youth violence, perhaps due to weaker parental control and adult control of children in communities where there were fewer male parents. Kierkus and Baer (2002) reported a connection between family disruption and delinquency, causally linked by parental attachment. Indeed, the link between family disruption and the diminished capacity of the community in supervising its youths had been reported in a number of studies (Sampson and Groves, 1989; Veysey and Messner, 1999). Also, children from single-parent households tended to have lower academic achievement (Bankston and Caldas, 1998), perhaps due to disadvantages in resources (Jang, 1997).

**Theoretical Model**

The theoretical model here poses the precursors of social disorganization, namely poverty, mobility and heterogeneity as antecedent variables, and family disorganization as an intermediate variable. Based on Shaw and McKay's (1942) social disorganization theory, it is hypothesized that the precursors have both direct and indirect effects on crime. Regarding the indirect effects, the precursors have adverse effects on the family, and family disorganization, in turn, increases the level of crime in the community. The causal link is based on the notion that the precursors constitute an environment or habitat that is unfavorable to the formation and maintenance of the family. As a social institution and a social group, the family serves to regulate and control the behavior of its members. When the family experiences difficulties or is in transition, such as in the case of single-parent families or divorce, it becomes less effective in its social control function. As a result, the level of crime increases in a community where there is a substantial proportion of families experiencing difficulties or in transition.

Three family-related variables will be considered in this study, including the percentage of population married, percent population divorced, and percent single-parent families. While research has shown that there is a strong connection between percent single-parent families and the crime rate, the strong correlation between single-parenthood and poverty makes it difficult to differentiate the effects of these two variables on crime. Therefore, incorporating the other two indicators of family structure may help to differentiate the effects in question.

**Methodology**

*The Data*

Each year, the Canadian Center for Justice Statistics (CCJS) conducts a Uniform Crime Report (UCR) Survey and publishes municipal-level data on crime rates and

police resources. The UCR data file was merged with selected municipal-level census data from the 1991 and 2001 Census and the 1996 bi-Census. Data for 540 Canadian municipalities in 1991, 526 in 1996, and 520 in 2001 were available for analysis. The number of municipalities varied over the years due to the amalgamation of municipalities, especially in Ontario and Quebec, missing census information (e.g., mismatches between the data files due to the use of different municipality names or different definitions of municipal boundaries), missing data from police services that did not participate in the UCR survey, the merging of police services, and new police services (e.g., aboriginal tribal police services) in recent years.

Based on the UCR, in 1991 there were approximately 2.85 million reported Criminal Code Offenses (excluding traffic offenses); the corresponding numbers for 1996 and 2001 were approximately 2.64 million and 2.41 million (Canadian Center for Justice Statistics, 2002). From the 540 municipalities in the 1991 sample, there were a total of 2.37 million reported offenses, or about 83 percent of the total of 2.85 million offenses reported nationally. The corresponding percentages for 1996 and 2001 were 77 percent and 85 percent. Therefore, the samples were reasonably representative of the actual numbers of reported incidents in the respective years.

*The Variables*

Information on the crime rates was compiled from Statistics Canada's electronic data files on criminal offenses (2004b) and an annual publication, entitled *Crime and Police Resources in Canadian Municipalities*, based on data collected from the Police Administration Annual Survey and the UCR Survey conducted by the CCJS (see, for example, Canadian Center for Justice Statistics, 2002). The reported rates were based on the number of incidents reported to the police per 100,000 population. Three aggregated rates – violent crime rate, property crime rate, and total crime rate – were used in this study. The total crime rate was measured as the number of Criminal Code offenses, excluding traffic offenses, per every 100,000 population. Based on municipal-level data, the total crime rate showed a declining trend from an average of 11,399.4 offenses per 100,000 population in 1991 to 9,118.5 in 2001 (see Table 1).

About one of every ten Criminal Code offenses was a violent offense (see Table 1). In Canada, the major offense categories of violent crime were homicide, robbery, abduction, assault, and sexual assault. Each major category of violent offenses was subdivided into code-specific categories. For example, assault was subdivided into three levels: assault (level one), assault with weapon causing bodily harm (level two), and aggravated assault (level three). A similar classification applied to sexual assault. Level one assault accounted for over half of the violent offenses (62% in 2001; results not shown in tables). The next three most common categories were assault with a weapon (14%), robbery (9%), and level-one sexual assault (8%). Aggravated assault (1%), homicide (0.2%), abduction (0.2%), sexual assault with weapon (0.1%), and aggravated sexual assault (0.05%) made up only a fraction of all violent offenses (all the percentages were based on 2001 data; results not shown in tables).

Property offenses accounted for about half of the total crime rate (see Table 1). In Canada, the major categories of property crime included theft under $5,000 (39% in 2001; results not shown in tables), breaking and entering

**Table 1. Mean Values of the Selected Variables**

| | 1991 | 1996 | 2001 |
|---|---|---|---|
| Population size | 38,533.7 | 38,628.9 | 43,225.8 |
| Log. of population size (LNPOP) | 9.2 | 9.2 | 9.3 |
| Population density | 664.4 | 652.9 | 511.3 |
| Log. of population density (LNPDN) | 6.0 | 6.0 | 5.5 |
| Percent Native population (NATIVE) | 1.3 % | 2.5 % | 3.8 % |
| Percent low income families (LOWINC) | 12.0 % | 14.0 % | 10.7 % |
| Moved in the last year (MOBIL) | 15.5 % | 16.0 % | 14.7 % |
| Ethnic heterogeneity (ETHHTG) | 0.60 | 0.69 | 0.67 |
| Percent population married (MARRD) | 55.1 % | 51.4 % | 50.4 % |
| Percent population divorced (DIVRC) | 5.8 % | 7.3 % | 7.9 % |
| Percent single-parent families (SGLPA) | 12.9 % | 14.2 % | 14.8 % |
| Total crime rate (CRIME) | 11,399.4 | 9,599.8 | 9,118.5 |
| Violent crime rate (VIOLN) | 1,206.8 | 1,030.4 | 1,114.7 |
| Property crime rate (PRPTY) | 8,195.3 | 5,107.3 | 4,061.1 |
| Number of cases | 540 | 526 | 520 |

(17%), motor-vehicle theft (10%), frauds (7%), theft over $5,000 (1%), and possession of stolen goods (2%).[1]

Population size was based on the census enumeration of the number of persons in the municipality. The average population size of the municipalities for the various years was approximately 40,000 (see Table 1). Population density was measured as the number of persons per square-kilometer. Both population size and population density were transformed by a logarithmic function to avoid outlier problems. Percent Native population was measured as the percentage of persons identified as having aboriginal origins. The proportion in 1991 was 1.3 percent, compared to 2.5 percent and 3.8 percent in the subsequent bi-census and census (see Table 1). The unusual extent of increase in the Native population was partly due to a higher birth rate, the natural increase over the years, and a number of other factors.[2]

Poverty was measured as the percentage of low-income families in the municipality (Warner and Pierce, 1993; Osgood and Chambers, 2000). The definition of low income was based on Statistics Canada's low-income cut-offs.[3] The average percentage of low-income families for the municipalities decreased between 1991 and 2001, from 12.0 to 10.7 percent (see Table 1). The reduction in low-income families reflected the improved Canadian economy since the mid-1990s (Statistics Canada, 2006).

Mobility was measured as the percentage of "movers" or persons one year of age or older in the municipality who had lived at a different address one year earlier. The definition included people who had moved within the municipality or from outside the municipality. The average percentage of movers in the municipalities in 1991 was 15.5 percent, compared to 16.0 percent in 1996, and 14.7 percent in 2001.

**Table 2. Correlations of the Precursors and Family and Control Variables**

| **Year -1991** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** | **(8)** | **(9)** |
|---|---|---|---|---|---|---|---|---|
| 1. LNPOP | .30 | -.07 | .19 | .27 | .00 | -.27 | .42 | .23 |
| 2. LNPDEN | | -.07 | .17 | .24 | .12 | -.26 | .26 | .30 |
| 3. NATIVE | | | .21 | .33 | .18 | -.13 | -.01 | .20 |
| 4. LOWINC | | | | .13 | -.14 | -.58 | .30 | .61 |
| 5. MOBIL | | | | | .32 | -.17 | .34 | .20 |
| 6. ETHHTG | | | | | | .39 | -.32 | -.14 |
| 7. MARRD | | | | | | | -.63 | -.79 |
| 8. DIVRC | | | | | | | | .47 |
| 9. SGLPA | | | | | | | | |
| **Year - 1996** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** | **(8)** | **(9)** |
| 1. LNPOP | .32 | -.08 | .24 | .31 | .30 | -.24 | .37 | .28 |
| 2. LNPDEN | | -.07 | .21 | .27 | .19 | -.12 | .16 | .26 |
| 3. NATIVE | | | .08 | .33 | .08 | -.01 | -.11 | .16 |
| 4. LOWINC | | | | .16 | .04 | -.62 | .42 | .71 |
| 5. MOBIL | | | | | .16 | -.07 | .21 | .20 |
| 6. ETHHTG | | | | | | .15 | -.12 | .05 |
| 7. MARRD | | | | | | | -.69 | -.70 |
| 8. DIVRC | | | | | | | | .53 |
| 9. SGLPA | | | | | | | | |
| **Year - 2001** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** | **(8)** | **(9)** |
| 1. LNPOP | .28 | -.22 | .17 | .10 | .23 | -.19 | .26 | .21 |
| 2. LNPDEN | | -.02 | .25 | .37 | .15 | -.29 | .23 | .40 |
| 3. NATIVE | | | .25 | .35 | .17 | -.01 | -.17 | .31 |
| 4. LOWINC | | | | .22 | .02 | -.51 | .26 | .71 |
| 5. MOBIL | | | | | .15 | -.24 | .12 | .39 |
| 6. ETHHTG | | | | | | .38 | -.36 | -.02 |
| 7. MARRD | | | | | | | -.73 | -.64 |
| 8. DIVRC | | | | | | | | .44 |
| 9. SGLPA | | | | | | | | |

*Note:* See Table 1 for the descriptions of the variables.

Ethnic heterogeneity was a composite variable based on multiple categories of ethnic identity (Statistics Canada, 2003b).[4] The data used here were collected from Statistics Canada's (2004b) E-Stat tables of population profiles.[5] Blau's (1977) index was used here to measure the degree of ethnic heterogeneity. The index was constructed as $(1 - \Sigma p_i^2)$, where $p_i$ represents the proportion of an ethnic group relative to the population.[6] Blau's index has been used as a measure of ethnic or racial heterogeneity in related studies (see, for example, Hirschfield and Bowers, 1997; Osgood and Chambers, 2000; Sampson and Groves, 1989; Smith and Jarjoura, 1988; Smith and Jarjoura, 1989; Sun et al., 2004; Veysey and Messner, 1999; Warner and Pierce, 1993). The heterogeneity index had a value of 0.60 in 1991, compared to 0.69 for 1996, and 0.67 for 2001.[7]

Percent population married referred to the percentage of persons aged 15 or over who were identified as legally married in the current year. For the municipalities, the average percent population married showed a declining trend between 1991 and 2001, from 55.1 percent to 50.4 percent (see Table 1). Percent population divorced referred to the percentage of persons aged 15 or over identified as divorced in the current year. The average percentage of divorced population for the municipalities increased from 5.8 percent in 1991 to 7.9 percent in 2001. The average percentage of single-parent families also increased over the years from 12.9 percent in 1991 to 14.8 percent in 2001. The statistics were consistent with the notion that the family institution has been undergoing quite significant changes in recent years, with a decrease in the number of traditional families (Milan, 2000).

The bivariate correlations of the precursors and the family and control variables are presented in Table 2. Strong correlations were observed between low income and the family variables. For example, in 1991 the correlation between low income and percent population married was -.58 and that between low income and single-parent families was .61. The correlations between percent married and the other two family variables were -.63 and -.79, respectively. Similarly strong correlations of these variables were observed for 1996 and 2001. These high correlations would call for the examination of possible collinearity-related problems in subsequent analyses.

## Results

### *Effects of Disorganization Precursors on the Family*

In examining the effects of the precursors of social disorganization on the family, the family variables were regressed on the precursors, controlling for population size, population density, and percent native population. Results of the regression analysis are presented in Table 3. Population size and population density had significant negative effects on marriage and were associated with higher levels of divorce and single-parenthood. For example, for the 2001 data, the standardized coefficients for population size were -.16, .25, and -.11, and those for population density were -.15, .13, and .19, demonstrating that urbanized municipalities tended to show higher levels of family disorganization.

Of the three precursors, low income had the most consistent effect on the family variables. In 2001, for example, low income was associated with a lower proportion of married population, and higher proportions of divorced population and single-parent families (with $\hat{\beta}$s of -.43, .20, and .58, respectively). The observed effects were strong and consistent for the three data periods (see Table 3).

In 1991, mobility had a strong effect on divorce and some negative effect on marriage (with $\hat{\beta}$s of .38 and

**Table 3. Regressions of Family Variables on the Precursors: 1991, 1996, and 2001**

| | 1991 | | | 1996 | | | 2001 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Regressors** | MARRD | DIVRC | SGLPA | MARRD | DIVRC | SGLPA | MARRD | DIVRC | SGLPA |
| Population size | -.14 *** | .27 *** | .12 *** | -.17 *** | .30 *** | .11 ** | -.16 *** | .25 *** | .11 *** |
| Population density | -.16 *** | .12 *** | .17 *** | .01 | -.01 | .10 ** | -.15 *** | .13 ** | .19 *** |
| % population Native | -.08 ** | -.06 | .09 ** | .00 | -.14 *** | .13 *** | .03 | -.13 ** | .16 *** |
| % low income families | -.45 *** | .12 *** | .61 *** | -.60 *** | .35 ** | .65 *** | -.43 *** | .20 *** | .58 *** |
| Mobility | -.11 ** | .38 *** | .02 | .04 | .15 ** | .00 | -.16 *** | .12 ** | .15 *** |
| Ethnic heterogeneity | .36 *** | -.42 *** | -.05 | .21 *** | -.23 ** | -.04 | .47 *** | -.44 *** | -.14 *** |
| N | 540 | 540 | 540 | 526 | 526 | 526 | 520 | 520 | 520 |
| $R^2$ | .52 | .45 | .53 | .44 | .33 | .54 | .51 | .34 | .62 |

*Note:* MARRD = % population married; DIVRC = % population divorced; SGLPA = % single-parent families. Only standardized coefficients are presented.

*$p$ < .05; **$p$ < .01; ***$p$ < .001.

-.11). It had a moderate effect on divorce in 1996 (i.e., .15) and statistically significant effects on all three family variables in 2001 (-.16, .12, and .15, respectively). To that extent, a high level of mobility had adverse effects on marital relationships.

Unlike low income and mobility, ethnic heterogeneity was associated with a *higher* proportion of marriage and *lower* levels of divorce and single-parenthood. In 2001, for example, ethnic heterogeneity had a positive effect on marriage, and negative effects on divorce and single-parenthood ($\hat{\beta}$s were .47, -.44 and -.14, respectively). Perhaps this finding in part reflected the traditional values and practices of certain ethnic groups with respect to the salience of marriage and the family.

The magnitudes of the effects of the disorganization precursors on the family variables varied across the three data periods. The effect of low income on marriage was much stronger in 1996 than the other periods (i.e., -.60 compared to -.45 and -.43). Similarly, the effect of low income on divorce was also stronger in 1996 (i.e., .35 compared to .12 and .20). Given the recessive economy in Canada in the early- and mid-1990s (Statistics Canada, 2006), perhaps financial factors played a more critical role in family matters during that period of hardship. Persons with low incomes who were not certain about their job security and prospect might refrain from getting married, and low-income couples might experience more financial stress and difficulties, thus leading to a higher likelihood of divorce. These results demonstrated that the effects of the precursors on the family probably depended on the larger societal trend and context.

In short, of the three precursors of social disorganization, low income had strong effects on the family, and mobility had some considerable effects, thus lending support to the proposed theoretical model. On the other hand, the effects of ethnic heterogeneity on the family variables showed that it might not be a precursor of family disorganization.

### *The Effects of Disorganization Precursors and the Family on Crime*

The high correlations between low income and the family factors suggested the possibility of collinearity-related problems. Collinearity diagnostics of the regression estimates were performed using the condition index and the variance inflation factors (VIF) (Belsley, Kuh, and Welsch, 1980). The results showed some collinearity but the regression estimates were still reasonably robust.[8]

The effect coefficients of the disorganization precursors and the family and control variables on crime were presented in Table 4. Judging by the size of the effect coefficients, percent Native population had the largest effect on the crime rates, with effect magnitudes of up to .41, .52, and .32 for the total, violent and property rates, respectively. These coefficients reflected the disadvantaged conditions of Native people in Canada. In comparison, the effects of population size and density were relatively small.

Low income did not have any significant direct effect on crime. For example, the 2001 effect coefficient on the total crime rate was merely .03. Thus, municipalities with a relatively high proportion of poverty families did not necessarily have higher crime rates, suggesting that poverty *per se* was not a direct contributing factor of crime.

Both mobility and ethnic heterogeneity had consistent and substantial direct effects on crime. In 2001, the

**Table 4. Regressions of the Crime Rates on the Precursors and Family Variables: 1991, 1996, and 2001**

| | 1991 | | | 1996 | | | 2001 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Regressors** | CRIME | VIOLN | PRPTY | CRIME | VIOLN | PRPTY | CRIME | VIOLN | PRPTY |
| Population size | -.10 ** | -.10 *** | -.03 | -.14 *** | -.17 *** | .02 | -.14 *** | -.16 *** | -.03 |
| Population density | .02 | -.02 | .04 | .05 | -.03 | .10 ** | -.07 | -.15 *** | -.01 |
| % population Native | .41 *** | .52 *** | .32 *** | .38 *** | .44 *** | .27 *** | .41 *** | .43 *** | .25 *** |
| % low income families | .01 | .01 | .00 | -.08 | .01 | -.08 | .03 | .06 | .09 |
| Mobility | .26 *** | .17 *** | .28 *** | .37 *** | .29 *** | .33 *** | .30 *** | .20 *** | .36 *** |
| Ethnic heterogeneity | .36 *** | .33 *** | .35 *** | .18 *** | .17 *** | .20 *** | .21 *** | .18 *** | .28 *** |
| % population married | -.10 * | -.08 | -.14 * | -.03 | .06 | -.11 * | -.08 | -.10 | -.15 ** |
| % population divorced | .12 *** | .07 | .19 *** | -.04 | -.09 ** | .05 | -.02 | -.08 | .09 |
| % single-parent families | .19 *** | .22 *** | .12 * | .32 *** | .38 *** | .15 *** | .17 *** | .23 *** | .02 |
| N | 540 | 540 | 540 | 526 | 526 | 526 | 520 | 520 | 520 |
| $R^2$ | .67 | .69 | .61 | .56 | .59 | .44 | .59 | .57 | .48 |

*Note:* CRIME = Total crime rate; VIOLN = Violent crime rate; PRPTY = Property crime rate. Only standardized coefficients are presented.

*$p$ < .05; **$p$ < .01; ***$p$ < .001.

effect coefficients of mobility and ethnic heterogeneity on the total crime rate were .30 and .21, respectively. The corresponding coefficients in 1991 were .26 and .36. Moreover, the effects of mobility and ethnic heterogeneity were significant for both violent and property crimes. The effect coefficients of mobility on violent crime ranged between .17 and .29 for the various years, whereas those on property crime were between .28 and .36. The effect coefficients of ethnic heterogeneity on violent crime were between .17 and .33, and those on property crime were between .20 and .35, for the various years.

Compared to the disorganization precursors, the family variables had weaker effects on crime. Marriage had a relative weak effect on property crime (with $\hat{\beta}$s between -.11 and -.15), and it did not have any significant effect on violent crime. The effect of divorce was inconsistent over the years. It had a positive effect on property crime in 1991 ($\hat{\beta}$ = .19), a negative effect on violent crime in 1996 ($\hat{\beta}$ = -.09), and no significant effect on either in 2001. Single-parenthood was the only family variable that had a considerable effect on crime. In 2001, the effect coefficient of single-parenthood on violent crime was .23, compared to .02 on property crime. The respective coefficients were .38 and .15 in 1996 and .22 and .12 in 1991. Given the recessive economy in the early- and mid-1990s, the much stronger effect of single-parenthood in 1996 seemed to suggest that the disadvantaged conditions of single-parents were more aggravating in economic hardship, thus resulting in a higher level of criminal involvement.

In summation, the results showed that high levels of mobility, ethnic heterogeneity and single-parenthood were associated with higher crime rates at the municipal level, thus lending some support to the social disorganization perspective.[9] However, the direct effects of low income, marriage and divorce on crime were inconsistent or weak.

*The Effects on Specific Violent and Property Offenses*

Table 5 presents the regression of specific violent and property offenses on the disorganization precursors and family variables. Based on the coefficients and $R^2$s, it is rather obvious that the effects of the predictors varied for the different offenses. The disorganization precursors were stronger predictors for theft under $5,000, level-one assault, and frauds than for the other offenses (the partial $R^2$s in 2001 for the three offenses were .21, .07, and .09, respectively; see Table 5). The family variables were stronger predictors for breaking and entering, robbery, and theft over $5,000 than for the other offenses (the partial $R^2$s in 2001 were .09, .06, and .07). In comparison, the precursors and family variables were weak predictors for homicide, levels two and three assault and sexual assault (the partial $R^2$s in 2001 were .01, .02, and .01). Thus, the overall pattern showed that the disorganization precursors and the family variables were stronger predictors for certain offenses.

There were a number of unexpected results related to divorce and single-parent families. Contrary to expectation, percent population divorced was associated with lower levels of frauds and level-one sexual assault. For example, the effect coefficients related to frauds were -.27 in 1991 and 1996, and -.15 in 2001. Also, percent single-parent families was associated with lower levels of breaking and entering and theft over $1,000 in 1991 ($\hat{\beta}$s of -.25 and -.28), and lower levels of robbery in both 1991 and 1996 ($\hat{\beta}$s of -.18 and -.11; see Table 5).

The rather wide range of the magnitudes of the coefficients and explained variances ($R^2$), and the unexpected results suggested that while the structural and family variables were relative effective in dealing with crime in general, they were not adequate for some of the specific offenses, particular low-frequency violent offenses such as homicide and aggravated and weapon-related sexual assaults. More sophisticated model specifications would be required to adequately explain these offenses.

*Family Disorganization as an Intermediate Factor*

The indirect effects of the disorganization precursors on the total crime rate through the family variables were examined using path analysis (see Table 6). The magnitude of a causal path was calculated by multiplying the standardized coefficients involved in the causal link (Duncan, 1975). For example, the indirect effect of low income on the 1991 total crime rate through marriage was calculated by multiplying the standardized effect of low income on marriage presented in Table 3 and the standardized effect of marriage on the total crime rate presented in Table 4 (i.e., indirect effect = -.45 * -.10 = .045). The indirect effect of low income through the three family variables was calculated by summing all the causal paths involving the family variables (Duncan, 1975). For example, the indirect paths of low income through divorce, marriage and single-parenthood were .045, .014, and .116, respectively. Therefore, the combined indirect effect of low income was .175 (≅ .18), or the sum of the indirect paths.

The indirect effects of percent low income on the total crime rate through the family variables for 1991, 1996, and 2001 were .18, .21, and .13, respectively (see

Table 6). The effect coefficients were positive and rather substantial, suggesting that the higher the percentage of low-income families in the municipality, the higher was the total crime rate. Moreover, much of the indirect effect was mediated by single-parenthood (i.e., .116, .208, and .099 for the various years). To that extent, the finding lent much support to the notion that family disorganization explains the effect of poverty on crime.

In relation to mobility and ethnic heterogeneity, the family variables mediated only a small portion of the ef-

**Table 5. Regressions of Specific Violent and Property Offenses: 1991, 1996, and 2001**

| Regressors | HOMI | RBRY | SX2&3 | SX1 | AS2&3 | AS1 | B&E | GTHF | THFT | FRD |
|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | | | | | | | | | | |
| Log. population | -.07 | .44 *** | -.05 | -.16 *** | .07 | -.12 *** | .14 *** | .15 *** | .03 | -.30 *** |
| Log. population density | -.11 * | .10 ** | .06 | -.10 * | .01 | -.06 | -.12 *** | -.10 * | .02 | .09 |
| % Native | .13 ** | .12 *** | .41 *** | .20 *** | .59 *** | .40 *** | .34 *** | .18 *** | .18 *** | -.03 |
| % low income families | .09 | .11 * | .10 | .03 | .04 | -.07 | .18 *** | .07 | -.03 | -.09 |
| Mobility | .00 | -.09 * | .01 | .26 *** | .01 | .19 *** | .04 | .06 | .37 *** | .34 *** |
| Ethnic heterogeneity | .21 *** | .12 ** | .06 | .27 *** | .28 *** | .37 *** | .22 *** | .29 *** | .32 *** | .23 *** |
| % population married | -.07 | -.32 *** | .01 | .00 | -.18 ** | -.13 * | -.27 *** | -.25 *** | -.15 ** | -.29 *** |
| % population divorced | .22 *** | .22 *** | .11 | -.13 * | -.01 | .02 | .43 *** | .40 *** | .11 * | -.27 *** |
| % single-parent families | -.05 | -.18 ** | -.01 | .26 *** | -.02 | .29 *** | -.25 *** | -.28 *** | .17 ** | .10 |
| $R^2$ | .10 | .51 | .22 | .37 | .50 | .61 | .49 | .33 | .58 | .30 |
| Partial $R^2$ (precursors) | .03 | .01 | .01 | .13 | .05 | .16 | .05 | .07 | .23 | .16 |
| Partial $R^2$ (family var.) | .03 | .08 | .01 | .03 | .01 | .08 | .14 | .12 | .06 | .06 |
| **1996** | | | | | | | | | | |
| Log. population | .07 | .37 *** | -.15 ** | -.21 *** | .04 | -.18 *** | .18 *** | -.29 *** | .01 | -.32 *** |
| Log. population density | -.13 ** | .15 *** | .03 | -.05 | .00 | -.04 | -.06 | -.02 | .09 * | .10 * |
| % Native | .18 *** | .25 *** | .24 *** | .31 *** | .50 *** | .49 *** | .37 *** | .24 *** | .26 *** | .04 |
| % low income families | -.12 | .15 *** | .02 | -.03 | -.03 | -.05 | .10 | -.10 | -.09 | -.05 |
| Mobility | .06 | .03 | .06 | .18 *** | .14 *** | .30 *** | .05 | .13 ** | .40 *** | .23 *** |
| Ethnic heterogeneity | .04 | .19 *** | .03 | .12 ** | .12 ** | .13 *** | .14 *** | .11 * | .16 *** | .11 * |
| % population married | -.01 | -.14 * | -.02 | .08 | -.06 | .09 | -.08 | -.14 | -.05 | -.07 |
| % population divorced | .24 *** | .19 *** | .06 | -.17 ** | -.05 | -.06 | .31 *** | -.07 | .01 | -.27 *** |
| % single-parent families | .04 | -.11 * | -.01 | .37 *** | .17 ** | .38 *** | -.05 | .02 | .21 *** | .19 ** |
| $R^2$ | .11 | .53 | .09 | .34 | .42 | .62 | .39 | .18 | .47 | .20 |
| Partial $R^2$ (precursors) | .01 | .04 | .01 | .04 | .03 | .08 | .02 | .02 | .14 | .05 |
| Partial $R^2$ (family var.) | .05 | .05 | .01 | .06 | .01 | .06 | .07 | .00 | .03 | .05 |
| **2001** | | | | | | | | | | |
| Log. population | .02 | .39 *** | -.12 * | -.19 *** | -.02 | -.16 *** | .04 | -.30 *** | -.01 | -.23 *** |
| Log. population density | .02 | .09 * | .00 | -.22 *** | -.17 *** | -.14 *** | -.20 *** | -.09 | .02 | .07 |
| % Native | .26 *** | .27 *** | .17 ** | .28 *** | .48 *** | .42 *** | .39 *** | .12 *** | .13 *** | -.03 |
| % low income families | .14 * | .14 ** | -.06 | .02 | .02 | .03 | .12 * | -.03 | -.08 | -.01 |
| Mobility | -.05 | .05 | -.14 ** | .22 *** | .14 *** | .27 *** | .15 *** | -.07 | .47 *** | .24 *** |
| Ethnic heterogeneity | .08 | .21 *** | .08 | .18 *** | .14 *** | .15 *** | .23 *** | .18 *** | .23 *** | .25 *** |
| % population married | .03 | -.14 * | -.06 | -.01 | -.18 ** | -.03 | -.11 | -.30 *** | -.08 | -.15 * |
| % population divorced | .12 | .22 *** | -.06 | -.10 | -.12 * | -.07 | .31 *** | .12 | -.01 | -.15 * |
| % single-parent families | -.12 | -.04 | .10 | .31 *** | .15 ** | .29 *** | .00 | -.10 | .22 *** | .24 *** |
| $R^2$ | .07 | .53 | .12 | .45 | .48 | .62 | .42 | .15 | .52 | .28 |
| Partial $R^2$ (precursors) | .02 | .04 | .02 | .06 | .03 | .07 | .06 | .02 | .21 | .09 |
| Partial $R^2$ (family var.) | .01 | .06 | .01 | .03 | .02 | .03 | .09 | .07 | .03 | .03 |

*Notes:* Rates of specific offenses: HOMI =Homicide; RBRY = Robbery; SX2&3 = Sexual Assault Levels Two and Three; SX1 = Sexual Assault Level One; AS2&3 = Assault Levels Two and Three; AS1 = Assault Level One; B&E = Breaking and Entering; GTHF = Theft Over $5,000 (in 1991, "Over $1,000"); THFT = Theft Under $5,000 (in 1991, "Under $1,000"); FRD = Frauds. Only standardized coefficients are presented.

*$p$ < .05; **$p$ < .01; ***$p$ < .001.

**Table 6. Direct and Indirect Effects of the Disorganization Precursors on the Total Crime Rate through the Family Variables**

| | Year | Direct effect | Indirect total | Indirect effect through | | |
|---|---|---|---|---|---|---|
| | | | | MARRD | DIVRC | SGLPA |
| % low income families | 1991 | .01 | .18 | .045 | .014 | .116 |
| | 1996 | -.08 | .21 | .018 | -.014 | .208 |
| | 2001 | .03 | .13 | .034 | -.004 | .099 |
| Mobility | 1991 | .26 | .06 | .011 | .046 | .004 |
| | 1996 | .37 | -.01 | -.001 | -.006 | .000 |
| | 2001 | .30 | .04 | .013 | -.002 | .026 |
| Ethnic heterogeneity | 1991 | .36 | -.10 | -.036 | -.050 | -.010 |
| | 1996 | .18 | -.01 | -.006 | .009 | -.013 |
| | 2001 | .21 | -.05 | -.038 | .009 | -.024 |

*Notes:* Family variables: MARRD = Percent Population Married; DIVRC = Percent Population Divorced; SGLPA = Percent Single-Parent Families. Only standardized coefficients are presented.

fects of these two disorganization precursors on the total crime rate. The indirect effects of mobility on the total crime rate ranged between -0.1 and .06, and those related to ethnic heterogeneity ranged between -0.01 and -.10.

In short, the observed effect coefficients showed that the family, particularly single-parenthood, was an important mediating factor for the effect of poverty on crime, but much less so for the effects of mobility and ethnic heterogeneity.

## Discussion

Using Canadian municipal-level data in 1991, 1996, and 2001, this study examined the direct effects of the precursors of social disorganization on crime and their indirect effects through three family-related factors. The findings revealed that much of the effect of poverty on crime was mediated by the family-related factors. In contrast, the effects of mobility and ethnic heterogeneity on crime were mainly direct. With respect to the effects of the family-related factors on crime, percent single-parent families showed the strongest effect.

Findings from this study support Shaw and McKay's (1942) formulation of social disorganization theory to the extent that mobility and ethnic heterogeneity are strong predictors of crime, and poverty also causes crime indirectly through its effect on the family. The results have shown that poverty, mobility and ethnic heterogeneity are important predictors of crime.

As an institution, the family is not independent of the social and economic conditions of society. As the findings have revealed, marriage, divorce and single-parenthood are influenced, in the respective order of importance, by poverty, ethnic heterogeneity, and mobility. At the aggregate level, poverty is unfavorable to marriage and contributes to higher levels of divorce and single-parenthood, especially during a recessive economy. This finding underscores the importance of financial as well as other community supports to the family.

Like poverty, a high level of mobility in the community reduces the probability of marriage and increases that of divorce. A highly mobile population is not a favorable factor for building or maintaining a family. Mobility weakens social networking and support. The loss of social support from relatives and friends, and the demand for adjusting to a new job or a new environment may put strains on the family.

Ethnic heterogeneity does not cause family disorganization. On the contrary, as the findings have revealed, ethnically-heterogeneous communities also tend to have a higher percentage of married population and a lower percentage of divorced population. Perhaps much of the support for the family is derived from kinship or friendship groups, which in most cases are composed of members of the same ethnic group. A few families of the same ethnic origin can effectively provide social support for one another. It is also possible that given the lack of extensive social networking, the family has become even more important among ethnic minorities, especially among recent immigrants, thus helping to reinforce marriage and prevent divorce. In short, the findings suggest that ethnic heterogeneity strengthens rather than weakens the traditional family.

In sum, results from this study have confirmed the importance of mobility and ethnic heterogeneity as predictors of crime. Poverty has some indirect effect

on crime through family disorganization. Poverty and ethnic heterogeneity also have considerable effects on the family at the aggregate level. In comparison, the effects of mobility on the family variables are relatively weaker. The findings lend considerable support to Shaw and McKay's (1942) social disorganization theory in terms of the strong correlations between the disorganization precursors and crime. The reformulation of their theory, in terms of drawing the causal link between the disorganization precursors and crime through family disorganization, receives some support.

The results have established that family disorganization is critical as a mediator of the effect of poverty on crime. This particular finding accentuates the role of the family as an intervening variable. In terms of policy implications, the finding implies that in communities with high poverty rates, the family is at risk of being negatively impacted. Thus, it is critical that there are programs in place in these communities to support the family, especially programs targeting families in poverty. Strong and cohesive family units, in turn, help to buffer the negative impact of poverty on the community. Future research should continue to examine the roles of family disorganization and other types of social disorganization in understanding the dynamics of poverty, mobility, heterogeneity, and other structural factors.

**Endnotes**

1. In 1991, the classification criterion for the two theft categories was set at $1,000. It was changed to $5,000 beginning in 1994.

2. In 1991, respondents were asked to identify their ancestry, and they were told to report as many origins as applicable, resulting in a considerable proportion of persons with multiple origins. The calculation of the percentage of aboriginal population for 1991 excluded aboriginal persons who had multiple ethnic origins since the Census reports aggregated all persons with multiple origins into one category. Beginning in 1996 (Statistics Canada, 1998), a more direct question of ethnic identity was used: "Is this person an Aboriginal person, that is, North American, Indian, Métis or Inuit (Eskimo)?" The new aboriginal identity question included both persons of single aboriginal origins and persons of aboriginal and other origins. Therefore, the drastic increase in the proportion of aboriginal population was partly due to the addition of this identity question. Other reasons included the positive trends in ethnic awareness, political movements, and fewer incompletely enumerated aboriginal reserves (Statistics Canada, 2003a). Still another reason for the increase had to do with the use of municipal-level data and the increase in aboriginal police services in recent years due to the First Nations Policing Policy Agreements beginning in 1991. Since municipal crime rates were based on the reports by police services, the increase in aboriginal police services resulted in the inclusion of more municipalities with high concentration of aboriginal population in the 1996 and 2001 samples. The 1991 sample contained 13 communities with 10 percent or more of the population in the community reportedly aboriginal. The number increased to 29 communities in the 1996 sample and 54 in the 2001 sample.

3. The 1992 family expenditure data collected by Statistics Canada showed that Canadian families spent an average of 44 percent of their after-tax incomes on basic necessities including food, clothing, and shelter. The Low Income Cutoffs (LICOs) were then set at twenty-percent points above the population average. That is, the LICOs were defined as families with spending of 64 percent or more of their after-tax income on basic necessities, with adjustment made for seven different sizes of families and five urbanization categories (Paquet, 2002). For example, in 1992, the LICO for a family of four living in an urban area of 500,000 population or more was $25,694 (in Canadian dollars) after tax, compared to $19,472 for a family of the same size living in rural areas (Paquet, 2002). The Consumer Price Index (CPI) was used to make adjustments to the LICOs for the years prior to 1992 and the subsequent years. The CPI indexes for 1991, 1996, and 2001 were set at 98.5, 105.9, and 116.4, compared to the standard CPI index of 100 in 1992. For example, using the CPI, the LICO for a family of four living in an urban area of 500,000 population or more was $29,908 or 116.4 percent of the corresponding figure in 1992 (Statistics Canada, 2004a).

4. In 1991, the Census questionnaire provided 15 mark-in categories and two write-in categories of ethnic origin. Respondents selected from the mark-in categories and were allowed to write in up to two additional categories of ethnic origin. In 1996, a completely open-ended format was used with four write-in spaces and respondents were allowed to write in up to six categories of ethnic origin. Twenty-four examples of ethnic origin were given, including "Canadian" as one of the new categories. The Census questionnaire item for ethnicity in 2001 was similar to that in 1996 with a few changes. In 2001, there were twenty-five examples of ethnic origin listed with the question, 21 of which were based on the

most frequent response categories in 1996. The example "North American Indian" was replaced by "Métis" and "Inuit," and four new categories including Vietnamese, Lebanese, Chilean and Somali were added to the list of examples.

5. In 1991, the Census profile of municipalities published 32 "single-response" categories of ethnic origin, one "other single-responses" category and one "multiple-responses" category. In 1996, the profile contained 100 published ethnic categories, with three response types for each category (i.e., total-, single-, and multiple-responses). In 2001, 208 ethnic categories were used in coding (see Statistics Canada, 2003b, Appendix C), but only 61 of the categories were published in the E-Stat profile, with three response types for each category.

6. The index has a minimum value of 0 when 100 percent of the population belongs to the same ethnic (i.e., $p_i$ = 1.0). The maximum value of the index approaches 1.0 when each ethnic group in the population accounts for only a very small proportion of the population. For example, if four ethnic groups are equal in number and each represents 25 percent of the population, the index has a value of 0.75. It means that there is a 75 percent chance that two randomly selected individuals in the population will be members of different ethnic categories.

7. To make the index comparable between the different census years, only the single-response categories plus one multiple-response category were used in the construction of the index. One of the reasons for the increase in the heterogeneity index from 1991 to 1996 was the increase in the number of categories published by Statistics Canada.

8. According to Belsley et al. (1980), a condition index between 30 and 100 represents a moderate but tolerable degree of collinearity effect. In the regression analyses, the condition indexes were about 89, 73, and 65 for the various years. The VIFs for low income and divorce had values of approximately 2.0 for the various years, suggesting that their associated standard errors were only slightly inflated. The VIFs for single-parenthood were between 2.9 and 3.6 and those for marriage were between 3.2 and 4.1. These VIFs were still below the critical VIF value of 10 (Belsley et al., 1980). Therefore, one may conclude from these results that the effect of collinearity, if any, was within the acceptable level.

9. Upon the suggestion of one of the reviewers of the manuscript, I tested whether population size (under 100,000 versus 100,000 and over) would modify the effects of the variables on the crime rates. The interactive terms of population size (0 and 1) and the precursor and family variables were added to the original model. The variables were centered to minimize collinearity-related problems (see Aiken and West, 1991). Out of a total of 54 interactive terms (i.e., 6 precursor and family variables * 3 years * 3 crime rates), only six were statistically significant. The significant interactive effect coefficients were associated with single-parenthood (with $\hat{\beta}$s of -.14 and -.17), ethnic heterogeneity (-.11 and -.14), low income (.14), and mobility (.07).

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