Crime as a Price of Inequality?

The Delinquency Gap between Children of Immigrants and Children of Native Swedes*

MARCH 4 2011

Martin Hällsten

The Swedish Institute for Social Research (SOFI), Stockholm University Linnaeus Center for Integration Studies (SULCIS), Stockholm University

Jerzy Sarnecki

Department of Criminology, Stockholm University Linnaeus Center for Integration Studies (SULCIS), Stockholm University

Ryszard Szulkin

Department of Sociology, Stockholm University Linnaeus Center for Integration Studies (SULCIS), Stockholm University

* Correspondence to martin.hallsten@sofi.su.se. We thank Johan Kardell, Matthew Lindquist, and Michael Tåhlin for comments on previous versions of the paper, and Amber Beckley for advice on coding crimes.

Abstract

We examine the gap in registered crime between the children of immigrants and the children of native Swedes. Our study is the first in Sweden to address the role of family and environmental background in creating the gap in recorded crimes. Lack of resources within the family and/or in the broader social environment, particularly in neighborhoods and schools, generates higher risks for criminal activity in children, and if the children of immigrants to a larger extent are underprivileged in those resources, a gap in crime may occur. In the empirical analyses we follow all individuals who completed compulsory schooling during the period 1990 to 1993 in the Stockholm Metropolitan area (N=66,330), and we analyze how background factors related to the family of origin and neighborhood segregation during adolescence influence the gap in recorded crimes, which are measured in 2005. For males, we are generally able to explain between half and three-quarters of this gap in crime by parental socioeconomic resources and neighborhood segregation. For females, we can explain even more, sometimes the entire gap. Resources in the family of origin appear to be the strongest mediator. In addition, the residual differences are virtually unrelated to immigrants' country of origin, indicating that 'culture' or other shared context-of-exit factors matter very little in generating the gap.

Introduction

In many countries that have experienced a rapid increase in numbers of immigrants, immigration and immigrants are considered a problem. One of the reasons for a toward immigration and immigrants is their supposed overrepresentation in criminal activities. This attitude was widespread in the United States in the late 19th century, leading to a more restrictive immigrant policy (Moehling and Piehl 2007). A decade later, changes in legislation increasing the punishment of criminal aliens was based on the same premise (Butcher and Piehl 2007), and the same perception is very much alive in Europe in the early 21st century (Simon and Sikich 2007). Many radical rightwing parties in Europe link immigration to criminality and social unrest as a focal part of their strategy to mobilize voter support (Rydgren 2008), but individual perceptions about immigrants' impact on crime appear driven largely by fear of immigrants as such rather than fear of crime (Ceobanu forthcoming).

In Sweden and in several other European countries, immigrants and their children are indeed overrepresented in criminal statistics (Kardell 2006, 2010; BRÅ 1996, 2005, Tonry 1997, Haen Marshall 1997, Killias et al. 2011), while they appear less over-represented, equally-, or even under-represented in self-reported crime (Shannon 2006:246, Junger-Tas et al., 2010, Papadopoulos 2010).

In the United States, by contrast, all recent evidence suggests that immigrants are under-represented in criminal activities (Reid et al. 2005, Lee & Martinez 2009), despite the common belief among Americans that a link is present (Mears 2002). The percentage of incarcerated native-born American men is approximately four times higher than the percentage of persons born in other countries (Rumbaut 2008, Hagan et al., 2008, Desmond & Kubrin 2009). Immigrants become more criminal in the second and third generations as they assimilate into American society (DiPietro & Beckley 2010). These differences are puzzling and remain to be understood. Immigrants to Europe and to the United States are not

necessarily equivalent in terms of why they left their homelands and what they are able to bring in terms of social resources. Butcher and Piehl (2007) suggest that the lower crime rates among immigrants to the United States could be explained either by selective migration of individuals with lower criminal propensities or a higher sensitivity to crime deterrence measures. N*ative* ethnic minorities such as African Americans and Hispanics are vastly overrepresented in terms of convictions and incarcerations in the United States, and so ethnic inequality in crimes still exists there, although without a link to immigration. Thus, unlike phenomena like *social mobility* (Erikson & Goldthorpe 1992), which is largely a slow-changing process with a lot of constancy across industrialized nations, the link between immigration and crime is highly contingent on time and place (and definition of crime), which makes any generalization and comparison across such dimensions difficult.

The literature on immigration and crime is vast, but it is often limited to reporting aggregate differences between immigrants and natives, or to analysing simultaneous changes in average crime and immigration rates across time and space. Some studies do account for differences in social conditions in adulthood, but the influence of social characteristics on differences in crime varies depending on how these have been defined, and also across time and space (see BRÅ 2005 for Sweden, Holmberg & Kyvsgaard 2003 for Denmark, Aoki & Todo 2009 for France). Our knowledge about the mechanisms that generate delinquent behaviors among immigrants is still insufficient. Dahlbäck (2009) has emphasized that no Swedish studies to date convincingly analyze the reasons why immigrants are overrepresented in crime statistics.

The aim of this paper is to shed light on the empirical evidence for the supposed link between immigrants, as a group, and crime, by analyzing the causes of the gap in *recorded* crimes between young immigrants, the children of immigrants, and the children of native-born Swedes. One obvious reason why immigrants are represented in disproportionally high

numbers in criminal statistics is that life conditions in the immigrant and native population differ, and we depart from the assumption that the transmission of various resources between generations is of crucial importance for understanding different forms of social inequality. While the family is the primary unit for socialization and resource transfer, the local community can be viewed as a secondary socialization unit where children spend much of their time during their most formative years. Parents' socioeconomic resources (class, income, education as well as social and cultural capital, among others) and the social conditions prevailing in the local community can be assumed to exercise a long-term influence on individuals' future life chances. Increasing social and ethnic segregation in urban areas may depress the future life chances of individuals growing up in segregated neighborhoods (e.g., Musterd 2005; Charles 2003, for Sweden; Biterman and Franzén 2006). Analyses of the criminal behavior of young people should thus focus on social conditions during childhood, defined broadly, as these are strong determinants of future crime (Hjalmarsson & Lindquist 2009). However, no study has to our knowledge tried to understand adult differences in crime between the children of immigrants and native-born children by taking childhood conditions into account.

In order to study why the gap in (recorded) criminality between children of immigrants and children with a Swedish background arises, we analyze register data that include all individuals who completed compulsory schooling in the greater Stockholm area between 1990 and 1993. We follow these individuals over time and gauge their accumulated registered criminality in 2005, when the individuals are 28 to 31 years old, and assess whether the gap can be explained by differences in their parents' socioeconomic resources, as well as residential segregation and resources among neighborhood peers. In addition, we examine the role of ethnicity or culture in explaining the remainder of the gap by comparing the crime rates of individual pairs from the same country of origin.

Immigration to Sweden and the Swedish welfare state

Sweden is an interesting case for analyzing the immigrant-crime nexus for several reasons. First, like many other European countries, Sweden has experienced a huge influx of immigrants in the past several decades. Labor immigration predominated until the beginning of the 1970s, but for forty years now, most immigrants have been either refugees or family reunificationists. Due to a recent legislative liberalization in the EU, labor market immigration has increased again, mostly from new member states of the EU. The immigrant share of the Swedish population rose from 6.7% in the beginning of 1970s, to 10.9% in the end of 1990s, and to 14% in 2009 (Statistics Sweden 2000, ESO 2011). The labor market immigrants of the 1950s and 1960s came predominantly from other Nordic countries and from Southern Europe. Subsequent immigration waves include large number of individuals from former Yugoslavia, Latin America, and from western Asia. The former East Bloc contributed with a continuous influx of political refugees from WWII until 1989. In the mid 1990s, immigration from the Middle East, Bosnia, and Somalia predominated. Recent immigration waves have changed the composition of the immigrant population in Sweden. In 1970, 60% of all foreign born had emigrated from a Nordic country, while the corresponding share was only 29% in 1998. The percentage of individuals born in non-European countries increased from 6% to 37% between 1970 and 1998 (Statistics Sweden 2000). The five largest groups of immigrants in Sweden today were born in Finland, Iraq, Yugoslavia, Poland, and Iran.[1] Hence, Sweden as of today contains a wide range of ethnic groups.

Second, what may make Sweden a case of special interest is the way in which social policy reduces poverty rates and ensures relatively equal standards of living. The Swedish welfare state is generous in providing continuous free access to education, for adults as well, which improves the ability of immigrants to catch up in the labor market. Social transfers,

[1] The 6th to 10th largest immigrant populations in Sweden are from Bosnia-Herzegovina, Germany, Denmark, Norway, and Turkey.

progressive taxation, and a low wage dispersion create a comparatively compressed income distribution, meaning that inequality overall is low. Since income inequality and violent crime levels are tightly linked (Fajnzylber et al. 2002), Sweden scores among the lowest countries in crime victimization surveys in terms of burglary and assaults, although it lies closer to the European average in threats, robbery, and bicycle and automobile related thefts (van Dijk et al. 2008).

However, even if the relative situation of immigrants and their children is better than in many other Western countries, there are sharp socioeconomic differences between immigrants and native-born Swedes, reflected in lower employment rates (Ekberg 1999), higher unemployment risks (Arai and Vilhelmsson 2004), and in more widespread receipt of social welfare among immigrants (Franzén 2003). These differences were substantial during the 1990s and have been amplified during the first decade of 2000.

Immigration and crime

The link between immigration and crime has received much interest over the years, but there is ambiguity about what this association means, and in this paper we consider only the relationship between immigrants as a group and their level of crime in the destination country. One might consider other causal linkages as well, for example, that immigration as a macro social force influences social conditions, which eventually leads to more crime (indeed, many studies analyze aggregate associations), or that immigration as an individual event increases the risk of future criminal behavior (which is, in part, captured by our definition). The link between immigrants as a group and a higher risk of committing crime can be explained by three sets of mechanisms (Killias et al. 2011):

(a) Integration problems, and the consequent lack of socioeconomic resources that immigrants have in general compared to natives

(b) Discrimination, both by victims (when they decide to report a crime), and/or by the police and at the following steps within the criminal justice system,

(c) Disproportionate exposure to problems (such as politically and ethnically motivated violence) in the country of origin—so called context-of-exit factors.

In this paper, we focus on explaining the gap in crime from a resource-based perspective (a) while also addressing the extent to which context-of-exit factors (c) can account for variations in crime. Our data do not allow us to assess the role of discrimination (b), although we discuss the possibility that some part of the gap is driven by differential treatment.

Crime and inequality

In several criminological and economic theories, crime and inequality are closely related: Merton's (1938) strain theory; Shaw and McKay's (1942) social disorganization theory; and Becker's (1966) rational action theory of crime all predict that exposure to socially adverse conditions and the risk of becoming a criminal are tightly linked—though they differ in the suggested mechanism producing this link. A large empirical literature largely supports this understanding of an association between crime and inequality (Freeman 1996; Kelly 2000; Lochner and Moretti 2004).

During early childhood and adolescence, children are subject to a variety of influences, of which a considerable part can be located within the family of origin. Social strain theory (Merton 1938) predicts that when individuals have few prospects for achieving social goals legitimately, they will turn to criminal means instead. Parental inputs and family background affect children's opportunity structure, and their ability to adapt to and achieve the objectives recognized by mainstream society. When the adult environment carries strong signals that available (legitimate) means are insufficient to achieve the goals of society, antisocial (or criminal) behavior may arise among children.

Consequently, differences in parental resources are likely to affect the risk for criminality. For example, poverty is intrinsically related to crime (Sarnecki 1985, Nilsson & Estrada 2009), and individuals' investment in education lowers the propensity to engage in criminal activities (Lochner and Moretti 2004). According to the economic and sociological literature, there is a strong intergenerational inheritance of inequality in terms of class position (Breen 2004, Erikson and Goldthorpe 1992), educational level (Breen and Jonsson 2005) and labor market rewards (Björklund and Jäntti 2009). Parental resources are crucial for understanding the gaps in educational and labor market careers between immigrants' children and the children of native-born families (Hällsten and Szulkin 2009). Children of parents with limited access to highly valued resources are at greater risk of crime and antisocial behavior (Jonsson 1971, Sarnecki 1985, Krivo and Peterson 2009, Bäckman and Nilsson 2007). Various types of obstacles and social mobility barriers (Zhou 1997) in the adult generation may have a negative impact on the aspirations and adaptive strategies of children of immigrants, bringing about a situation in which crime becomes a response to blocked opportunities. As a result, if adverse living conditions continue into the next generation, one may expect that children of immigrants will be disadvantaged in their attempts to realize socially accepted goals.

Control theories of crime emphasize the role of individuals' attachment to the mainstream society in preventing antisocial behavior and crime (Hirschi 1969). Parental monitoring, quality of the parent-child relationship, and well-functioning family relations are perceived as a protective factors that counter the risk of crime and other deviant behavior (McCord 1999, Sarnecki, 1985, Loeber and Farrington 1998). As immigrants' acculturation in the new society progresses, parental control seems to decrease, while control by peers tends to increase (Smokowski 2009)—and hence immigration can result in strain on family relations with possible implications for parental supervision (e.g. Sarnecki 1996). However, it has also

been argued that links to family members and relatives can be stronger among particular groups of immigrants, compared to the native-born population in Western societies (DiPietro & Beckley 2010).

In a similar vein, Becker and Lewis (1973) argued that there is a quality-quantity trade-off in raising children—largely the result of lessening the parental resources available to each child. Coleman (1988) adopted a similar perspective in arguing that parental attention and the quality of parent-child relations is more limited in larger families, which tends to dilute norm enforcement, and in turn increases the risk of adverse outcomes later on. Even though the recent literature suggest that most of the negative empirical association between sibship size and later outcomes reflects selection biases, Åslund and Grönkvist (2010) have found that for higher parities and in low educated parents, large sibship size produces a causally negative effect. Thus, if there are differences in family size between the groups analyzed in the empirical part of the paper, this may explain a part of the gap in registered crime.

Moreover, family disruption is often claimed to be one of the major indicators of the impaired social control and an important predictor of juvenile delinquency (Sampson and Wilson 2005). If children of immigrants more frequently than native-born children are raised in single-parent families, the unstable family structure may influence the risk of criminal behavior. Swedish studies suggest that family disruption differs a lot among immigrants from different countries, but that there is no clear general tendency (Andersson and Scott 2010).

Neighborhoods and peers

The social disorganization theory of Shaw and McKay (1942) predicts that individuals are more likely to engage in crime in disorganized areas where social cohesion is underdeveloped. The everyday life of individuals in a local community is characterized by specific patterns of interactions among family members, neighbors in youth centers, athletic clubs, and last but not least, within schools with other students and teachers. Members of the

local community can convey interests, norms, and aspirations, and they can exercise informal social control (e.g., Coleman and Hoffer 1987, Szulkin and Jonsson 2008). A local community where social exclusion and social problems are common and where relatively few individuals are gainfully employed may have a negative effect on the ambitions and aspirations of young people. Accordingly, considerable disadvantages may be associated with residential segregation, and the social characteristics of neighborhoods are important predictors of crime among inhabitants (Kelly 2000, Shaw and McKay 1942). Sampson et al. (1997) showed that high levels of violent crime prevail in neighborhoods with low levels of social cohesion (or collective efficacy), where people do not trust each other, where the links between neighbors are weak, and where social interactions are not cooperative.

Another portion of the literature focuses on peer groups. Young people in disadvantaged areas may face a relative scarcity of positive role models and relatively weak control from adults and end up in a situation where peer group becomes their primary arena for socialization. According to Sutherland (1947) and Sutherland et al. (1994), criminal behaviors are learned in face-to-face relations in the context of the so-called differential associations with other individuals. This type of learning among young people often takes place in their neighborhoods. As shown by Sarnecki (2001) and Warr (2002), the importance of peers for crime is central. Young people often commit crimes together with peers who are members of large social networks of criminally active youth. Members of these networks are usually recruited in the same neighborhoods where individuals grew up. Since many immigrants live in socially disadvantaged residential areas, these risks are obviously higher for them.

Minority groups who have long lived under marginalized circumstances may be disposed to develop *oppositional cultures* that challenge the central social values of the majority society (Fordham and Ogbu 1986). Similarly, according to the theory of segmented assimilation, the life-chances of ethnic minorities depend on the how damaging are their

structural circumstances in their local environment. If ethnic minorities (and their children) assimilate to impoverished and underprivileged social environments, long-term negative outcomes and social exclusion may be a consequence (Xie and Greenman 2005, Zhou 1997).[2]

Context of exit and 'culture'

Tonry (1997) and Hagan (2008) have pointed out that the reason why people emigrate is relevant when discussing immigrant crime. A substantial number of immigrants in Sweden are from conflict areas in different parts of the world. Those y men who are exposed to different types of trauma are at significantly higher risk than others for committing criminal acts (Caspi et. al 2002). Individuals exposed to violence in childhood should have an especially high risk of committing serious violent offences in adulthood. The probability of exposure to various traumas are likely greater for individuals who come from countries with violent internal conflicts or wars and high levels of political, ethnic, and social unrest and different forms of persecution. However, in her study of Swedish immigrants, Beckley (forthcoming) does not find any support for the thesis that individuals emigrating from conflict/war zones were more frequently represented among crime suspects than were other immigrants, although she notes that her measures of conflict-zones are fairly crude. Further research in this area is needed.

Another context-of-exit factor is the controversial issue of whether common traits that ethnic groups share may influence future delinquency in the new country of residence. Among the common traits mentioned in this context are culturally inherited norms and behaviors. As Sellin (1938) pointed out, stable norm conflict is only one of several possible causal explanation for crime differences between immigrant (and native-born) groups. Sellin lists a number of potential explanations that instead are rooted in the interactions of the origin

[2] For quasi-experimental studies with somewhat ambiguous results, see Kling, Ludvig and Katz (2005) and Damm and Dustmann (2009).

and destination environments. The relationship between culture and crime is still under-investigated (Mears 2002), yet some American literature suggests that immigrant crime arises from the structural differences between immigrants and natives rather than from a culture imported from abroad (Waters 1999).

Discrimination

Discrimination may operate in the selection processes prior to a crime being recorded, subsequently in the police investigation when the crime is cleared up, and finally when an individual is sentenced. Some of the differences in crime may be due to discrimination in any of these steps.

First, the difference between migrants and natives in crime is much smaller in self-reporting surveys than in recorded crimes (Shannon 2006:246, Junger-Tas et al., 2010), although this can to some extent be explained by social desirability bias as levels of self-reported crimes will tend to be depressed (Hindelang m.fl. 1981, Huizinga and Eliott 1986). However, Papadopoulos (2010) has found that, if anything, immigrants in England and Wales under-report *less*, and that there is no difference in crimes between immigrants and natives.

Second, the issue of *racial* discrimination in the legal system has received much attention in the United States. For instance, observational data from actual trials in a sample of states suggest that racial composition in juries correlates with the sentence given to the defendant: white jurors punish black and Latino offenders harder (Daudistel et al. 1999; Bowers, Steiner and Sandys 2001). Anwar, Bayer and Hjalmarsson (2010)utilized random day-to-day variation in the compositions of juries in order to address the causality of these observed correlations, and find strong evidence of discrimination based on the defendants' race. In Sweden, ethnic background seems to matter in terms of the decisions made by the police and other parts of the justice system (Kardell 2006, BRÅ 2008). Pettersson (2006) has

shown that the risk of being sentenced to prison for similar offences is higher for immigrants from countries outside Europe than for native-born Swedes. Judicial discrimination against immigrants was also found in Denmark (Holmberg and Kyvsgaard 2003).

Third, everyday practices of the police may result in disproportionately high numbers of immigrants among crime suspects. One of these practices is "racial profiling," which means that the police preferentially target persons belonging to "visible" ethnic minorities as suspects (Warren & Tomaskovic-Devey 2009). Another aspect of discriminatory practices is the so-called ecological bias, or over-policing in residential areas that are populated by immigrants (Findlay 2004, Ben-Porat 2008), which eventually leads to larger numbers of suspects of immigrant origin.

Fourth, Dahlbäck (2009) found that there is a tendency among persons exposed to crime to report the offence to the police more frequently when they believe that the offender has an immigrant background.

Consequently, there are reasons to believe that some of the gap is due to (unobserved) discrimination. Discriminatory practices in the legal system deserve attention in their own right, yet given the character of our data, the scope for analyzing this subject is very limited. Nevertheless, one can expect that a portion of the gap should remain unexplained, even with extensive controls for social circumstances.

Previous research on immigration and crime in Sweden

In his review of the Swedish literature, Kardell (2010) summarized 23 studies on crime among immigrants. In general, all studies show that immigrants are overrepresented in recorded crime compared to the native-born population. Only two of these studies attempt to explain why immigrants are overrepresented in crime by addressing social confounders. The extent of overrepresentation varies depending on what data are used, how the concept of

immigrant is defined, and the period over which the comparison is made. In general, overrepresentation is likely to be somewhat lower among sentenced individuals than among suspects (Kardell 2006). It is important to emphasize that the vast majority of Swedish studies on overrepresentation of immigrants and their children are based on recorded criminal acts, either from the police's suspicion register or from the conviction register, and thus subject to potential discrimination biases.

Nonetheless, the latest study by the Swedish Council for Crime Prevention (BRÅ 2005) shows that persons born abroad are approximately 2.5 times more frequently represented among crime suspects than people born in Sweden of Swedish-born parents. Controlling for age, sex, education, and income reduces the gap, but the remaining unexplained differences are vast (see also BRÅ 1996). The extent of overrepresentation among suspects varies depending on the country of origin and type of crime (BRÅ 2005). The overrepresentation of immigrants is largest in the most serious violent crimes (BRÅ 2005). For instance, immigrants are 5 times more likely to be suspected of rape as compared to natives, 4.2 for lethal violence (including attempts), and 4.1 times for robbery. The corresponding figure for vehicle theft and drunk driving is 1.5. Because of this, we analyze convictions for violent crimes as a distinct category.

Studies analyzing delinquency among *children of immigrants* are rather limited. According to the majority of these studies, fewer children of immigrants are represented in the crime statistics than the parental generation (BRÅ 1996; 2005 von Hofer, Sarnecki & Tham, 1998). The overrepresentation of children of immigrants varies between 1.4 to 2 times compared to Swedish-born with Swedish-born parents. This runs counter to the results from Europe and the United States, where the children of immigrants are more overrepresented in crime statistics than the parental generation (Tonry, 1997; Haen Marshall, 1997, Killias 2009). However, new evidence shows that excess risk of conviction was 1.9 for immigrants

and 2.9 for their children (Kardell and Carlsson 2009). Thus, the picture derived from recent research on Sweden is somewhat scattered.

Data and research design

The dataset used in the empirical analyses includes all individuals in the larger Stockholm metropolitan area who attended and finished ninth grade between 1990 and 1993 (N = 66,330 individuals) and whose parent(s) immigrated at least five years prior to this date (i.e., before 1985 to 1988). The latter restriction is necessary in order to have an adequate measurement of parental resources, since we risk underestimating the level of resources of immigrants close to the immigration date, before they have had any chance to adjust to their new home country. Information about each individual student was obtained from Statistics Sweden's ninth-grade register and matched with information about their parents and the neighborhoods where they were brought up, obtained from a series of registers at Statistics Sweden. These individuals were followed over time until 2005, when their recorded delinquency was collected from two registers at the National Council for Crime Prevention, the conviction register, and the suspicion register.[3]

Methodologically, we are inspired by a "premarket" design (Neal and Johnson 1996), where all explanatory variables are (1) measured before the criminal career, and (2) measured as characteristics of the individual's social origin (characteristics of parents and neighborhoods) rather than characteristics of individuals themselves in order to avoid endogeneity of explanatory variables.[4] By contrast, the only Swedish study that addresses the contribution of socioeconomic factors to immigrant-Swedish differences in crime (BRÅ

[3] The conviction register contains all convictions since 1973, and the suspicion register contains suspicions since 1991, .i.e., precisely before the recording of crimes starts at age 16 (the age of full criminal responsibility is 18).
[4] Neal and Johnson argued that controls such as experience and tenure were not feasible in studying the white-black wage gap, since these variables themselves where a part of the forces that create the wage gap in the first place, and controlling for them would thus hide a large portion of the inequality.

2005), measures explanatory variables such as education and earnings for the index individual *after* recording crimes, which for obvious reasons is plagued by endogeneity—suspected and convicted individuals can be criminal because they have low earnings/low education, or have low earnings/low education because they are criminal, especially immediately after being sentenced or convicted, and the scientific contribution of such designs are limited. In sum, our empirical model is similar to the classic attainment models (Blau and Duncan 1967), although we exclude mediating variables in order to avoid endogenous covariates.[5]

Dependent variables

In our analyses, we use six outcome variables measured in 2005, when the individuals studied were 28 to 31 years old. All of these measures refer to *accumulated crime*, that is, the total number of crimes registered up until 2005. The crimes we look at are generally serious in character. Suspicions generally refer to more serious types of crimes, as the data is extracted from operative investigation data, but we have nevertheless coded a version that excludes petty crimes.[6] Convictions refer to crimes that have been settled in court, and hence exclude ticketable offences such as speeding, and the like.[7] The outcomes follow a clear arc through the various stages in the legal process. Looking separately at violent crimes is motivated by earlier findings that immigrants are especially overrepresented in these types of crimes.

Suspicions – Total number of recorded suspected crimes

Serious suspicions – Total number of recorded suspected crimes, excluding petty crimes

Convictions – Total number of recorded convictions of any type

Prison convictions – Total number of recorded convictions to prison sentence

[5] The only exception from this "premarket" strategy is that we assert how much of the gap can be further explained by GPA from ninth grade in a supplementary analysis.
[6] All suspicions are coded with a crime code (BRÅ 2009), which we have divided into serious and petty crimes. The coding scheme is available from the authors on request.
[7] Formally, in some cases, convictions can be handed down by a prosecutor. This typically regards less serious crimes where the defendant confesses (e.g., drug possession). Prison convictions are always handled by a court.

Long prison convictions – Total number of recorded convictions to prison sentence ≥ 24 months

Violent crimes – Total number of recorded convictions for violent crimes

Incarceration – Total amount of incarceration in months

Independent variables

For each individual, the dataset contains information about sex, country (or region) of birth, age at immigration, and a wide range of parental characteristics. Immigrant status has been coded based on information about their own country of birth, whether their parents were born abroad, and the year of arrival to Sweden. If a person was born abroad of foreign-born parents, s/he is considered a first-generation immigrant. A person born in Sweden of foreign-born parents is categorized as a second-generation immigrant.[8]

The dataset contains a number of parental characteristics linked via a multigenerational register and national accounts of residence. We measure parental resources primarily via biological/adoptive parents in the index individual's household at age 16, and if we do not find a match, we use information on adults in the individual's household without a multigenerational link (2.3% of all cases). The parental resources are their highest level of education, whether they were employed or not, their class position, the family's demography pattern, and the family's total disposable income. All parental characteristics are measured during the year in which their child completed compulsory schooling (usually at age 16), except parents' class position, which is measured in the 1990 census (when parents had resided in Sweden for at least two years according to our sampling criteria).

[8] If there is information about one parent only, we use her/his country of birth to identify the status of the children. It follows from our definition that children are considered to be of Swedish origin if one of their parents was born in Sweden.

Parents' level of education is coded according to the dominance principle, whereby the parent with the highest level of education represents the family's collective educational resources. The variable is divided into compulsory schooling, short (vocational) secondary education, long (theoretical) secondary education, short post-secondary education, academic education, and, finally, postgraduate studies. Parental employment is coded separately for both parents and is defined as annual earnings above 60,000 SEK (in 2003 prices; this limit is around one-quarter of median annual earnings), which allows us to capture the effect of being brought up in a family with one or two parents with at least some attachment to the labor market. Parents' class position is measured in the 1990 census as the Swedish equivalent SEI of the international EGP scheme, with nine categories (Erikson & Goldthorpe 1992), and coded according to the dominance principle (Erikson 1984). A category for missing class origin is included, which refers to individuals with non-employed and unemployed parents in 1990.[9] Family demography is captured by variables that measure whether the child is living with a single father or mother, and the number of siblings in the household in three age spans (0 to 6, 7 to 12 and above 13 years). There is also information about final grade point average (GPA) from compulsory schooling.

In addition, we have information on the neighborhood when the child completed compulsory schooling at age 16,[10] defined as Statistics Sweden's detailed SAMS classification.[11] One important advantage of this classification is that it splits Swedish

[9] The results for the immigrant-Swedish differences in crime are largely similar whether one excludes individuals with no defined class origin or includes them by means of this dummy variable. If one omits the class origin variable altogether, the gap is slightly higher, but this is robust to changes in the sample selection criteria (i.e., that one parent must be present in 1990 and/or have lived at least five years in Sweden before their child successfully completes compulsory education).

[10] The reason why we have based our analysis on neighborhoods rather than schools is that the measure of neighborhood explains more of the delinquency gap between the groups in later life than do schools, although schools explain more of the individual variation in delinquency (results can be obtained upon request).

[11] SAMS is the acronym for Small Area Market Statistics. There are approximately 9,200 SAMS areas in Sweden. The average population residing in a SAMS is about 1,000 persons. The SAMS is developed by each municipality for administrative purposes (e.g., planning of social services), but serves as a good proxy of neighborhood because their size is relatively small. It should, however, be noted that there is heterogeneity in the definition of SAMS across municipalities.

residential areas into small socially homogenous neighborhoods. The SAMS classification is comparable to a United States census tract (Galster et al. 2008). We use this information primarily as a fixed effect, which captures both observed and unobserved aspects of the neighborhood. [12] A major problem when assessing the influence of segregation on outcomes is that families with different socioeconomic positions are non-randomly selected into neighborhoods of different affluence, and these population sorting effects are difficult to distinguish from the "true" contextual effects (Manski 2000).[13] Our interest here is not to distinguish between these kinds of explanations, but to gauge the total of social circumstances that can generate crime. Since the fixed effects also capture unobserved characteristics of families, they are upward-biased estimates of the true contextual effects.

Methodological limitations

Our method is, despite efforts to minimize endogeneity, still subject to some potential biases. The first is measurement error. For example, parents' earnings and employment are measured in only one year, which is known to create attenuation biases (Solon 1992). It is problematic to construct measures of permanent non-employment and earnings (which are averaged over longer time periods) since some immigrants arrived in Sweden recently. Instead, temporal variance in these resources will attenuate the effect. However, social class largely reflects permanent inequality and thus circumvents a part of this problem.

[12] We also construct observable measures of ethnic and socioeconomic segregation: the percentage of first-generation immigrants in the neighborhood and a composite index of average education and average incomes (with Cronbach's alpha above .8). These aggregate measures are constructed on what we call the individual's peers; that is individuals 16 to 21 years old and their parents living in the same neighborhoods. Both these measures are jack-knifed. For each family, the variables describe the average conditions of the other families in the neighborhood.

[13] Selection effects emerge because people in the same social environment tend to have similar individual characteristics. For example, children from different social situations live in different neighborhoods and attend different schools with very different characteristics. The differences in future careers, in the educational system, on the labor market but even in the criminal careers between young individuals raised in different neighborhoods can therefore depend on differences in social background of the inhabitants between the neighborhoods.

Education for Swedes is collected from school and university registers, but education of immigrant parents is largely self-reported via a survey to recently arrived immigrants. Therefore, the amount of missing information is larger among the recently arrived than among the rest of population,[14] and the self-reported information for immigrants is subject to social desirability bias. There is some anecdotal evidence that immigrants really over-report their education, but precise figures are lacking.[15] We also know that some immigrant groups are in fact more deprived of resources than our measures indicate. For instance, basic education from some African countries may impart substantially less human capital resources than the corresponding level indicated in the Swedish statistical classification. Although we cannot correct for measurement error, we know the direction of bias. The indicators of parental resources will predict crime less well and their coefficients will be attenuated, and as a result, the immigrant effect will be biased upwards. In this sense our estimates are the upper bounds of the gap.

Second, as in any analysis based on observable control variables, we suffer from omitted variable bias. Immigrants may carry characteristics that influence crime that we cannot observe. For this reason, we analyze ethnic correlations in crime in order to examine for the sources of omitted variable bias. This is explained in further detail below.

Third, as well known, the concept of crime involves, many different kinds of behaviors. It is important to emphasize that in this paper we only examine a small and not representative fraction of the total number of crimes committed in a society. The crimes reported to the police and crimes solved by the police differ in many respects from the punishable acts which

[14] Parents' education is the variable with the largest amount of missing information. For individuals with a Swedish background, we lack information on 2.2 % of all cases. For the immigrant group, the figure is 4.3 % for children of immigrants, 5.6 percent for children immigrating at age 0-6, 9.4 percent for children immigrating at age 7-12 and 26.4 % for children immigrating at age 13-16 (i.e., directly into the 9th grade).

[15] In a report on the education register, Statistics Sweden wrote: "A small number of people, n =1900, with the highest education at the postgraduate or long-tertiary level and with input from the immigrant survey have, after checking against the Swedish National Agency for Higher Education's evaluations of foreign degrees, been assigned to the lower tertiary level (Statistics Sweden 2005, p. 12, our translation)." It is clear that this only applies to immigrants, but we do not know the denominator which we should relate these 1900 cases to.

are not reported or not solved by the police, not least in terms of seriousness and character. Generally, the proportion of serious crimes may be expected to be higher among the registered crimes compared to overall criminality. Similarly, the proportion of serious offenders is higher among crime suspects and sentenced persons, compared to all individuals who commit criminal acts (Sarnecki 2009).

Statistical models

Crimes can be thought of as generated by both extensive and intensive processes, that is, (1) the propensity to commit crime, and (2) the number of crimes committed in the criminal career. Suspicions and convictions are count variables, and the number of months of incarceration is a continuous variable. All outcome variables considered in this paper are positively skewed with a large number of zeroes. Of the non-zero values, the occurrence of higher values declines in a logarithmic fashion. Our strategy is first to analyze the extensive margin (crime vs. no crime) using linear probabilities models since the limited dependent variables family of models comes with problematic assumptions of the error distribution.[16] Since the separation of criminal extensity and intensity is of high theoretical interest, we then examine the extent to which the effects are proportional for different positions in the crime distribution. Angrist and Pischke (2009) have proposed that the analysis of the function $P[Y \geq C]$, with a varying threshold C, should be used to assess how effects might vary in the outcome distribution. [17] This keeps the estimation sample intact across models and avoids

[16] For Poisson regression and negative binomial, the empirical error distribution does not exist and the error variance is instead assumed to be fixed. This leads to severe problems for interpretation (Winship and Mare 1984; Mood 2009). For the censored or Tobit regression, the latent error distribution is assumed to be normal, and this requirement is not met, the estimator produces inconsistent results.

[17] In practice, this is accomplished by running and OLS/linear probability model on a Y recoded to a dummy variable with C as the breaking point (i.e., the dummy function $1[Y \geq C)]$).

selection biases that arise when analyzing the intensive margin separately (see Angrist & Pischke 2009, section 3.4.2).

In order to increase the ease of interpretation of the linear probability models, we present relative elasticities E(Y)/dX, based on marginal effects evaluated at the independent variables' means. The estimates are generally comparable across outcomes even though the levels of effects on absolute Y will differ. The relative elasticity is understood as the proportional change in Y that a unit change in X produces. This is in principle a risk ratio, although constrained to a specific evaluation point and not constant across the whole outcome distribution (cf. odds ratios in LDV models). Thus, we talk about the 'gap' as the proportional difference in crimes between individuals of Swedish and immigrant backgrounds.

Estimating the impact of common ethnic background

The overarching aim of the paper is to assess how much of the differences in delinquency between young people of immigrant background and young people of native Swedish background can be attributed to differences in socioeconomic resources. While this approach will yield important insights, it is plausible that some residual inequality in crime cannot be explained, and can therefore not be interpreted. In order to sort among the explanations for any remaining gap in crime between the groups studied, we turn to a covariance decomposition methodology whereby we seek to identify how much of the variance in crime can be ascribed to stable ethnic (or country of origin) heterogeneity in the population. We do not have data that would allow us to distinguish between different types of childhood experiences such as the experience of war and culture inheritance, but we are able to estimate their overall impact on crime.

We are unable to identify ethnic groups from the data, so we proxy this by parents' birth country, which consists of countries for the largest immigrant groups and country clusters for

minor groups (20 categories in all). Many origin countries contain very diverse populations, and as a consequence this proxy will both under- and overestimate the ethnic diversity. Consider Turkey, for example. Immigrants from Turkey can belong either to the majority group, to various groups of Christian minorities, or belong to the Kurdish group. The Kurds, however, come from many countries: Turkey, Iran, Iraq and Syria to name the largest. Since there can be considerable heterogeneity within birth countries, we use immigration year in order to distinguish among immigration waves, assuming that waves are more ethnically homogenous.

We have experimented with three measures: a combination of the mother's and father's birth country interacted with a two-period time variable; only the mother's birth country interacted with the two period time variable; and lastly, the mother's birth country interacted with a four-period time variable—and all yield similar results.

Even though we observe that average levels of (adjusted and unadjusted) crime rates differ between nationalities (results not shown), our aim is here to establish the degree of similarity in crime for two randomly drawn individuals from the same country of origin—this parallels the large literature in economics on sibling correlations, where this approach is used to identify the impact of stable and shared origin conditions on future outcomes. A high degree of similarity between two individuals in the ethnic group will indicate that there is a common crime factor, and a low similarity will indicate that such a factor is weak, or nonexistent. Taken in formal terms, consider a regression model where the data has two levels: individuals *i* clustered in ethnic groups *j*.

$$Y_{ij} = \mathbf{X}_{ij}\mathbf{B} + u_j + e_{ij} \qquad (1)$$

The crime outcome Y is expressed as the function of a vector of family *and* neighborhood characteristics X and an *ethnicity fixed effect* u_j that captures all time-invariant characteristics of the ethnic group.[18]

In practice, we accomplish the decomposition by rearranging the data to form all unique individual pairs within the defined ethnic groups, and then calculating the correlations on those pairs (see Solon, Page and Duncan 2000 for the formulas that we apply). Since we have some ethnic groups that are very large and the number of unique pairs becomes extensive (e.g., individuals of Swedish background), we take a random sample for groups larger than 1,000 individuals. We compute an analytical weight defined as the square root of the sampling weight, $(N_j/n_j)^{1/2}$, in order to make the large groups less dominant in the estimates, and use this to adjust all estimates to represent the original sample.[19] Because the majority population will nevertheless have a great influence on the results, we also compute the correlations with and without individuals with Swedish background. We then compute the correlation for the unadjusted crime outcome, and also the correlation in family and neighborhood influence on crime via the *predicted* XB-vector. By removing the latter correlation from the former, we arrive at the adjusted ethnic correlation.

$$\rho_{unadjusted} = Cov(Y_{ij}, Y_{i'j})/Var(Y_{ij}) \quad (2a)$$

$$\rho_{adjusted} = \left[Cov(Y_{ij}, Y_{i'j}) - Cov(\mathbf{X}_{ij}\mathbf{B}, \mathbf{X}_{i'j}\mathbf{B})\right]/Var(Y_{ij}) \quad (2b)$$

[18] Note that the X-vector contains both observable family characteristics and neighborhood fixed effects (represented by dummies). The inclusion of neighborhood fixed effects also makes the equation capture some unobserved family characteristics. This approach rests on the assumption that ethnic groups and neighborhoods are not collinear, as if some ethnic groups totally dominated some neighborhoods. Segregation in Sweden is however not of that character. Even if neighborhoods with large concentrations of only one group exist, the concentration is rarely extremely high (cf. Brännström 2008: 466).

[19] In this case, it is better to use an analytical weight than a sampling weight, as our aim is to understand the contribution to crime of small ethnic groups, rather than to estimate a population parameter. Solon, Page and Duncan (2000) tested a number of weighting schemes when aggregating family covariances to the neighborhood and the population level, and the square root weight showed the most desirable properties in terms of variance and not over-weighting large families.

One problem that must be acknowledged is that the limited distribution of variables, with a large number of zero crimes, limits the variance necessary for identification. The number of ties (i.e., two individuals with no crimes) is high since around 70% are never convicted nor suspected. The difference in crime for ties will then become zero, and these observations will not contribute to the estimates. The effective sample size is therefore reduced to pairs with variation in crimes. However, our use of lifetime accumulated crime reduces this problem by increasing variation across individuals, compared to cross-sectional observations of crime or shorter observation windows. Since our outcomes are heavily skewed, we use both Pearson and Spearman correlations, which are implemented either by keeping the original scaling of Y or by turning it into ranks.

Results

The unconditional averages of the delinquency indicators are shown in Tables 1 and 2, for men and women separately. The tables show crimes both in terms of total quantity and the probability of a non-zero value, together with selected indicators of parental and neighborhood resources. As noted above, the outcome variables are severely skewed. The vast majority of our population does not have any recorded crimes at all, although around 30% have been both suspected and convicted for any type of crime. While these numbers may appear high, they are in line with other findings in the literature (BRÅ 2005; Hjalmarsson and Lindquist 2009). One should remember that these figures capture total accumulated crime, not a snapshot of recorded crime where we could expected far lower incidence levels.

Children of immigrants have, on average, higher values on all delinquency variables than children of Swedish origin, and the differences are vast. On average, 30% of young native-born Swedish men have any recorded suspicions. For the first generation of immigrants, the corresponding figure is almost 60%, and 50% for the second generation. (The

results here conform with results from Swedish research on recorded crime among immigrants and immigrant children, BRÅ 1996, 2005, see above). The average sentence for a man with Swedish family background is half a month. The corresponding figure for a person born abroad is close to three months, and for a man born in Sweden of immigrant parents, the average is approximately two months. In relative terms, the overrepresentation ranges from 50% to more than 100% above the level of individuals of Swedish origin. The second generation has a lower level of overrepresentation and, consistent with previous studies (compare Pettersson 2006; SOU 2006), the highest overrepresentation is found in violent crimes and incarcerations (compare BRÅ 2005). Even though the absolute levels of delinquency are clearly lower for women, a very similar gradient over the first and second generation is found. There are also striking differences in resources between the groups: children of immigrants come from households with less educated parents and lower earnings, and they live in neighborhoods where peer resources are clearly lower. For example, the differences in parents' average education in a neighborhood are very strong, approximately one standard deviation for both males and females of the first and second generation.

The gap in the extensive margin

Table 3 presents the relative elasticity E(Y)/dX from three different models for each crime outcome for males. An overview of the control variables used in our analyses is presented in Table A1 in the appendix. The first model contains the raw gap, the second model adds controls for all family resources, and the third model adds neighborhood fixed effects, thus controlling for all invariant neighborhood characteristics. In contrast to Tables 1 and 2, we also use information about the age at arrival for individuals born outside Sweden in order to assess whether crime levels can have anything to do with time spent in Sweden. The group immigrating at age 13 to 16 is very limited in size, only about 133 individuals fall into this

group (this is a consequence of our sample selection criteria), so we do not pay much attention to the results for this specific group.

It should be noted that each of the control variables have effects in line with theory—crime is lower among sons and daughters of highly educated parents and of parents with advantaged class positions. High family income reduces crime, as does parental employment. Children who have experienced family dissolution are more prone to crime, as are children with many siblings, especially siblings in the youngest age group of 0 to 7 when completing compulsory schooling.

Starting with rates of suspicion, first generation immigrants have about 60% to100% higher suspicion rates when comparing raw levels of crime. Comparing Models 1 and 2 shows that the gap in the number of suspected crimes between the groups analyzed is largely reduced when resources in the family of origin are included. The reduction in the gap varies between 53% (persons who immigrated at age 13-16) and 66% (for second generation). In Model 3, we analyze the impact of segregation by adding neighborhood fixed effects. The additional reduction in the gap is rather large. The remaining differences range from 34% (for late arrivals) down to 20% for the second generation and for individuals immigrating between the ages of 7 to 12. The results are very similar for rates of suspicion of serious crimes (which is a subset of the former), but the reduction in the gap in the final model is smaller, so that up to 70% of the gap can be explained by our controls.

Turning to convictions, the raw overrepresentation is weaker, around 45% to 60%. Nevertheless, the model can explain between 66% and 80% of that gap in outcomes. For convictions leading to a prison sentence, the raw gap is much more accentuated, between 120% and 170%, meaning that the overrepresentation is stronger for more serious crimes. Nevertheless, apart from individuals immigrating at age 13 to 16, the model explains between 62% and 88% of the gap. The remaining overrepresentation is 20% to 65%.

When analyzing prison convictions longer or equal to two years in prison, the overrepresentation is extreme, between 240% and 330%. Here, the model explains 40% of the gap for second generation and 60% of the gap for first generation. For convictions for violent crimes, the raw overrepresentation is again weaker (75% to 140%), and the model explains 60% to 75% of the gap.

To sum up, it appears that even though immigrants' overrepresentation in recorded crimes and especially in more serious crimes is vast, most of the inequality in crime can be explained by parents' resources and neighborhood segregation. In virtually all outcomes, there is a gradient across immigration ages in the raw gap (leaving the very small group immigrating at age 13-16 aside), where the gap is lowest among second generation and highest among those immigrating at age 7-12. This gradient clearly dampened in the last model with full controls for both family resources and neighborhood context. Nevertheless, apart from prison convictions and long prison convictions, individuals born in Sweden of foreign-born parents have the lowest overrepresentation. To some extent, time in Sweden may insure against convicted delinquency—in line with perspectives of gradual integration via increased language proficiency that increases life-chances in general.

Interestingly, essentially the same results are reproduced for females in Table 4. Of course, as Table 2 reveals, crime rates are much lower, but in relative terms, the differences across children of immigrants are similar: there is a tendency to a positive gradient across immigration age, and the raw overrepresentation is similar to that of males, in the range of 50% to 300%. This is in line with expectations (compare BRÅ 1996, BRÅ 2005). Given that fewer females are recorded criminals, the results become noisier. What is striking is that our models explain most of the gap, sometimes up to 100% of it.

There is therefore both a gender-specific and a common pattern: most of differences in crime between children of immigrants and individuals of native Swedish background can be

explained by our fairly simple indicators of socioeconomic resources. The gap in female crime is more dependent on social resources than is male crime. Hence, what can be observed (unconditionally) as an overrepresentation in crime among children of immigrants is to the large extent economic and social inequality in disguise.

Differential effects across the crime distribution

In the models presented above, we limited the analyses to the incidence of criminal records and ignored their intensity. Table 5 presents a selection of models for males in which we analyze the function P[Y≥C], described above, by means of linear probability models. As there is very limited variance in female criminal intensity, this analysis only has meaning for males. In order to simplify the presentation of results, we collapse immigration ages into first and second generation.

It is clear that the gap in crimes varies across the crime distribution. For example, at the extensive margin (the threshold C = 1), first generation immigrants have 84% higher risk of being suspected for a serious crime, without taking family and neighborhoods controls into account. When we move up in the distribution of suspicions for serious crimes, the raw proportional effect increases, in this case from 84% to 147% (C=15). The increasing pattern is true for all of our crime outcomes, but the gradient is stronger for convictions than suspicions. Hence, the immigrant overrepresentation appears larger in intensity than in extensity.

What is striking, however, is that our ability to explain the gap is not very different across the crime distribution. For serious suspicions, we are able to explain more of the contrast between first generation and individuals of Swedish background in intensive margins than in the extensive margins (70% for C= 1 vs. 80% for C=15). The gradient across cut-off points is dampened with family and neighborhood controls, but there is still a tendency that the gap increases with intensity. For prison convictions and for convictions for violent crimes, the reduction fluctuates across the distribution in a non-systematic way, which supports the

notion of constant explanatory power, and for incarceration, we see a clear tendency that the control variables explain less for longer times in prison.

Supplementary and sensitivity analyses

In supplementary estimates not shown, we also assess the role of observed neighborhood characteristics and individuals' own GPA from ninth grade. It appears that the influence of the percentage of immigrants and income and education in the neighborhood can largely reproduce the impact of neighborhood fixed effects on the gap. Hence, the unobserved component of neighborhoods does not have an impact on the gap *per se* (even though it adds explanatory power to the model).

Introducing GPA from compulsory schooling adds little to explaining the gap. If anything, the gap widens with this control. Hence, educational performance does not contain any further information that is not inherent in family resources and in the neighborhood effects.

Finally, adding information on parents' crime as a further control variable does not influence the gap, despite the fact that it goes a long way toward explaining criminal behavior in children (cf. Hjalmarson & Lindquist 2009). This is either the effect of immigrant parents' being less crime prone than Swedish parents, or that they have spent too short a time in Sweden to be recorded as criminals.

Heterogeneity by country of origin

What then can explain the remaining 25% to 50% of the crime differences between children of immigrants and individuals of Swedish origin. Table 6 presents the results for males, where the identification of intragroup correlations is more stable due to higher average levels of crime, and where individuals with a native-Swedish background are omitted (the results for

females, and including individuals with a Swedish background are available on request, and do not differ systematically from the presented results).

The last two columns present the unadjusted and the adjusted ethnic correlations. The largest adjusted correlation found is the Spearman correlation for suspicions, serious crime suspicions, and convictions, where it is close to .01. In these cases, the unadjusted correlations are about 50% higher (maximally 0.02), so differences in socioeconomic risk factors do explain some of the pattern. For all other, more severe outcomes like convictions to prison sentences, violent crimes, and incarceration, the ethnic correlations are even lower, approximately or less than .01. It is also the case that Spearman correlations are larger than Pearson correlations. Given the skewed data, the former should be preferred. For reference, the brother correlations are also showed in the left columns of Table 6, and appear in line with the literature. Hence, a large proportion of the crimes committed by children of immigrants (and of natives) is explained by family-constant factors, although most of the crime is explained by factors unique to each individual.

Although we believe that the presented ethnic correlations are upwardly biased due to remaining similarities in unmeasured socioeconomic circumstances, they suggest that ethnicity, using our definition above, plays a limited role in generating crime. The raw ethnic correlations are very small, and adjusting them to account for shared family and neighborhood circumstances makes them miniscule. If there is a downward bias due to limitations in the proxy, for example, in the overlaps between birth countries and ethnicities, this bias needs to be rather large to counter the very low correlations that we observed. In summary, this means that the sum of stable ethnic (that is, culture and context of exit experiences) is a comparatively unimportant factor in the generation of crime among children of immigrants in Sweden.

Discussion and conclusion

Given that we can in general explain between 50% and 80% of the gap in crimes between children of immigrants and children with a native-Swedish background (for males) with family resources and neighborhood segregation, without even considering individual-level characteristics (due to their potential endogeneity), and that different ethnic group proxies *do not* share a common crime pattern, the explanation for the remaining gap must be sought in unmeasured characteristics *unique to each individual*. It is salient that our regressions only explain around 1-2% of the variance in crimes (not shown).

Our results, regarding how much of the difference in recorded crime can be explained by the socioeconomic conditions during childhood, are very different from the hitherto presented results from Swedish research. According to BRÅ (2005), the difference in recorded crimes between immigrants and native Swedes reduces only slightly after standardization for such variables as the individual's sex, age, education and income. The difference between immigrants and Swedes is reduced from 2.5 times to 2.1 times (by 16%), while the difference between children of immigrants and Swedes decreases from 2.0 to 1.5 times (by 25%) (BRÅ 2005, p. 40). Why do we find such stronger effects of socioeconomic mediators? As we have already pointed out, the answer to this question is rather simple. BRÅ examined only the circumstances of the studied individuals themselves, while we are studying factors related to childhood conditions such as parents' education and income, family composition, and the effects of residential segregation.

Thus, our study contains more information about more theoretically relevant variables. A limitation of our study is that we are forced to limit ourselves to studying a population of young people. For older generations, the crucial variables are impossible to obtain, that is, the conditions under which people who arrived to Sweden as adults grew up are largely unknown. On the other hand, there is no reason to believe that the factors causing the differences in

recorded crime between older immigrants and Swedes were significantly different from those of our study group.

While the actual reason for the residual patterns observed remains to be explained, we suspect that selection processes in the legal system, or outright discrimination, may lie behind some of our results. This hypothesis is partly supported by the fact that our independent variables explain significantly less of the difference between children of immigrants and Swedes in the length of imprisonment compared, for example, to the number of criminal charges. Previous research (Pettersson 2006), has suggested that there are substantial differences in the length of prison sentences between immigrants and Swedes that cannot be explained by the seriousness of the offence and extent of previous offending. If the courts discriminate against immigrants by sentencing them to longer prison terms compared with Swedes, this would mean that the part of the difference between the children of Swedes and immigrants which is unexplained by socioeconomic resources may be caused by discrimination, and hence captured by our immigrant dummy variables instead.

Another possible explanation is that the context of exit, including civil wars, social unrest, political and ethnic persecution in the country of origin, which were the reason for emigrating in the first place, has a long-term effect on the (antisocial) behaviors in the new country. The weak intraethnic correlations contradict this hypothesis. However, the troublesome conditions of childhood may have only been experienced by some portion of immigrants from a certain country, and thus operate on the individual level. Under this assumption, these conditions would not result in high correlations for all persons from the country, but may still produce unexplained residuals.

A distinction should also be made between parental and own experiences of leaving the country of origin and adapting and growing up in a new country. This presumably varies greatly across individuals even in the same ethnic group, and is probably also different

between parents and their children. One cannot expect the models we use here to explain the entire gap given that there is so much we cannot observe, but our results suggest that stable ethnic characteristics (or shared cultural background) are not a plausible explanation.

Instead, we conclude that the bulk of the difference in recorded crime between immigrants and Swedes (or at least the children of immigrants and Swedes), contrary to what has been previously suggested in the Swedish research, can be explained by variables such as family and neighborhood resources. This result is important when discussing differences in immigrant's levels of crime across Europe and the United States. While there is a consensus that immigrants in the United States are less prone to crime (Lee & Martinez 2009), our study indicates the Swedish overrepresentation in crime is much exaggerated and largely reflects differences in living conditions. This may well apply to the European case more generally, for which reason we believe that our study design should be incorporated in comparative work.

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Table 1. Crime outcomes, selected parental and neighbourhood resources by immigrant background for males.

Variable	Swedish born, Swedish parents	Immigrants	Sig.	Children of immigrants	Sig.
Suspicions	3.234	8.510	***	6.476	***
	(17.181)	(24.985)		(20.054)	
Suspicions, 0/1	.304	.528	***	.454	***
	(.460)	(.499)		(.498)	
Serious suspicions	2.360	5.561	***	4.280	***
	(14.877)	(17.486)		(13.978)	
Serious suspicions, 0/1	.237	.456	***	.394	***
	(.425)	(.498)		(.488)	
Convictions	.780	2.207	***	1.595	***
	(2.351)	(4.953)		(3.836)	
Convictions, 0/1	.296	.498	***	.432	***
	(.456)	(.500)		(.495)	
Prison convictions	.065	.307	***	.195	***
	(.530)	(1.274)		(.922)	
Prison convictions, 0/1	.031	.101	***	.078	***
	(.175)	(.302)		(.268)	
Convictions for violent crimes	.105	.316	***	.234	***
	(.462)	(.891)		(.741)	
Convictions for violent crimes, 0/1	.071	.171	***	.135	***
	(.258)	(.376)		(.341)	
Incarceration, months	.605	3.266	***	2.338	***
	(6.804)	(16.894)		(14.879)	
Incarceration, 0/1	.031	.101	***	.078	***
	(.175)	(.302)		(.268)	
Parents' education, years	12.627	10.194	***	10.420	***
	(2.639)	(3.186)		(3.020)	
Disposable family income	388.642	285.999	***	302.030	***
	(409.304)	(114.287)		(117.622)	
Peers' parents' average income	422.421	346.307	***	367.880	***
	(95.919)	(65.079)		(72.991)	
Peers' parents' average education years	11.758	10.195	***	10.694	***
	(1.187)	(1.438)		(1.423)	
Observations	29033	2084		2680	

Table 2. Crime outcomes, selected parental and neighbourhood resources by immigrant background for females.

Variable	Swedish born, Swedish parents	First generation	Sig.	Second generation	Sig.
Suspicions	.401	.828	***	.639	***
	(4.166)	(3.628)		(3.347)	
Suspicions, 0/1	.103	.216	***	.155	***
	(.304)	(.411)		(.362)	
Serious suspicions	.224	.465	***	.325	*
	(3.235)	(2.453)		(1.902)	
Serious suspicions, 0/1	.058	.127	***	.092	***
	(.234)	(.333)		(.289)	
Convictions	.127	.312	***	.209	***
	(.632)	(.999)		(1.002)	
Convictions, 0/1	.090	.185	***	.115	***
	(.286)	(.388)		(.319)	
Prison convictions	.002	.006		.009	
	(.076)	(.106)		(.217)	
Prison convictions, 0/1	.001	.004	*	.003	
	(.036)	(.066)		(.058)	
Convictions for violent crimes	.009	.020	**	.014	
	(.104)	(.184)		(.190)	
Convictions for violent crimes, 0/1	.008	.016	**	.009	
	(.092)	(.128)		(.097)	
Incarceration, months	.021	.105		.043	
	(1.288)	(2.568)		(1.215)	
Incarceration, 0/1	.001	.004	*	.003	
	(.036)	(.066)		(.058)	
Parents' education, years	12.625	10.135	***	10.376	***
	(2.641)	(3.246)		(3.063)	
Disposable family income	382.939	282.688	***	302.943	***
	(307.864)	(117.699)		(122.328)	
Peers' parents' average income	420.872	350.381	***	363.276	***
	(96.216)	(79.821)		(72.377)	
Peers' parents' average education years	11.730	10.234	***	10.620	***
	(1.194)	(1.459)		(1.426)	
Observations	27404	1984		2575	

Table 3. Summary of regression models of crime on family and neighbourhood resources for males. Relative elasticities.

		Model 1	Model 2		Model 3	
		E(Y)/dX	E(Y)/dX	Reduction (%)	E(Y)/dX	Reduction (%)
Suspicions	Second generation	0.449 (.03998)	0.152 (.03431)	66.2	0.087 (.03297)	80.7
	First gen: 0-6	0.650 (.05520)	0.245 (.05032)	62.3	0.160 (.05751)	75.5
	First gen: 7-12	0.697 (.06276)	0.240 (.06227)	65.6	0.131 (.06282)	81.2
	First gen: 13-16	0.952 (.16068)	0.443 (.14983)	53.5	0.321 (.15819)	66.3
Serious suspicions	Second generation	0.592 (.05347)	0.250 (.04677)	57.8	0.169 (.04335)	71.5
	First gen: 0-6	0.798 (.06938)	0.328 (.06360)	58.9	0.232 (.07014)	70.9
	First gen: 7-12	0.893 (.07485)	0.360 (.07225)	59.7	0.221 (.07354)	75.3
	First gen: 13-16	1.109 (.20729)	0.514 (.20402)	53.6	0.349 (.21372)	68.5
Convictions	Second generation	0.433 (.03937)	0.157 (.03617)	63.8	0.111 (.03587)	74.4
	First gen: 0-6	0.637 (.05825)	0.263 (.05334)	58.6	0.215 (.05914)	66.2
	First gen: 7-12	0.634 (.06181)	0.208 (.06533)	67.2	0.130 (.06661)	79.5
	First gen: 13-16	0.717 (.20106)	0.237 (.20443)	67.0	0.132 (.21100)	81.6
Prison convictions	Second generation	1.210 (.15049)	0.566 (.15102)	53.2	0.455 (.16314)	62.4
	First gen: 0-6	1.716 (.26953)	0.808 (.26023)	52.9	0.655 (.26745)	61.8
	First gen: 7-12	1.656 (.26506)	0.529 (.27740)	68.1	0.193 (.27561)	88.4
	First gen: 13-16	3.835 (1.3265)	2.586 (1.3281)	32.6	2.334 (1.3282)	39.1
Prison convictions ≥ 2 yrs	Second generation	2.440 (.36627)	1.708 (.36830)	30.0	1.497 (.41278)	38.6
	First gen: 0-6	2.421 (.62527)	1.298 (.62435)	46.4	0.998 (.68000)	58.8
	First gen: 7-12	3.398 (.80075)	1.907 (.84700)	43.9	1.300 (.86086)	61.7
	First gen: 13-16	5.541 (3.0751)	3.768 (3.1256)	32.0	3.101 (3.2068)	44.0
Violent crime convictions	Second generation	0.744 (.10597)	0.282 (.10200)	62.1	0.174 (.09985)	76.6
	First gen: 0-6	1.245 (.14883)	0.581 (.13576)	53.4	0.468 (.14369)	62.4
	First gen: 7-12	1.396 (.18012)	0.602 (.17941)	56.9	0.344 (.18430)	75.4
	First gen: 13-16	1.164 (.66135)	0.274 (.64981)	76.5	-0.019 (.67840)	101.6
Incarceration	Second generation	1.296 (.16188)	0.652 (.16402)	49.7	0.537 (.17635)	58.5
	First gen: 0-6	1.845 (.29428)	0.927 (.28520)	49.8	0.788 (.29066)	57.3
	First gen: 7-12	1.750 (.27810)	0.597 (.29491)	65.9	0.248 (.29578)	85.8
	First gen: 13-16	4.255 (1.4383)	2.984 (1.4427)	29.9	2.736 (1.4388)	35.7

Note: All elasticities refer to the contrast to individuals born in Sweden by Swedish parents. Model 1 includes controls for graduation year, model 2 adds family resources (single mother/father, number of siblings, parents' education, indicators for employed father/mother and family disposable income), model 3 adds neighbourhood fixed effects. Standard errors are adjusted for clustering by neighbourhood. N=50,154. The reduction is relative to model 1.

Table 4. Summary of regression models of crime on family and neighbourhood resources for females. Relative elasticities.

		Model 1	Model 2		Model 3	
		E(Y)/dX	E(Y)/dX	Reduction (%)	E(Y)/dX	Reduction (%)
Suspicions	Second generation	0.463 (.07240)	0.095 (.07060)	79.6	0.016 (.07523)	96.6
	First gen: 0-6	0.845 (.11343)	0.312 (.10978)	63.1	0.180 (.11591)	78.7
	First gen: 7-12	1.199 (.16066)	0.552 (.16458)	53.9	0.431 (.17714)	64.0
	First gen: 13-16	1.455 (.48337)	0.718 (.47624)	50.6	0.569 (.48882)	60.9
Serious suspicions	Second generation	0.511 (.10442)	0.072 (.10454)	85.8	-0.013 (.11075)	102.6
	First gen: 0-6	1.006 (.15461)	0.406 (.15625)	59.6	0.237 (.16706)	76.4
	First gen: 7-12	1.209 (.22537)	0.499 (.23324)	58.7	0.368 (.24452)	69.5
	First gen: 13-16	0.932 (.55128)	0.078 (.54673)	91.6	-0.081 (.55613)	108.7
Convictions	Second generation	0.233 (.06647)	-0.065 (.07105)	127.9	-0.094 (.07991)	140.4
	First gen: 0-6	0.912 (.13018)	0.462 (.13593)	49.4	0.404 (.13866)	55.7
	First gen: 7-12	1.061 (.16566)	0.487 (.17143)	54.1	0.468 (.18367)	55.9
	First gen: 13-16	1.671 (.56143)	1.036 (.54832)	38.0	0.920 (.54565)	45.0
Prison convictions	Second generation	1.077 (.66766)	0.123 (.69618)	88.6	-0.022 (.70331)	102.1
	First gen: 0-6	0.558 (.93721)	-0.654 (.98915)	217.2	-0.881 (.93307)	257.8
	First gen: 7-12	3.515 (1.9703)	2.237 (1.9764)	36.4	1.681 (2.0179)	52.2
	First gen: 13-16	-0.766 (.09457)	-2.573 (.56103)	-235.7	-2.435 (.70746)	-217.7
Prison convictions ≥ 2 yrs	Second generation	2.672 (2.0772)	2.101 (2.1022)	21.4	1.989 (2.2882)	25.6
	First gen: 0-6	7.312 (4.8329)	6.392 (5.0527)	12.6	6.423 (5.1255)	12.2
	First gen: 7-12	-0.483 (.21102)	-1.431 (.85519)	-196.5	-2.544 (1.0082)	-427.0
	First gen: 13-16	-0.786 (.19681)	-2.084 (1.2664)	-165.0	-2.224 (1.7076)	-182.8
Violent crime convictions	Second generation	0.144 (.24425)	-0.474 (.26341)	428.8	-0.588 (.28666)	508.1
	First gen: 0-6	1.082 (.44078)	0.196 (.43058)	81.9	-0.019 (.46488)	101.8
	First gen: 7-12	0.667 (.50860)	-0.368 (.54387)	155.1	-0.587 (.54246)	187.9
	First gen: 13-16	-0.910 (.03364)	-2.076 (.20337)	-128.2	-2.364 (.34252)	-159.9
Incarceration	Second generation	1.128 (.67683)	0.144 (.70945)	87.3	0.072 (.71018)	93.6
	First gen: 0-6	0.595 (.95417)	-0.660 (1.0121)	211.0	-0.756 (.94777)	227.0
	First gen: 7-12	3.620 (2.0000)	2.288 (2.0133)	36.8	1.864 (2.0420)	48.5
	First gen: 13-16	-0.751 (.09298)	-2.617 (.56947)	-248.3	-2.324 (.75557)	-209.3

Note: All elasticities refer to the contrast to individuals born in Sweden by Swedish parents. Model 1 includes controls for graduation year, model 2 adds family resources (single mother/father, number of siblings, parents' education, indicators for employed father/mother and family disposable income), model 3 adds neighbourhood fixed effects. Standard errors are adjusted for clustering by neighbourhood. N=47,084. The reduction is relative to model 1.

Table 5. Non-linear effects for selected crime outcomes for males. Relative elasticities.

		First vs. Swedish			Second vs. Swedish		
Crime outcome (Y)	Cut-off point (C)	Raw E(Y)/dX	Controlled E(Y)/dX	Reduction (%)	Raw E(Y)/dX	Controlled E(Y)/dX	Reduction (%)
Serious suspicions	1	0.84	0.23	-72%	0.59	0.17	-71%
	3	1.25	0.37	-70%	0.85	0.25	-70%
	6	1.37	0.26	-80%	1	0.29	-70%
	9	1.45	0.23	-83%	1.19	0.43	-63%
	12	1.48	0.17	-88%	1.14	0.32	-71%
	15	1.47	0.07	-95%	1.05	0.2	-81%
Prison convictions	1	1.77	0.55	-68%	1.21	0.46	-62%
	3	3.54	1.53	-56%	2.05	0.98	-52%
	6	5.1	2.81	-44%	1.7	0.5	-70%
	9	3.49	1.45	-58%	1.09	0.07	-93%
	12						
	15						
Convictions for violent crimes	1	1.3	0.41	-68%	0.74	0.17	-76%
	3	2.92	0.99	-66%	1.9	0.85	-55%
	6	2.18	-0.11	-105%	1.69	0.7	-58%
	9						
	12						
	15						
Incarceration, months	1	1.9	0.67	-64%	1.3	0.54	-58%
	3	2.38	0.79	-66%	1.52	0.57	-62%
	6	2.75	1.13	-58%	1.63	0.71	-56%
	9	2.73	1.08	-60%	1.66	0.71	-56%
	12	2.86	1.24	-56%	1.67	0.77	-53%
	15	3.07	1.33	-56%	1.65	0.71	-56%

Note: the table summarises the relative elasticity E(Y)/dX, evaluated at variable means, for the function P[Y≥C] of crime outcomes Y for a selection of cut-off points C. The elasticity × 100 reflects crime rate ratio in per cent.

Table 6. Ethnic correlations for immigrant sample.

		Siblings		Ethnic group proxy		
Crime outcome	Type	# Pairs	Raw	# Pairs	Raw	Adjusted
Suspicions	Pearson	295	0.483	629,507	0.011	0.004
	Spearman	295	0.436	629,507	0.025	0.011
Serious suspicions	Pearson	295	0.441	629,507	0.009	0.005
	Spearman	295	0.345	629,507	0.024	0.013
Convictions	Pearson	295	0.513	629,507	0.010	-0.002
	Spearman	295	0.416	629,507	0.022	0.010
Prison convictions	Pearson	295	0.433	629,507	0.007	-0.002
	Spearman	295	0.288	629,507	0.005	-0.003
Violent crime convictions	Pearson	295	0.334	629,507	0.013	0.009
	Spearman	295	0.186	629,507	0.014	0.010
Incarceration	Pearson	295	0.183	629,507	0.006	0.001
	Spearman	295	0.288	629,507	0.005	-0.003

Note: estimates based on operational definition of ethnic groups based on mother's birthcountry × time (divided into four immigration waves).

Appendix

Table A1. Descriptive statistics

Variable	N	Mean	SD	Min	Max
Woman	66,330	0.487		0	1
First generation, age 0 to 6 at immigration	66,330	0.035		0	1
First generation, age 7 to 12 at immigration	66,330	0.021		0	1
First generation, age 13 to 16 at immigration	66,330	0.002		0	1
Second generation	66,330	0.080		0	1
Single father	66,330	0.046		0	1
Single mother	66,330	0.226		0	1
Number of other children (0-6) in family	66,330	0.134		0	5
Number of other children (7-15) in family	66,330	0.593		0	6
Number of other children (16+) in family	66,330	0.414		0	6
Parents' edu: Non-acad US	64,330	0.281		0	1
Parents' edu: Acad US	64,330	0.151		0	1
Parents' edu: Post-sec	64,330	0.164		0	1
Parents' edu: Tertiary	64,330	0.233		0	1
Parents' edu: Post-grad	64,330	0.020		0	1
Unskilled manual	66330	0.121		0	1
Skilled manual	66330	0.122		0	1
Lower non-manual	66330	0.037		0	1
Routine non-manual	66330	0.104		0	1
Lower service	66330	0.245		0	1
Upper service	66330	0.271		0	1
Self-employed professionals	66330	0.006		0	1
Entrepreneurs	66330	0.078		0	1
Farmers	66330	0.003		0	1
Class origin missing	66330	0.014		0	1
Ln disposable family income	66,330	8.078	0.660	0	12.991
Employed father	66,330	0.643		0	1
Employed mother	66,330	0.856		0	1
Share 1st gen in peer	65,760	0.086	0.123	0	1
Peer socioeconomic index (alpha = .826)	65,760	1.489	0.925	-2.345	8.746
GPA (pce) at 9th grade	66,330	3.219	0.778	0	5