Essays on the Origins of Human Capital, Crime and Income Inequality

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To Henning.
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Sammanfattning på svenska


Uppsats 1: Multigenerationella effekter av 1918/19 års influensa på utbildning

I denna uppsats använder vi 1918/19 års influensa i Sverige ("Spanska sjukan") som ett naturligt experiment för att estimerar effekten på de barn vars föräldrar var exponerade för influensan som en hälsochock i fosterstadiet. Vi använder information om födelsetid från registerdata för att skapa ett mått på föräldrars potentiella exponering för influensan.

För kvinnor sjunker utbildningslängden med 3-4 månader och sannolikheten att påbörja eftergymnasial utbildning sjunker med 3-5 procentenheter om deras mödrar var i fosterstadiet under tiden för influensan. Resultaten för män visar att utbildningslängden minskar med 4-7 månader och sannolikheten att påbörja eftergymnasial utbildning sjunker med 7-11 procentenheter om deras fäder var i fosterstadiet under tiden för influensan. Vi hittar inget samband mellan mödrars exponering för influensan och söners utfall eller fäders exponering och döttrars utfall.
Uppsats 2: Blyexponering i tidig barndom och kriminalitet: Lärdomar av Sveriges utfasning av bly i bensin

Denna uppsats utforskar effekten av exponering för bly i barndomen på brottslighet med hjälp av registerdata. Vi använder variationen i blyexponing som uppstod då bly i bensin fasades ut i Sverige under 1970- och 80-talet, och följer alla barn födda i Sverige under den tidsperioden i mer än tjugo år. Vi visar att minskningen av bly ledde till att brottsligheten sjönk med mellan 7 och 14 procent i genomsnitt. Effekten är störst hos barn i familjer med låga inkomster. Analysen visar även att det finns ett tröskelvärde under vilket bly inte längre har någon effekt på brottslighet.

Uppsats 3: Exponering för segregation under uppväxten och kriminalitet

I Sverige är minoritetsungdomar i utsatta områden överrepresenterade i brottsstatistik. I denna uppsats undersöker vi hur exponering för etnisk segregation under uppväxten påverkar mäns kriminella beteende. Vi studerar ”Hela Sverige”-strategin mellan 1985 och 1994 då nyanlända flyktingfamiljer tilldelades sin första bostadsort av myndigheterna.

Vi hittar belägg för att bli tilldelat ett bostadsområde med hög andel flyktinginvandrare ökar sannolikheten för att dömas för narkotikabrott och brott som leder till fängelsestraff senare i livet. För dessa brott skulle en minskning i segregationen med en standardavvikelse, minska gapet i brottslighet mellan invandrare och svenskfödda med en tredjedel. Resultaten drivs av ungdomar med lågutbildade föräldrar. Sämre anknytning till arbetsmarknaden kan vara en delförklaring till detta samband.

Uppsats 4: Invandring och inkomstojämlikhet i Sverige 1980 till 2011

Denna uppsats utforskar hur mycket av den stigande ojämlikheten i inkomster som kan tillskrivas ökad invandring. Jag skiljer mellan compositionseffekter av ökad invandring och indirekta effekter på inrikesföddas inkomster.
Med kompositionseffekter åsyftas den mekaniska effekt som uppstår då en grupp vars inkomster skiljer sig från övriga, med avseende på nivå och spridning, ökar som andel av totalbefolkningen. Mina resultat visar att mellan 2 och 9 procent av ökningen i ojämlikhet kan tillskrivas den ökade invandringens kompositionseffekter.

Introduction

This thesis consists of four self-contained essays. They broadly belong to the field of empirical labor economics and make use of Swedish registry data. A central theme in the thesis is the question of how the local environment affects individuals’ long-run outcomes. The first three essays focus on the consequences of different characteristics of the early life environment for human capital formation and criminal behavior. The fourth and final essay explores to what extent rising inequality in Sweden can be attributed to immigration.

The importance of family background for children’s wellbeing has been studied by economists since the work of Gary Becker (1964). Cunha and Heckman (2007) argue that the family plays a crucial role in shaping children's abilities through genetics and parental investments, but also through the choice of child environment. The traditional focus has been on parental income and education, but a recent strand of literature extends the focus on parental background to involve broader indicators of the early life environment, such as health shocks, neighborhoods and peers (e.g. Almond and Currie (2011); Ludwig et. al. (2013); Chetty et. al. (2014)).

The fact that a child’s environment is a choice made by its parents introduces problems for a researcher interested in the effect of this environment on the outcomes child. To illustrate these problems, consider the residential choice of a family. Parents do not choose where to live at random, rather they sort into localities based on income and tastes for different features of the local neighborhood. The consequence is that any attempt at estimating the effect of the local environment on children’s outcomes will be biased if the factors that govern the location decision also have a direct effect
on children’s outcomes and the researcher fails to take these factors into account. Some of the determinants of the location decision are possible to observe and control for in the analysis. However, it is important to acknowledge that we are never able to measure the complete set of preferences, norms and values that governs this process.

From a research perspective, the optimal strategy to isolate the causal effect of the early childhood environment would be to remove the control of the residential decision from the parents and create an experiment by allocating parents across spatial units at random. However, such a program would not just be expensive, it would also be associated with numerous practical and ethical issues. In this thesis I rely on so called “quasi-experiments” and instrumental variables techniques as alternatives to random experiments. The quasi-experiments consist of a pandemic and two public policies that generate natural control groups to the individuals affected by some form of intervention. This allows me to come closer to a causal interpretation of the results.

Another challenge when studying the impact of the early life environment is the demands it puts on data quality. First, individual level data is crucial in order to match individuals to long-run outcomes. Second, there must exist a link between parents and children in order to match parental background information to each individual. Third, since the outcomes of interest are long-run outcomes one needs to be able to follow individuals for an extended period of time. This thesis greatly benefits from the use of high-quality Swedish registry data which in some instances allows me to follow family lines over several generations.

In the rest of this section I briefly summarize the findings from each essay.
Animal experiments have documented that health shocks during critical developmental periods can be transmitted to several subsequent offspring generations, suggesting that health outcomes in any given generation may have biological roots in events that occurred some generations earlier. In human populations, the effect of fetal health shocks on adult outcomes has been extensively documented by economists and epidemiologists alike, and due to the evidence accumulated so far, it is now generally accepted that fetal health causally affects both short- and long-run outcomes. It is also known that fetal health measures are correlated with the socioeconomic background of the parent, supporting the view that fetal health differences could drive intergenerational correlations in education and income. Direct evidence of such effects of fetal health on subsequent generations in human populations is scarce and the importance of any effects remains unclear.

In this paper we use the 1918-19 influenza pandemic in Sweden (“The Spanish flu”) as a quasi-experiment to estimate the effects of a fetal health shock on the children of those who experienced the pandemic as a fetal insult. Potential exposure is constructed using time of birth information available in Swedish registry data. In order not to confound fetal health with parental background, we create treatment and control groups by comparing the outcomes of children of parents born during the influenza with surrounding cohorts.

For women, educational attainment decreases by 3-4 months of schooling and the probability of college attendance drops by 3-5 percentage points if their mothers potentially experienced the Spanish flu as a fetal insult. For men, educational attainment decreases by 4-7 months of schooling, and the probability of college attendance drops by 7-11 percentage points if their fathers were potentially prenatally exposed. We find no mother to son, or father to daughter, transmission of the health shock.

A growing body of research has linked lead exposure to decreased cognitive ability and behavioral problems. Lead exposure is believed to be especially harmful early in life when higher brain functions develop. Infants and toddlers are particularly vulnerable due to their high exposure from hand-to-mouth activities and inhalation of lead-laced dust, high absorption rate, increased penetration of the blood–brain barrier and a developing nervous system. Cellular and animal studies have confirmed the hypothesis that lead exposure during critical stages of development disrupts the formation of neuron networks and the process of neurotransmission in ways that increase the risk of these types of behavioral problems. In a seminal paper, Herbert H. Needleman and co-authors showed that high blood levels of lead among 3,329 first and second graders in Massachusetts strongly predicted lower scores on intelligence tests and various neuropsychological deficiencies (Needleman et al. 1979). These results have been corroborated by subsequent studies that in addition to cognitive deficiencies also find that lead exposure during childhood is associated with substantially higher risks of attention problems, impulsivity, and aggressive behavior. The detrimental effects of lead exposure on cognitive skills have also been documented in recent studies that use various quasi-experimental research designs.

Since low cognitive skills, attention deficiencies, impulsiveness and aggression are all well-known predictors of criminal behavior, lead exposure has been hypothesized to be an important determinant of crime. Recent psychological and neurotoxical research has showed a strong association between childhood lead exposure and criminal behavior. Crime is extremely costly to society and taken at face value, these estimates imply that interven-
tions to reduce lead exposure could bring large benefits to society in terms of reduced crime. Yet, the results have been questioned on the basis of the use of small and unrepresentative samples, the inability to follow the subjects over a longer time-period, and failure to employ methods to control for the influence of confounders. In this paper we examine the effect of childhood lead exposure on crime using population based register data. We follow all children in Sweden in the 1972-1974, 1977-1979 and 1982-1984 cohorts for more than twenty years. By exploiting the variation in childhood lead exposure induced by the Swedish phase-out of leaded gasoline, we show that the sharp drop in lead exposure reduced crime by between 7 and 14 percent on average. The impact is largest among children in low-income families. The analysis reveals the existence of a low threshold level below which further reductions of early childhood lead exposure no longer affect crime.

Essay 3: Childhood Exposure to Segregation and Long-Run Criminal Involvement: Evidence from the “Whole of Sweden” Strategy (with Hans Grönqvist and Susan Niknami)

Criminal offending is disproportionately concentrated among immigrant and minority males living in highly segregated neighborhoods. Our data, for instance, reveal that youths living in the most segregated areas in Sweden (measured as the share of refugee immigrants) are five times as likely to be convicted as youths in the least segregated areas. Overall, immigrants are 80 percent more likely to be convicted of a crime relative to natives. Understanding whether these differences in criminal behavior are causally related to the type of neighborhood youths grow up in is fundamental when considering policies to improve equality of life chances.

In recent years, the economic literature has made progress in assessing the net effect of overall neighborhood attributes on criminal behavior. There is still, however, limited knowledge of whether exposure to immigrant resi-
dential segregation causes criminal behavior or not. In this paper, we present quasi-experimental evidence on how exposure to segregation during childhood affects male youths’ criminal behavior. In the absence of an experimental research design, identifying the effect of neighborhood segregation is challenging since the parental characteristics that determine selection into different neighborhoods are also determinants of criminal behavior.

We exploit a quasi-experiment that occurred in Sweden during the years 1985 to 1994 called the “Whole of Sweden” Strategy. The experiment implied that newly arrived refugee immigrants and their children could not choose where to reside. Instead the government assigned refugees to their initial location in a way that generates plausibly exogenous variation in the initial residential location. We take advantage of this policy to estimate the effect of childhood exposure to segregation on long-run criminal participation. We find evidence that being assigned to a neighborhood with a large share of immigrants increases the probability of being convicted of a drug related crime or sentenced to imprisonment for male youths. A one (within municipality-by-year) standard deviation increase in neighborhood segregation increases the probability of committing these types of crimes by between 11 to 13 percent. This corresponds to about one-fifth of the gap in crime between immigrants and natives for these types of offenses. We do not find significant effects for other types of crimes, such as violent and property crimes. The impacts are concentrated among youths with low educated parents.

Essay 4: Immigration and Income Inequality in Sweden 1980 to 2011

This paper investigates how much of the increase in income inequality in Sweden can be attributed to increased immigration.

International migration has increased substantially in recent decades. From 1990 to 2013, the international migrant stock increased by more than
50 percent globally, and the United Nations estimates that 231.5 million people were living in a country other than their country of birth in 2013. Over the same time period, developed economies have experienced a pronounced growth in inequality. In the OECD countries, the Gini coefficient increased by an average of 10 percent from the mid-1980s to the late 2000s, and the income of the richest 10 percent of the population is now 9 times that of the poorest 10 percent. Out of all OECD countries, Sweden is the country where income inequality has increased the most.

This study covers the years 1980–2011. During this period, Sweden’s immigrant population both increased and changed in composition from Nordic labor immigrants to non-Nordic refugees.

Using data spanning the entire history of inequality’s rise in modern Sweden, I find that the compositional effects associated with immigration account for between 2 and 9 percent of the overall increase in income inequality. Further, using the variation in immigrant density across labor market regions, I find that non-Nordic immigration has not had any significant effect on the native wage distribution. However, I find evidence that non-Nordic immigration has had a negative effect on native employment. My estimates suggest that a 10 percentage point increase in non-Nordic immigration decreases native employment by 3 to 5 percentage points.
REFERENCES


