Author: Serhiy Dekhtyar, PhD student. Centre for Economic Demography, Department of Economic History. Lund University, Sweden.

Supervisor: Kirk Scott, Associate Professor. Centre for Economic Demography, Department of Economic History. Lund University, Sweden.

Intergenerational Transmission of Inequalities and the Intervening Role of Early Life Conditions: Siblings Comparisons of Immigrants in Sweden

The paper investigates the process of intergenerational transmission of inequalities among immigrants in Sweden. It builds on the established literatures connecting socioeconomic class of origin with socioeconomic class of destination. Additionally, it incorporates recent findings pointing out to important effects of early life conditions on subsequent adult outcomes and the dependence of these early conditions on parental SES. It attempts to determine whether being born under advantageous early life conditions breaks down the process of intergenerational transmission of inequalities from parents to children. Pairs of siblings, of whom one was born in the country of outmigration and the other one in Sweden, are compared. Employing within-family comparison technique, the paper tests whether siblings exposed to dissimilar early life environments differ significantly from each other in reproducing parental socioeconomic statuses.

Over the past two decades, significant progress has been made in research on labor market outcomes. One of the central ideas behind this research is that payments to labor in the form of wages and salaries ought to be a function of market-relevant skills, namely, traits that contribute to the production process and are explicitly entered in a production function. Traditionally such skills have been equated with educational attainment, experience, on the job training, and cognitive abilities (Palloni and Milessi 2006). Another distinctive characteristic of this research has been relatively poor performance of these traditional traits in standard wage equations: although consistently significant, they fail to account for more than a fraction of earnings variance within the same generation. After their overview of empirical literature, Bowles, Gintis & Osborne (2000) concluded that between two thirds and four fifths of the variance of (log) earnings in the U.S. remains unexplained after accounting for a person's age, years of schooling, and years of labor market experience.

Introducing parental income as a predictor in the previously discussed model remedies its performance. In fact, a dense literature in economics tries to account for the intergenerational relationship between parental and offspring wages, permanent income and wealth (Mazumder, 2005; Bowles, Gintis & Osborne, 2005; Solon, 2002; Mulligan, 1997). Consistently found in this literature is a persistent effect of parental earnings on offspring's wage (Palloni and Milesi, 2006). Interestingly, some of the effect of parental SES remains even after controlling for a handful of market-relevant skills like education and labor-market experience. The degree to which parental socioeconomic achievements affect those of children is quite substantial. Studies using U.S. data consistently report elasticity of an offspring's income relative to that of a father of about 0.4 (Chadwick and Solon, 2002; Mayer and Lopoo, 2005). Swedish studies obtain a slightly lower parameter of intergenerational "stickiness": between 0.13 and 0.28 (Osterberg, 2000; Björklund and

Jäntti, 1997). Although rare and prone to data quality constraints, studies in developing counties report much more substantial elasticities of children's income relative to their parents (Hertz, 2001).

The finding of the pronounced effect of parental socioeconomic class on that of their children even after controlling for traditional characteristics is nothing less than puzzling for conventional economic theory, which normally attributes earnings differences to differences in productive skills (individual capacities that directly contribute to production by providing a service that appears as an argument in the production function) (Bowles, Gintis & Osborne, 2000). Although it is obvious that the effects of socioeconomic origin cannot be ignored, it is still unclear which dynamics exactly are captured by the coefficient representing parental socioeconomic status or income. A growing body of literature (Palloni and Milesi, 2006; Haas, 2006; Palloni, 2006; Palloni et al., 2009) suggests that parental income matters for *early life* development of preconditions for cognitive and non-cognitive skills which in their turn are dearly rewarded in the labor market later in life. The decisive mechanism at work here, allowing these preconditions to develop, is early childhood health and environment.

The argument behind these claims stems from empirical findings both from North America and Europe suggesting that disparities in early life health by socioeconomic status develop as early as birth and appear to be gradually expanding over childhood (Case, Lubotsky & Paxson, 2002; Case, Lee, Paxson, 2008). Low birth weight, the leading indicator of poor health among newborns for many years, is found to be dependent on parental socioeconomic status and mother's own birth weight histories (Currie and Moretti, 2007). Evidence from the U.S., Britain and Canada suggests that children of poor parents are more likely to receive health insults and to suffer from chronic conditions than rich children (Currie and Lin, 2007). Several studies suggest that persistent poverty affects child mental health, particularly aggressive behavior, more than current poverty (Strohschein, 2005). Additionally, low parental SES contributes to poor housing, low-quality parental skills, and damaging home environments, all of which are regarded as depressants of childhood health (Orr et al., 2003; Berger, Paxson & Waldfogel, 2006).

Consequently, dysfunctional childhood environment and poor early health have been consistently found as important predictors of cognitive ability, educational attainment, and non-cognitive skill accumulation, all of which are regarded as beneficial in the labor market. Recent studies show that cognitive scores and educational attainment among low birth weight children are significantly lower than among normal birth weight offspring, even when comparisons are made between siblings (Boardman et al., 2002; Conley and Bennett, 2000). Health selection is another intriguing mechanism potentially operating here: according to Palloni and Milesi (2006), the occurrence of earlier events through which individuals are selected into certain life courses or pathways can be thought of as triggers that largely determine subsequent social and economic experiences, locking individuals to a reduced set of possible paths to follow. Therefore, early health problems exert their influence through limiting educational attainment and foreclosing the number of occupational and career paths. Additionally, early childhood environments have been found to affect socioeconomic inequalities in health in adult life (Van De Mheen, 1997).

Furthermore, early life health matters significantly for acquisition of non-cognitive skills, for instance "appropriate" height and weight, which have been shown to be important determinants of labor market performance (although not explicitly included in the production function). These current physical endowments reflect past physical characteristics that enabled individuals to acquire traits

that are highly valued in the labor market. For instance, height in the formative years facilitates (impedes) the acquisition of social skills, leadership qualities, self-esteem, and motivation – all traits that are valued in the labor market (Palloni and Milesi, 2006). Such conclusions are confirmed by findings that the largest "penalty" for obesity or short height is associated with obesity or short height at younger ages, rather than in adulthood. Both height and weight in the formative years have been found to be dependent on early childhood health proxies for fetal nutritional intake and newborn health, captured by birth weight (Martorell et al., 2001; Muhlhausler et al., 2008).

Evidence presented above allows sketching a model of intergenerational transmission of inequalities where early life conditions mediate the flow of inequalities across generations. Parental socioeconomic status is expected to affect early childhood health and environment. The latter processes supposedly contribute to the acquisition of cognitive and non-cognitive skills which are then rewarded later in the labor market. This paper is concerned with evaluating this cycle. However, it does not explicitly incorporate health status in the analysis. Instead, it investigates whether this cycle breaks down when early life conditions are suddenly altered (in most cases improved). It does so through the analysis of immigrant sibling pairs, of whom one was born in the country of outmigration and the other one in Sweden. The aim is to see whether siblings differ significantly from each other in reproducing parental socioeconomic statuses. Rationale behind such research design is the following: both siblings share the same socioeconomic status of origin and unobserved family-level characteristics and both are later exposed to identical social, economic, and cultural institutions in Sweden. They do differ, however, with respect to early life conditions experienced.

Migration studies like this one are practical in a way they allow exploration of the timing of exposure. Thus, Hemminki et al. (2002a, 2002b) find significant differences in the prevalence of stomach cancer between first and second generation immigrants in Sweden. Other studies which are currently being undertaken employ sibling approach and evaluate health status among immigrants proxied by hospitalization records find considerable differences between the ones born in Sweden and the ones in the country of departure (Lundborg, forthcoming). This study builds on well-established methodology used for the analysis of health outcomes and extends it to the analysis of intergenerational transmission of inequalities.

The study uses a longitudinal dataset constructed from register data maintained by Statistics Sweden – Swedish Longitudinal Immigrant database. In this database, vital events are coupled to earnings and social-security data from the country's tax registers. It contains detailed economic and demographic information on approximately 550,000 individuals in Sweden during 1980-2001. Data are available on immigrant women and men stemming from fifteen countries, and any spouses in Sweden to these migrants, as well as a random sample of Swedish-born residents. The initial database contained a sample of 110,000 individuals, which was expanded through the inclusion of spouses, cohabitants with which an individual had a child and their children in order to provide data on complete families of migrants.

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