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The Impact of Privileged Classroom Friends on Adult Income and Income Mobility: A Study of a Swedish Cohort Born in 1953

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Social relationships across and within generations are associated with intergenerational income mobility. Parents affect their children’s future opportunities through socialization and by conveying various resources to the child during upbringing. However, self-acquired social contacts of children, such as friendships in school, might also affect long-term outcomes. Children from less privileged homes may gain access to additional resources through contact with privileged friends and their parents. This study examines whether having a classroom friend with high parental income (privileged friend) is associated with upward income mobility. Furthermore, it explores where in the parental income distribution a privileged friend matters most. We use data from the Stockholm Birth Cohort Multigenerational Study (n = 10,641), which is a prospective study of individuals born in 1953 who lived in the greater Stockholm area in 1963. We fit classroom fixed-effects models to estimate the association between having a privileged childhood friend and adult income as well as parental income and adult income along with the interaction of privileged friend and parental income. Results show that cohort members who had a privileged classroom friend had higher adult income, and that this income gain was greater among those whose parents belonged to the lowest income quartile, compared with those whose parents had higher incomes. These results are robust to adjustments for childhood socioeconomic background, personal attributes, and adult educational attainment. Our findings indicate that having an economically privileged friend in the school class bolsters adult income and upward income mobility of children from families with low income.

The authors thank the steering committee for the Stockholm Birth Cohort Multigenerational Study (SBC Multigen). We thank Anders Ledberg, Alexander Miething, Josephine Jackische, and anonymous reviewers for their helpful comments on earlier drafts.

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Introduction

Social relationships can provide access to both material and non-material resources that can improve individual life chances (Lin 1999; Lin, Vaughn, and Ensel 1981). Such effects have been established throughout life but are perhaps especially evident in childhood. During upbringing, the home and the school constitute the two main contexts where interactions take place and interpersonal relationships are formed. Through the social interaction that takes place in these settings, children internalize the values and norms of the surrounding society and learn to navigate the social landscape (Goslin 1969; Grusec and Lytton 1988). As part of this socialization process, the child also becomes aware of his or her own family’s position in the overall social structure as well as the opportunities that this position offers for their future life chances (Elder, Crosnoe, and Johnson 2011; Merton 1968). The home is perhaps the most important context of social interaction in early childhood. A privileged position comes with a rich portfolio of resources, or what Bourdieu refers to as capital (Bourdieu 1973, 1986). The transfer of such capital from parents to children provides the children of affluent families long-term advantages (Bourdieu 1973; Braxton 2001; Mehan 1992) that can manifest as higher adult income and contribute to intergenerational persistence of income.

Friendships in school can be seen as sources of self-acquired social capital that can affect long-term social career by providing access to resources other than those available at home. Classmates can, for instance, convey crucial information about alternative options and opportunities regarding curricular and extracurricular activities that may affect the child’s choices and actions (Cherng, Calarco, and Kao 2013; Johnson, Blum, and Cheng 2014; Seginer 2003). In addition, through the parents of more privileged friends, children from less advantaged homes may gain access to types of capital that they would otherwise not have had access to (Bertoni, Brunello, and Cappellari 2017). In the longer term, social ties to former schoolmates may also provide opportunities outside of the individual’s own social circle (Granovetter 1973, 1983), for example, by introducing the individual to alternative social contacts, providing information on labor market opportunities, or “putting in a good word.” Friendships in school may thus provide the child with crucial resources that can boost their adult income independently of the contribution of the parents. In particular, for children from less advantaged homes, friendships with children from privileged homes may be central in providing resources for upward social mobility.

A recently published study in Nature identifies the share of social ties among individuals in lower socioeconomic positions to those in high socioeconomic positions as a strong predictor of intergenerational upward income mobility (Chetty et al. 2022). Based on the social networks of more than 70 million US Facebook users aged 22–44 years, Chetty et al. (2022) found that cross-type friendships were the single most important community-level determinant of economic mobility out of all examined factors in the study, including several indicators of community-level social capital as well as racial segregation and economic inequality. The study uses aggregated measures of social ties and rates of economic mobility at the zip-code level. Although the study makes a convincing case for the importance of cross-type friendships for socioeconomic achievement, the aggregated nature of the data makes it difficult to distinguish whether such social ties promote upward mobility or if they covary with economic mobility rates for other reasons, such as less segregated schools or a local labor market with favorable conditions for economic mobility. Individual-level studies on this topic typically use information on classroom or school composition as an indicator of social capital rather than individual friendship ties (see e.g., Ammermueller and Pischke 2009; Bertoni, Brunello, and Cappellari 2017; Black, Devereux, and Salvanes 2013), leading to similar uncertainties in interpreting the results.

Another concern when empirically trying to assess the role of friends for socioeconomic achievement is the fact that people tend to form friendships with similar others, a phenomenon referred to as homophily (McPherson, Smith-Lovin, and Cook 2001). This makes it difficult to distinguish whether friends influence each other or if they are similar due to homophilic friendship choice. In addition to homophily in terms of social background characteristics, friendship
homophily can be based on cognitive ability and social skills (Ilmarinen et al. 2017; Tesser, Campbell, and Smith 1984). These factors may explain both why certain people are drawn to each other despite their different social backgrounds and impact their income later in life.

The present study takes its point of departure in the greater Stockholm area in 1963 and the roughly 15,000 10-year-old children who lived there at the time. Born in 1953, these children constitute one of the first welfare state generations in Sweden (Stenberg 2018). At age 13, they took part in an extensive school study where information on sociometric friendship nominations and cognitive ability, among other things, was collected. These data make it possible to examine the role of actual social ties, as opposed to potential ties proxied by classroom composition. The rich data on socioeconomic background, cognitive ability, and sociometric measures of popularity—an indicator of social skills measured at the same time as the friendship ties—makes it possible to adjust for important indicators of homophily. Through linkages to national registers, data on income and educational attainment across multiple years is available for both the cohort members and their parents.

We use these individual-level data to examine whether parental income and having a privileged classroom friend are predictive of adult income and whether these two associations are independent of each other. We also examine whether they predict adult income independent of individual socioeconomic background, cognitive ability, social skills, and educational attainment. Finally, we explore whether having a privileged classroom friend is associated with a more pronounced advantage in adult income among those whose parents belonged to the lower end of the income distribution relative to those who grew up under more privileged economic conditions. This study contributes to the existing literature in several ways. We specifically identify friends through self-reported responses from children within the same classroom. This allows us to use classroom fixed-effects models to separate the role of friendship ties from classroom-level factors. In addition, we control for cognitive ability and social skills, variables that are rarely available in individual-level peer effect studies.

**Intergenerational Income Mobility**

Intergenerational social mobility refers to the relationship between the socioeconomic positions of parents and their children. It represents the movement of children upward, downward, or horizontally in systems of social stratification in relation to the position occupied by their parents. At the national level, the rate of social mobility is often considered as an indicator of the degree of equality of opportunities in a country. Previous studies have demonstrated substantial persistence of income positions across generations in high-income countries (Björklund and Jäntti 2009; Black and Devereux 2011; Solon 1999), though it should be noted that Sweden and other Nordic countries display higher levels of income mobility than other Western countries (Björklund and Jäntti 1997; Blanden 2013; Gregg et al. 2017).

At the individual level, adult income depends on several factors. The impact of parental income is perhaps most convincingly demonstrated by eliminating the influence of genetics, for example, in designs focused on variation between siblings or adoptive children. Studies using this approach have found significant relationships between the income of adoptive parents and their adopted children (Björklund, Lindahl, and Plug 2006; Sacerdote 2007). By using a sibling design to assess the influence of resources stemming from shared environments, Björklund, Lindahl, and Lindquist (2010) found that around half of the income similarities between siblings was associated with parental socioeconomic status. If, on average, half of adult income is determined by resources provided by the parents, children of rich and poor families are the least likely to deviate from their parents’ income. The first group gets a big advantage that is hard to compete with, while the latter inherits a disadvantage that is hard to ameliorate. Indeed, evidence across nations and times supports that least mobility occurs at the extremes of the income distribution (Bratberg, Nilsen, and Vaage 2007; Jäntti et al. 2006; Sirniö, Martikainen, and Kauppinen 2013). At issue here is what other resources economically
disadvantaged children could utilize to improve their chances of reaching a higher-income position later in life.

**Peer and Friendship Influences on Intergenerational Income Mobility**

As children move into adolescence, they increasingly gravitate toward peers and friends, rather than to their families, as the primary source of social interaction (Brown 1990; Brown and Larson 2009). Adolescence also tends to increase the amount of time young people spend with each other and away from their parents (Felson and Gottfredson 1984; Hoeben et al. 2016; Warr 1993). Young people who lack resources at home have been shown to be more inclined to turn to their extrafamilial relations to obtain resources (Crosnoe 2002; Giordano 2003). Having friends with a more privileged socioeconomic background may then provide disadvantaged children with opportunities of upward social mobility. In line with this suggestion, less privileged children have been shown to benefit academically from having privileged peers. Using data from six European countries, including Sweden, Ammermueller and Pischke (2009) found a positive association between the classroom mean social background and students’ fourth grade reading test scores. Similarly, a large-scale study of US high school students, who were followed up in young adulthood, found that having a best friend with a college-educated mother was associated with an increased likelihood of completing college (Cherng, Calarco, and Kao 2013). Using Danish administrative data, Bertoni, Brunello, and Cappellari (2017) found that compared with non-disadvantaged students, socioeconomically disadvantaged students gained more from being surrounded by peers with highly educated parents in terms of lifetime earnings increases. Another study, based on Norwegian administrative data, found that the average paternal earnings of schoolmates from the same grade was positively associated with the long-term earnings of boys, while no such association was found for girls. Boys benefited from exposure to peers with high-earning fathers but were not negatively affected by exposure to peers with fathers that had low earnings (Black, Devereux, and Salvanes 2013).

In their aforementioned study on adult friendship ties and social mobility, Chetty et al. (2022) found higher rates of upward economic mobility in areas with high economic connectedness, measured by the share of Facebook friends with high socioeconomic status among those with low socioeconomic status. High school friendship ties showed a similar pattern, but only a subsample of the study participants had suitable data to perform this analysis. Compared with other area-level indicators of social capital (civic engagement and network cohesiveness), the rate of cross-type friendships was the only aspect that was predictive of economic mobility. However, due to the area-level nature of their data, it remains unclear whether such processes exist at the individual level.

In sum, previous research suggests that social ties play an important role for attained socioeconomic position, especially for individuals from socioeconomically disadvantaged families. The significance that social ties plays for an individual’s social career depends on the strength of these relationships (Granovetter 1973, 1983; Lin and Dumin 1986). Friends are likely to exert a stronger influence on each other than schoolmates (or peers) do, not least because friends tend to spend more time together. The few studies that have compared the influence of peers versus friends find that peer effects are considerably smaller than those associated with friends for smoking and fertility decisions (Alexander et al. 2001; Balbo and Barban 2014).

When considered from a classroom perspective, both friends and peers are likely to resemble each other more than randomly grouped children. This is in part due to the fact that individuals who are exposed to the same social context tend to become more alike (Feld 1981, 1982). In the case of friendship relations, there is an additional tendency for similar people to be drawn to each other. Similarities among school children may spring from shared familial attributes (status homophily) or shared individual characteristics such as abilities or values (value
Homophily (Lazarsfeld and Merton 1954). Finally, friends and peers can exert a social influence on one another, thereby shaping each other’s characteristics and preferences directly (McPherson, Smith-Lovin, and Cook 2001).

How to disentangle associations of social context and homophily from influences of social relationships has been the subject of scientific debate (Bramouillé, Djebbari, and Fortin 2009; Epple and Romano 2011; Sacerdote 2011; Steglich et al. 2010), without a consensus as of yet. Social context can refer to several aspects of the social environment (Richards and Light 1986). In our case, the relevant aspect is the classroom. Furthermore, it is important to rule out potential confounding stemming from status homophily and value homophily. While most studies exploring status homophily focus on ethnicity, race, gender, and age (Doyle and Kao 2007; Joyner and Kao 2000; Smith, Maas, and van Tubergen 2014), our Swedish cohort from 1953 is racially and ethnically homogenous. Therefore, we will only consider the diversity in socioeconomic background and personal attributes that may cause children of opposite social backgrounds to become friends with each other.

**Aim of the Study**

The aim of this study is to explore the extent to which having a classroom friend with high parental income (i.e. a privileged friend) is associated with adult income and upward income mobility. We assess whether parental income and having a privileged friend are predictive of adult income and whether these two associations are independent of each other. Based on the theoretical and empirical literature discussed above, the following two hypotheses are formulated.

**Hypothesis 1.** Higher parental income and having a privileged classroom friend are associated with higher income in adulthood. We expect to observe these associations after adjusting for potential confounders related to both status and value homophily, as well as educational attainment.

**Hypothesis 2.** The association between having a privileged friend and adult income depends on the child’s parental income. We expect that children with low parental income will gain more from having a privileged friend in terms of adult income than children with higher parental income.

**Some Notes on the Historical Context of the Studied Cohort**

The 1953 Stockholm cohort were children at an opportune time, characterized by declining levels of neighborhood and school segregation. During the 1950s and 1960s, as part of an urban planning program, new neighborhoods were constructed in Stockholm (Janson 2002). Young adults, such as the parents of our cohort members, moved into these neighborhoods from all social classes. As a result, neighborhood segregation according to social class was declining at the time our cohort members attended school (Janson 1987). Since children were assigned to local schools in their school catchment area, with virtually no alternative option (Wondratschek, Edmark, and Frölich 2013), the schools themselves were also socially heterogeneous. Free school choice and alternative school types were not introduced in Sweden until the 1990s (Brandén and Bygren 2022).

Furthermore, a nine-year compulsory comprehensive school system reform was incrementally implemented during the 1950s and 1960s. As part of the reform, the practice of selecting students for different schools based on their abilities at an early age was abolished or postponed to higher ages. In 1966, when our cohort members were asked about their friendship relations, 70% of the municipalities in Sweden had implemented the new regulations (Meghir and Palme 2005). The reform was implemented incrementally in the Stockholm area as well, although all children born 1948 and later were affected by the reform (Holmlund 2020). As a result of this reform, all schools had to follow the same curriculum up until the sixth grade. After that, children were allowed to choose between different educational tracks, independently from their previous academic...
achievement (Axelsson 1994). Thus, the opportunities for establishing socially heterogeneous friendships were most likely higher in those days than in the present-day Stockholm school landscape (SNAE 2012).

The large-scale expansion of female labor market participation started in the second half of the 1960s (Gustafsson and Jacobsson 2002) when our cohort members were still financially supported by their parents. In Stockholm, the expansion of female labor force participation already started from the 1920s and it was above the national average in 1950 (Clivemo 2017). While the traditional approach to measuring intergenerational income mobility has largely been restricted to father-and-son pairs, excluding mothers’ income information would, in this case, result in a misclassification of resources available for the child during upbringing (Thaning and Hällsten 2020). The detailed information on income in our data material allowed us to increase the validity of our study by including mothers and daughters in our analyses as well. Recent developments in income mobility research, in particular improved data availability, suggest that both parents’ income should be incorporated into the analyses (Chetty et al. 2014; Heidrich 2017).

Data and Methods

Data Material
We used the Stockholm Birth Cohort Multigenerational Study (SBC Multigen). It consists of the Stockholm Metropolitan Study (SMS), which links survey data of children who were born in 1953 and lived in the greater Stockholm area in 1963 (n = 15,117) with register data on cohort members and their parents (Almquist et al. 2020). After identifying those cohort members who still lived in Sweden in 1980 or 1990, the SMS data were further expanded through probability matching with several administrative registers to obtain adult income. We relied on the School Study (1966) from SMS for information on friendship ties (Figure 1). The Stockholm Regional Ethical Review Board (reg no. 2017/684-32) provided ethical permission for compiling the data, as well as the use of data for research purposes.

Income Measures
We used information on parental income from the Register of Population and Income from 1963 and 1970. The only information on income available from 1963 is the pre-tax income from employment and self-employment. Therefore, capital income was not included. Missing information and zero income could not be distinguished from each other. In order to differentiate between these, information from 1960 on the economic activity of the head of household and the spouse of the head of household was used to impute missing values. In 1970, income was defined as the sum of income from employment; agricultural property; movement; and joint ownership of a regular trading company, limited company, or shipping company. Parental income was calculated by adding together both parents’ income in 1963 and 1970 and taking the average. Even if a child reported that they lived in a single-parent family, we took both biological parents’

![Figure 1. Structure of the SBC Multigen with relevant components.](image-url)
income into consideration, assuming that both parents were supporting the child financially despite not living together.

Harmonized information on cohort members’ annual income in adulthood was available from 1990 to 2016. Income is defined as the sum of labor income and work-related benefits (wages, income from employment, parental and sickness benefits, benefits for taking care of an ill relative, and rehabilitation benefits). In order to reduce life cycle and attenuation bias, we included multiple years of income. We used the closest available data to ages 30–40 years, the age interval when yearly income is the most predictive of lifetime income (Bhuller, Mogstad, and Salvanes 2011; Böhlmark and Lindquist 2006; Haider and Solon 2006; Nybom and Stuhler 2016). Our data set has annual information on income from 1990, when the cohort members were 37 years old. We used 11 consecutive years of income until the cohort members reached the age of 48 years.

We transformed both income measures into percentile ranks. Cohort members were ranked based on their adult income relative to the adult income of other children in the cohort, whereas parents were ranked based on their income relative to other parents of the children in the cohort. The rank–rank correlation approach, i.e. regressing adult income rank on parental income rank, is more robust to several methodological problems than the canonical approach of taking the natural logarithm of income (intergenerational elasticity). Since zero and near-to-zero income measurements were included, they are more stable over the life cycle compared with income levels. Moreover, the rank–rank approach is not sensitive to potential changes in the income distribution between the two cohorts (Chetty et al. 2014; Dahl and DeLeire 2008; Nybom and Stuhler 2016).

**Measures of Privileged Friends**

The School Study was conducted in 1966 when the cohort members were 12 or 13 years old. Among other things, the children completed a sociometric questionnaire, where they were asked to nominate three of their classmates as their best friends. Over 65% of the sample nominated three friends ($n = 6956$), whereas 28% ($n = 2960$) nominated two friends and 7% ($n = 725$) one friend. We differentiated friend relations in the school class according to their parents’ income. Children who had at least one friend whose parental income belonged to the highest quartile were defined as having a privileged friend.

**Measures of Homophily**

We further controlled the analyses for a number of socioeconomic background characteristics and personal attributes in order to separate status homophily and value homophily from social influence. Information on single-parent households was retrieved from the Register of Population and Income in 1964. Families who reported that either the mother or the father lived alone were categorized as single-parent families. All other families were categorized as non-single-parent families. Information on parental education was retrieved from the 1960 census and coded into four categories; neither parent had upper secondary education, one parent had at least upper secondary education, both parents had at least upper secondary education, and missing information. We kept the missing values for parental education in the analysis to preserve the statistical power. The cohort members’ cognitive ability was assessed in the sixth grade through one verbal, one spatial, and one numerical test. The cohort members’ sociometric popularity in sixth grade was used as an indicator of their social skills. Social skills were assessed by summing up the number of best friend nominations that the cohort member received from their classmates.

**Educational Attainment**

We used register information on educational attainment in 1991 and grouped it into two categories: not having completed at least two years of tertiary education (no education/missing, pre-primary, primary, lower secondary, upper secondary, and post-secondary non-tertiary) and
having completed at least two years of tertiary education (first stage of tertiary and second stage of tertiary education).³

**Analytical Sample**
We restricted our sample to cohort members who attended sixth grade at the time of the School Study (n = 12,384). Cohort members were excluded from the sample if either their parents’ or their own adult income was missing (n = 489) or if they did not make at least one friendship nomination (n = 1195). Finally, children who had missing information on household structure (n = 1), cognitive ability (n = 35), friends’ parental income (n = 18), or social skills (n = 5) were excluded as well. As a result, our analytical sample contains 10,641 observations, corresponding to 70% of the original SMS cohort.

**Methods and Analytical Strategy**
We estimate the association between having a privileged friend and adult income using linear fixed-effects models. We define classroom as a fixed effect in order to adjust for all (both observed and unobserved) school class-level factors. First, we estimate the association between adult income rank (AR) and parental income rank (PR), adjusting for sex (S) in school class c for individual i with an error term u:

\[
AR_{ci} = \alpha_c + \beta_{PR_{ci}} + \lambda S_i + u_{ci}. \tag{1}
\]

The coefficient \( \beta \) is an estimate of the association between adult and parental income rank. The coefficient \( \lambda \) is an estimate of the association between sex and adult income, while \( \alpha \) is the classroom-level intercept. Next, we incorporate our main explanatory variable, having a privileged friend or not (F):

\[
AR_{ci} = \alpha_c + \beta_{PR_{ci}} + \gamma F_{ci} + \lambda S_i + u_{ci}. \tag{2}
\]

The coefficient \( \gamma \) estimates the association between having a privileged friend and adult income. This model tests our first hypothesis that parental income and having a privileged friend are associated with higher income in adulthood. Then, we extend this model with a vector of variables \( \eta'X \) consisting of individual-level control variables: single-parent household, parental education, cognitive ability, social skills, and adult educational attainment:

\[
AR_{ci} = \alpha_c + \beta_{PR_{ci}} + \gamma F_{ci} + \eta'X_i + \lambda S_i + u_{ci}. \tag{3}
\]

We expect that \( \beta \) and \( \gamma \) remain positive and significant estimates in equation 3, indicating that the associations between adult income, parental income, and having a privileged classroom friend are robust when adjusting for potential individual-level confounders (Hypothesis 1).

Finally, we include an interaction, \( PR \times F \), to test our second hypothesis that the association between having a privileged friend and adult income depends on the child’s parental income:

\[
AR_{ci} = \alpha_c + \beta_{PR_{ci}} + \gamma F_{ci} + \theta_{PR_{ci}} \times F_{ci} + \eta'X_i + \lambda S_i + u_{ci}. \tag{4}
\]

A negative interaction \( \theta \) term would indicate that a privileged friend has a more pronounced association with adult income for cohort members with lower parental income (Hypothesis 2).⁴

**Results**
Table 1 presents the descriptive statistics of the analytical sample. The income differences as measured by the distance between the 25th and the 95th percentiles were higher in the cohort
members’ generation than in the parents’ generation, indicating that income inequalities were smaller in the parents than for the cohort members. The classroom average proportion of privileged peers was by design 25%. Nearly half of the cohort members had at least one privileged friend in terms of high parental income.

Table 2 shows that cohort members whose parents were in the highest quartile of the income distribution were significantly more likely to have a privileged friend. Thus, 42% of the cohort members in the lowest quartile had at least one privileged friend, whereas the corresponding proportions for the second, third, and fourth quartiles were 41, 48, and 63%, respectively.

The main results from the statistical analyses are presented in Table 3. The sex-adjusted rank–rank correlation between parental and adult income was 0.158 in a linear regression ($P < 0.001$), see Table 3, Model 1. When applying the classroom fixed-effects, the corresponding correlation was 0.137 ($P < 0.001$, Model 2). This implies that a one percentile rank increase in parental income is associated with 0.137-percentile rank increase in adult income among children who

### Table 1. Descriptive Statistics of the Cohort Members (n = 10,641)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult average yearly income (1990–2001)</td>
<td>2001 SEK$^a$</td>
</tr>
<tr>
<td>25th percentile of adult income</td>
<td>142,640</td>
</tr>
<tr>
<td>50th percentile of adult income</td>
<td>207,049</td>
</tr>
<tr>
<td>75th percentile of adult income</td>
<td>280,474</td>
</tr>
<tr>
<td>95th percentile of adult income</td>
<td>476,517</td>
</tr>
<tr>
<td>Parental average yearly income (1963, 1970)</td>
<td></td>
</tr>
<tr>
<td>25th percentile of parental income</td>
<td>118,247</td>
</tr>
<tr>
<td>50th percentile of parental income</td>
<td>151,838</td>
</tr>
<tr>
<td>75th percentile of parental income</td>
<td>198,928</td>
</tr>
<tr>
<td>95th percentile of parental income</td>
<td>335,608</td>
</tr>
<tr>
<td>Having at least one privileged friend$^b$</td>
<td>5169 (48.58)</td>
</tr>
<tr>
<td>Living in single-parent household</td>
<td>926 (8.70)</td>
</tr>
<tr>
<td>Parental education: completed upper secondary school</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>7389 (69.44)</td>
</tr>
<tr>
<td>One of them</td>
<td>2124 (19.96)</td>
</tr>
<tr>
<td>Both</td>
<td>570 (5.36)</td>
</tr>
<tr>
<td>Not known</td>
<td>558 (5.24)</td>
</tr>
<tr>
<td>Cognitive ability (range: 13–116)</td>
<td>69.93 (16.72)</td>
</tr>
<tr>
<td>Social skills$^c$ (range: 0–12)</td>
<td>2.78 (1.70)</td>
</tr>
<tr>
<td>Attained education (1991)</td>
<td></td>
</tr>
<tr>
<td>Less than tertiary</td>
<td>8370 (78.66)</td>
</tr>
<tr>
<td>Tertiary</td>
<td>2271 (21.34)</td>
</tr>
<tr>
<td>Sex$^d$</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>5252 (49.36)</td>
</tr>
<tr>
<td>Female</td>
<td>5389 (50.64)</td>
</tr>
<tr>
<td>School classes</td>
<td>612</td>
</tr>
<tr>
<td>Total number of classes</td>
<td></td>
</tr>
<tr>
<td>Number of students in the classes</td>
<td>19.15 (4.38)</td>
</tr>
<tr>
<td>Proportion of privileged peers$^e$</td>
<td>0.25 (0.18)</td>
</tr>
</tbody>
</table>

$^a$Income measures expressed in 2001 SEK $^b$Friend whose parental income was in the highest income quartile $^c$Measured by sociometric popularity (total received friendship nominations) $^d$Coded according to biological sex assigned at birth $^e$Cohort member is excluded
Table 2. Frequency of Cohort Members Having at Least One Privileged Friend* by Own Parental Income Quartile (n = 10,641)

<table>
<thead>
<tr>
<th>Quartiles of cohort member's parental income</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than or equal to 25th percentile</td>
<td>1059 (42.17)</td>
</tr>
<tr>
<td>Between 25th and 50th percentiles</td>
<td>1111 (41.00)</td>
</tr>
<tr>
<td>Between 50th and 75th percentiles</td>
<td>1328 (48.38)</td>
</tr>
<tr>
<td>Higher than 75th percentiles</td>
<td>1671 (62.47)</td>
</tr>
</tbody>
</table>

*Friend whose parental income was in the highest income quartile

Table 3. Coefficients of Cohort Members’ Parental Income Rank, Having a Privileged Friend, and Their Interaction on Cohort Members’ Adult Income Rank. Linear Regression Models (n = 10,641)

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental income</td>
<td>0.158***</td>
<td>0.137***</td>
<td>0.138***</td>
<td>0.114***</td>
<td>0.085***</td>
<td>0.064***</td>
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<td>(0.009)</td>
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<tr>
<td>Privileged frienda</td>
<td>2.764***</td>
<td>2.676***</td>
<td>1.930**</td>
<td>1.383*</td>
<td>3.267*</td>
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<td>(0.615)</td>
<td>(0.603)</td>
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<tr>
<td>(0.964)</td>
<td>(0.944)</td>
<td>(0.923)</td>
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<tr>
<td>One completed US</td>
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<td>1.139**</td>
<td>1.180**</td>
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<td>0.167**</td>
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<td>Social skillsc</td>
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<tr>
<td>Attained tertiary educationd</td>
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<td>Privileged friend × parental income rank</td>
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were in the same class. Having a privileged classroom friend is associated with a 2.764-percentile-rank (p < 0.001) increase in adult income (Model 3). A privileged friend was defined as a friend whose parents belonged to the highest income quartile, which means an average difference of 50 percentiles in friendship pairs’ parental income in the data (the median parental income of a privileged friend is 87.5, and the median parental income of a non-privileged friend is 37.5, providing an average difference of 50 percentiles). The estimate of 2.764 should then be contrasted
to a 50-percentile difference in own parental income, which corresponds to an estimate of 6.850 percentiles (0.137 $\times$ 50) in adult income.$^5$

We adjust for single-parent household and parental education in Model 4 and further for cognitive ability and social skills in Model 5. The estimates of parental income and privileged friend decrease in Model 4 ($b = 0.114, p < 0.001; b = 2.676, p < 0.001$) and are further substantially reduced in Model 5 ($b = 0.085, p < 0.001; b = 1.930 p = 0.001$). When we include attained education in Model 6, the point estimates of parental income and privileged friend are further attenuated ($b = 0.064, p < 0.001; b = 1.383, p < 0.018$). This implies that educational achievement may be an important channel through which privileged friends influence adult income. Overall, the results are consistent with our first hypothesis that both parental income and having a privileged friend are positively associated with adult income even after adjusting for various aspects of homophily and educational attainment.

In Model 7, we add an interaction term between parental income rank and privileged friend. The coefficient of the interaction term is $-0.038 (p = 0.046)$, indicating that the positive association between having a privileged friend and adult income is more pronounced at lower levels of parental income. Thus, for every one percentile increase in parental income, the benefit of having a privileged friend, in terms of adult income, is 0.038 percentiles smaller. Conversely, this also means that a one-percentile decrease in parental income is associated with a larger benefit of having had a privileged childhood friend. These findings are in line with our second hypothesis that the association between having a privileged childhood friend and adult income partly depends on the parental income of the child.

To visualize this finding, we present a plot with average predictive margins based on the fully adjusted model (Model 7). The predictive margins are obtained by letting the full sample assume a series of different combinations of adult income and having a privileged friend while retaining the observed value on all other covariates and then estimating the predicted adult income by parental income separately for those that had a privileged friend and those that did not have a privileged friend. Figure 2 illustrates the estimated adult income among cohort members who had a privileged childhood friend, and among those who did not, across the parental income distribution. The widest distance between the adult incomes of children who had such a privileged friend versus those who did not is observed at the lowest end of the parental income distribution. As we move up in the parental income distribution, the difference becomes progressively smaller only to disappear at higher incomes. More specifically, the predicted adult income gain from having a privileged friend is 2.9 percentile ranks at the 10th parental income rank. However, this difference disappears entirely at the 90th parental income rank.

Figure 2. Average predictive margins based on the fixed-effects model (Table 3, Model 6)—predicted adult income by parental income.
Limitations and Sensitivity Analyses

The combination of sociometric information collected in adolescence along with high-quality register data on both parental income and income in adulthood provides a rare opportunity for examining the role of friendship relations in intergenerational income mobility. Our analysis was limited to individuals who were born in 1953 and who attended sixth grade in the city of Stockholm. We calculated the intergenerational income rank correlation in our data and compared it with an estimate based on nationwide Swedish data provided by Heidrich (2017), finding similar estimates, indicating that patterns observed in Stockholm may be representative of the national level.

Our analytical strategy relied upon within-class variation in adult income. The classroom-specific fixed-effects models account for observed and unobserved classroom level factors that could influence friendship formation and future income, although this restricts the analysis to within-classroom variation. As an alternative, we fit multilevel linear models, which allowed us to obtain estimates using between-class variation as well. Multilevel models require that the explanatory variables are independent of classroom-level factors in the error term. Obviously, the probability of having a privileged friend is conditioned on the number of students from high-income families in each class, as well as on the total number of classmates. Therefore, we adjusted the multilevel models for the share of privileged peers in the classroom. We acknowledge that other classroom level unobserved factors might prevail, but, as a result of the egalitarian social policies taking place in the 1950s and 1960s, school resources were likely quite evenly distributed.

The results of the multilevel linear models are presented in Supplementary Table 1 and Supplementary Figure 1. All the point estimates are very close to the fixed-effects estimates, but their standard errors are smaller. Notably, a higher proportion of privileged peers in the classroom was associated with higher adult income ($b = 0.068, P < 0.001$) (Model 2), but this association was attenuated in Model 4, when a measure of individual-level friendship was included ($b = 0.031, P = 0.063$). In the Supplementary Material, the modeling strategy is described in more detail, and the finding from the mutual adjustment for classroom share of privileged peers and having a privileged friend is further elaborated.

Friendship relations were only measured within school classes. Considering that children spend a great proportion of their time in school, these relationships are likely to play an important role in their lives. However, it is possible that children who had many friends outside the classroom had less time or need for other friendships and thus nominated fewer children inside the classroom as friends. Therefore, we categorized our sample according to the number of nominations that the cohort members made and tested whether associations differed across these groups. The results are presented in Supplementary Table 2. For ease of comparability, we report only the coefficients of interest for this study. The results do not show any striking difference, either in main effects or in the interaction term by the number of nominations.

Friends might exert both positive and negative influences during childhood. The focus of this study is on the potential benefits of friendship relations in terms of adult income. To put our results into perspective, we also examined whether the cohort members who befriended classmates whose parents were in the lowest quartile of the income distribution had lower adult income. We found that privileged children had a markedly lower probability of forming friendship with a disadvantaged peer (36.64%) than with a privileged peer (62.47%) (see the Online Supplementary Material for Supplementary Table 3). In Supplementary Table 4, we present results from analyses of the association between having a classroom friend whose parents belonged to the lowest income quartile and adult income. There was no significant association between having an economically disadvantaged friend and adult income.

Socialization, as well as educational attainment and income, tend to differ by gender. Therefore, we also performed sex-stratified analyses. We found that the association between parental income and adult income tended to be weaker among women than men and that the relationship between having a privileged childhood friend and adult income tended to be stronger among women than among men (see the Online Supplementary Material for Supplementary Tables 5...
and 6). However, stratifying the data by gender led to small sample sizes and low statistical power, so it remains unclear whether this observation reflects a substantive gender difference.

**Discussion**

The aim of this study was to estimate whether friendship with a privileged classmate during childhood promotes adult income and thereby upward intergenerational income mobility. From a wider perspective, our results are thus indicative of whether resources outside of the family can compensate for an upbringing under less favorable economic conditions. Our study contributes to the literature in several ways. First, based on individual-level data, we show that the sixth grade friendship with a classmate of high-income parents is predictive of higher adult income among those whose parents had a lower income at the time. These findings are similar to those of Chetty et al. (2022). Thus, even for individuals who grew up in a much more equal and less segregated society than contemporary United States, socially heterogenous friendships appear to have boosted income mobility. Second, we found suggestive evidence that the mere concentration of privileged peers in the classroom was not enough to spur income mobility in individual cohort members, but that the realization of such potential ties into actual friendships was a prerequisite for upward mobility to take place. Third, we contribute to the field by showing that the importance of adolescent friendships for adult income are robust to applying classroom-level fixed-effects as well as comprehensive individual-level controls, including social skills and cognitive ability.

In accordance with the first hypothesis, our analyses showed that parental income and friendship with an economically privileged classmate were associated with higher adult income. These associations remained when characteristics of status and value homophily as well as adult educational attainment were adjusted for. These adjustments, as well as the classroom fixed-effects models, bring us closer to a quantification of the social influence of having a privileged friend. Our findings suggest that the capital of friends can be used in a way that favors adult income. This is in line with Cherng et al.’s (2013) interpretation of their findings that having a best friend with a tertiary-educated mother is associated with an increased likelihood of completing tertiary education, namely, that adolescents seem to utilize the capital of their friends in order to complete college.

The association between having a privileged friend and adult income was only marginally attenuated when we adjusted for status homophily, measured by parental education and family type, though both these measures were independently associated with adult income. However, when value homophily was adjusted for, the association was substantially reduced. This suggests that personal attributes in terms of cognitive ability and social skills partly explain why children are drawn to each other despite their different social backgrounds. The specific context of our study may have contributed to value homophily being more important for friendship formation than status homophily. Personal attributes might have mattered more than parental socioeconomic status for peer relations among children living in a comparatively equal society.

When we added educational attainment to the model, the association between privileged friend and adult income attenuated even further. Attaining tertiary education may thus be an important channel through which friendship with a privileged classmate contributes to higher adult income. This interpretation is also supported by the results of a supplementary analysis where we used educational attainment as the outcome (see the Online Supplementary Material for Supplementary Table 7). Having a privileged friend was associated with higher educational attainment when applying the same adjustments as in our main model. However, we did not observe an interaction between parental income and having a privileged friend for higher education. The remaining association between a privileged friend and adult income (Table 3), after adjusting for attained education, points to the possibility that having a privileged friend in childhood may promote income also through other channels than education. For example, it is possible that a privileged friend might act as a weak tie by helping the individual to navigate the labor market (Granovetter 1973, 1983). Privileged friends could also help to build the soft skills needed to find and keep higher-paying jobs or give advice about career choices.
A key finding of this study was that the association between having a privileged friend and adult income depended on the parents’ income, thereby supporting our second hypothesis. Friendships with privileged peers were found to matter more for the adult income of cohort members whose parents had lower income. This finding was robust when adjusting for the socioeconomic classroom context and several aspects of homophily, which suggests a potential relationship. Had we simply observed that friendships with privileged peers were more likely because of personal attributes conducive to high income (homophily), we would also expect to see an effect of privileged friends around the upper part of the income distribution since these cohort members would be less likely to experience downward mobility.

These results are in line with previous research showing that young people who lack resources at home seem to be more inclined to turn to their friends (Crosnoe 2002; Giordano 2003). It also supports the argument that social ties to dissimilar others is important for “getting ahead” (Putnam 2000, Chetty et al. 2022). Thus, our findings indicate that less privileged children might compensate for their (potential) lack of cultural and social capital in the home environment with resources obtained through friends. As privileged children can be assumed to have less need to compensate for the lack of parental capital than other children do, friendships between privileged peers are less likely to result in a long-term income gain. Consequently, our results suggest that privileged friends can bolster equal opportunities by providing additional resources for less privileged children, and through this, help to counteract the reproduction of inequality. Because income persistence is especially strong among children of low-income families (Bratberg, Nilsen, and Vaage 2007; Jäntti et al. 2006; Sirmiö, Martikainen, and Kauppinen 2016), this finding also has potentially important policy implications.

Furthermore, our sensitivity analyses indicated no negative association between having an economically disadvantaged friend and adult income. Because forming friendships with disadvantaged peers did not matter for adult income, our results suggest that socially heterogeneous friendships have a net positive impact. These findings are consistent with a study by Black, Devereux, and Salvanes (2013), who found that boys benefited from having a higher proportion of economically privileged same-grade schoolmates, while no corresponding negative effect on adult income was seen among boys whose schoolmates to a larger extent came from economically disadvantaged family backgrounds.

Although we were unable to draw firm conclusions from the sex-stratified analyses, our tentative results showed a larger difference in adult income between those who had and those who did not have a privileged friend among women compared with men. This is consistent with prior research showing that women tend to be more sensitive to influences from peers than men (Minton and Schneider 1985), especially from their friends and close peers (Baumeister and Sommer 1997). Furthermore, a weaker correlation between parental and own adult income has previously been observed among women compared with men (Chadwik and Solon 2002; Chetty et al. 2014)—a pattern that was observed in our study as well.

Methodological Considerations

The current study utilized a rich data set built on surveys as well as register information of a 1953 cohort born in Stockholm. The sociometric questionnaire carried out at the time of sixth grade, in combination with high-quality individual-level data on income in adulthood, provides an excellent basis for analyzing the importance of social contacts in adolescence for lifetime socioeconomic achievements. The rich data also allowed us to control for a wide range of variables that could otherwise have confounded the associations between having a privileged childhood friend and adult income. However, the observed associations with the privileged friend variable may have still been prone to bias in the absence of an exogenous source of variation. For example, a Swedish study found much stronger persistence in income mobility when several generations were included in the analysis, probably due to the influence of more distant relatives (Lindahl et al. 2015). Accordingly, children who formed friendships with privileged peers might have had wealthy relatives (other than parents) that made them more likely to experience upward intergenerational income mobility compared with their peers. Furthermore, unobserved
neighborhood effects could potentially also have contributed to our findings. As discussed above, however, the use of classroom fixed-effects is likely to partly capture neighborhood effects since the cohort members were assigned to local schools.

In this study, we assumed that the attenuated association between having a privileged childhood friend and adult income was the result of our homophily measures playing a role in friendship formation. While such an assumption is based on previous literature (Lazarsfeld and Merton 1954), these variables could also act as simple confounders. For instance, personal attributes such as cognitive ability and social skills might be instrumental for reaching a high adult income without influencing the chances of forming friendships with privileged classmates. One reason behind the attenuation of the association between privileged friend and adult income after the adjustments could be that these variables also predict adult education, which, in turn, predicts adult income. Similarly, parental education might matter less for those with privileged friends than personal attributes do because of a weaker association with adult education. In a separate analysis, we adjusted for adult education before adding the other covariates to the model and found that the associations of interest were attenuated with the inclusion of personal attributes even in the presence of adult education (results not shown). This supports our interpretation that such characteristics do matter for friendship formation, besides having an independent association with adult income.

Finally, we did not have access to the capital income of parents. Previous studies on Swedish data have indicated that combining data on labor and capital income provides higher income persistence and, consequently, lower income mobility (Nybom and Stuhler 2016), compared with income mobility estimates using only labor income (Heidrich 2017). It is possible that including information on capital income would have resulted in smaller estimates of the level of income mobility. However, it is not clear if the role of friendships would have differed if it had been possible to take capital income into consideration.

**Conclusions**

This study found evidence suggesting that socially heterogeneous friendships promote upward intergenerational income mobility. We observed that less privileged children can partially compensate for the lack of parental resources by forming friendships with privileged classmates. Our findings suggest a potential causal effect of socially heterogeneous friendships, though further investigation is needed to examine the mechanisms through which the parental income of friends might matter for income mobility. Even at the time our cohort members attended school, when residential segregation was at a lower level than today, fewer children from low-income households than from high-income households had an economically privileged friend. Today, the metropolitan areas in Sweden are characterized by a more segregated residential landscape with schools hosting increasingly socioeconomically homogeneous student bodies (Lindbom 2010; Pink and Noblit 2017). This makes it less likely that children from diverse social backgrounds will meet and bond. Our findings suggest that socially heterogenous classrooms could promote equal opportunities by enabling friendships that are conducive to upward mobility among less privileged students.

**Endnotes**

1. The Swedish names of the variables used to calculate parental income in 1963 was specific to the SBC Multigen data set; the name of the variable in 1970 is ArbInk in the Census.
2. The Swedish names of the variables used to calculate adult income is Forvers in the “Longitudinal integrated database for health insurance and labour market studies” (LISA).
3. The Swedish name of the variable used is suno_edu91 in the “Longitudinal integrated database for health insurance and labour market studies” (LISA).
4. The interpretation of \( \theta \) depends on the values of \( \beta \) and \( \gamma \). If they are both positive, in line with Hypothesis 1, a negative value indicates a more pronounced association with adult income.
for cohort members with lower parental income. If either $\beta$ and $\gamma$, or both, instead were negative, the interpretation of $\theta$ would change.

5. An alternative way of comparing the point estimates of parental income and privileged friend is if we code parental income as having own parental income in the highest quartile and substitute parental income rank for it in Model 2. Having parental income in the highest quartile is associated with a 7.530 ($p < 0.001$) percentile income rank increase (not presented in the table).

**About the Authors**

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**Supplementary Material**

Supplementary material is available at *Social Forces* online.

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**Data Availability**

The data underlying this paper cannot be shared publicly due to sensitive personal information of individuals that participated in the study. The data will be shared on reasonable request to the corresponding author.
References


