Wealth as One of the “Big Four” SES Dimensions

Wealth as One of the “Big Four” SES Dimensions in Intergenerational Transmissions

Martin Hällsten, Department of Sociology, Stockholm University
Max Thaning, Department of Sociology, Stockholm University

Recent scholarship on mobility has increasingly incorporated wealth. We ask if wealth brings anything new to mobility research or is just a standard socioeconomic status (SES) dimension in disguise. We exploit Swedish administrative registers, which contain rich SES measures over individuals’ lives for both parents’ and children’s generations. Using sibling correlations to estimate a baseline of shared family background influence, we then perform a total decomposition for each SES dimension and their overlaps. We find that wealth is a distinct dimension of SES that is very different from education, occupation, and income. Parental wealth cannot be substituted for other SES dimensions in understanding child’s wealth attainment. Moreover, parental wealth substantially moderates intergenerational reproduction in other dimensions: The wealthiest have higher reproduction rates in all child outcomes, but in particular for children’s income and wealth. Excluding wealth leads to underestimating intergenerational inequality, aggravated by its qualitatively unique status as an SES resource. We conclude that—alongside the SES resources education, occupation, and income—wealth emerges as an integral and unique dimension of what we choose to call the “big four” of social stratification.

Introduction

Individuals’ life chances are, to no small extent, structured by their parents’ socioeconomic status (SES). SES refers to a hierarchical social structure position and is traditionally measured by education, occupation, and income. However, these dimensions are not necessarily complete for representing SES’s totality.

This work was supported by the Swedish Research Council (grant 2015-01715). The authors thank Daniel Dahl, Jani Erola, Anders Björklund, Markus Jäntti, participants at the workshops and seminars in Haifa (March 2018) and Stockholm (April 2018), as well as anonymous referees. E-mail: martin.hallsten@sociology.su.se
Furthermore, the space of positions may not be unidimensional, as is often assumed. Instead, each dimension may reflect a different and partly independent transfer type. Recent years have witnessed a surge of interest in wealth as a further dimension of social inequality and social mobility (Spilerman 2000; Killewald, Pfeffer, and Schachner 2017). The question then arises of how wealth relates to other SES dimensions: Does wealth provide a unique dimension of inequality and mobility? Or, alternatively, is wealth just a standard SES in a different appearance?

Recent interest in wealth might be surprising, given that it is a fundamental stratification variable in the sociological classics (i.e., Marx, Weber, and Pareto). In addition, wealth builds on returns to assets that can generate income and value without active labor—e.g., “in one’s sleep” as famously put in Mill (1885 [1848]). The importance of bringing in wealth and relating it to mainstream SES mobility is two-fold. First, excluding it might underestimate intergenerational inequality, and second, compared with standard SES variables, wealth is qualitatively different. It signifies elite status, being more detached from individual effort and labor markets, and thus more easily transferred over generations. This qualitatively different nature of wealth as an SES resource could aggravate the reproduction and development of intergenerational inequality. Accordingly, wealth taps more permanent and polarized forms of inequality, either if this is unspent income (Modigliani 1988) or resources passed on from previous generations (Kotlikoff and Summers 1981). Recent evidence suggests that wealth positions are persistent across generations in both the United States (Pfeffer and Killewald 2016) and Sweden (Adermon, Lindahl, and Waldenström 2018). These contexts are otherwise markedly different in their economic and welfare state configurations.

Education, occupation, and income all have in common that they are dimensions of labor market careers, i.e., where education determines the entry position, occupation gauges the overall rank in the labor market, and income summarizes the economic returns. Theory suggests that transfers in education involve skills and ability; transfers in occupation (e.g., status or social class) additionally encompass professional skills and social contacts, and income transmission implies monetary resources. Wealth, however, does not necessarily have a strong link to labor markets, mainly because much wealth arises by bequests and inter vivos transfer across generations (Adermon, Lindahl, and Waldenström 2018; Boserup, Kopczuk, and Kreiner 2018), or generally as returns on investments (of prior wealth). Adding wealth to the attainment model would reveal new forms of inequality, not just change the balance between the existing ones. Most studies on wealth in intergenerational research are primarily focused on discovery, i.e., to document any wealth association net of different SES dimensions (e.g., Rumberger 1983; Conley 2001; Hällsten and Pfeffer 2017). The question disregarded by previous literature is how wealth is related to the more established forms of SES in the transmission of intergenerational inequality?

The overlaps between the various SES resources have been largely overlooked in the literature, despite some early attention. Lazarsfeld (1939) argued that
education, occupation, and income are interchangeable since they are highly correlated. Lipset and Zetterberg (1956), however, opened up for the possibility that mobility could be specific to the SES dimensions, i.e., that individuals could occupy both high and low positions in separate dimensions, and that mobility could be high in one dimension and low in another. Nevertheless, Blau and Duncan (1967, p. 191) argued that SES’s measurement dimensions were not crucial to the overall intergenerational transfer, even though the importance of different factors depends on specification. Although some studies address overlaps (Erola, Jalonen, and Lehti 2016; Mood 2017), we add wealth as a fourth component to achieve a complete decomposition of all main and overlapping parental SES components.

Some recent studies have demonstrated that not all positions are equally accessible as the intergenerational persistence is higher for top income and class positions (Bratsberg et al. 2007; Björklund, Roine, and Waldenström 2012; Hällsten 2014). Björklund, Roine, and Waldenström (2012) argued that wealth transfers could explain the high persistence of income in the top. This raises the question of whether intergenerational transfers can be reinforced if parents hold a high position in another SES dimension more generally and if wealth is exceptional in that regard?

Our paper fills the gaps outlined above. We provide a descriptive assessment of how parents’ wealth, together with education, occupation (status and class), and income, as well as their overlaps, account for children’s outcomes in the same dimensions (RQ1). We also address if the wealthier have higher reproduction rates of their education levels, occupational standing, or income across generations (RQ2). We use contemporary Swedish register data that allow precise measurement of these concepts in both generations. Together with other Scandinavian countries, Sweden is a conservative test case since intergenerational dependencies in labor market outcomes tend to be lower than in most other countries (Björklund et al. 2002; Corak 2013). However, education may be an exception since some estimates suggest that Sweden is relatively closer to the middle of the distribution of intergenerational correlations (Hertz et al. 2007; Pfeffer 2008). Also, for wealth, the situation is a bit different. Studies often find that wealth inequality in Sweden is much higher compared with Sweden’s relatively low-income inequality (Jäntti, Sierminska, and Smeeding 2008a; Pfeffer and Waitkus 2019). Since Sweden has extensive and compulsory pension systems, direct comparisons of wealth with other countries might be biased (Domeij and Klein 2002). Still, a reasonable conclusion is that wealth inequality is not low in Sweden. The intergenerational wealth persistence level is also substantial in Sweden and on par with intergenerational persistence in the United States (Adermon, Lindahl, and Waldenström 2018). That the Swedish welfare state has been less effective in reducing inequalities in wealth may not be surprising. Social democratic reforms in Sweden from the 1930s onward have typically not aimed at challenging the capitalist class but to improve conditions for lower and intermediate classes.
Theoretical Background

The Dimensionality of SES

The work on intergenerational mobility in SES is voluminous. The definition of SES has varied across studies and over time, causing considerable difficulties in summarizing the key findings in the field (Jaeger 2007). In principle, one can contrast two approaches: the univariate and the composite (Bollen, Glanville, and Stecklov 2001). In the univariate approach, SES is believed to capture an underlying one-dimensional factor measured by different indicators. An example of this is Lazarsfeld’s (1939) early finding that SES’s different indicators could be used interchangeably; they produced nearly the same outcomes. Studies that give priority to a particular factor, such as social class (e.g., Erikson and Goldthorpe 1992), do also in part belong to this univariate view. The composite approach, where the dimensions are distinct, builds on to the status attainment tradition (Blau and Duncan 1967). In the original Blau and Duncan model, SES was measured as education and occupation. In the Wisconsin model (Sewell, Haller, and Portes 1969), income was added, among other things. An interesting finding from this model is that father’s occupational status is more associated with the son’s occupational status, and the father’s income with the son’s earnings, than associations across the dimensions (cf. Hauser 1972). Results like this suggest that SES is not reducible to a one-dimensional measure.

Current literature has begun to decompose SES mobility into dimensions by analyzing the separate contributions of (parents’) education, occupation, and income. Whether there are independent associations of SES dimensions with mutual controls varies across studies. Not all studies include all the three standard dimensions of education, occupation, and income. Björklund, Lindahl, and Lindquist (2010) find that parental income, education, and (father’s) occupation account for up to 30 percent of sibling correlations in income. Bukodi and Goldthorpe (2013) and Bukodi, Erikson, and Goldthorpe (2014) find independent associations of occupation (measured as social class) and education but do not consider income. Among those that include all dimensions, some studies show independent associations over all three dimensions (Jaeger 2007; Torssander and Erikson 2009; Hällsten and Thaning 2018; Thaning 2019). Others find that at least some of the SES factors have no substantial independent associations, most often income (Andrade 2016; Erola, Jalonen, and Lehti 2016; Hällsten and Pfeffer 2017), but also education (Mood 2017). Of course, this depends on the outcome dimension and these studies are very heterogeneous in that regard, ranging from health to the standard SES dimensions.

Other parts of the literature have taken up the idea of within resource transmission, as previously documented by Hauser (1972) for the United States. For contemporary Sweden, Thaning (2019) compares parents’ education, occupation, and income as explanations of children’s outcomes in the same dimensions. The results show that intergenerational correlations are strongest in the same dimension of SES, i.e., that parents’ educational (dis)advantage primarily seems to foster educational (dis)advantage and the same for occupation and income.
Hence, one can expect that within resource associations will be prominent in the reproduction of inequality over the various dimensions of SES.

**Overlaps in SES Dimensions**

Another question is the degree of overlap between dimensions. Education is typically a precondition for an occupational career and, in turn, income rewards. However, many highly educated may work in high-status jobs but get low pay, and some may not work at all. Intuitively, this suggests that overlaps are far from perfect. The looser the relation between the SES dimensions, the more would the separate dimensions add independently. However, most studies rarely discuss this overlap.

Furthermore, it is hard to compare across studies that address overlaps since there is no standardized methodology for its calculation. Nevertheless, two recent studies do target the overlap more directly. Erola, Jalonen, and Lehti (2016) find that income, education, and class overlap to a considerable extent in explaining children’s occupational attainment. As they argue, this gives some leeway for using SES measures interchangeably. Going more into detail, Erola, Jalonen, and Lehti (2016) (Supplementary table A1) find that the overlapping dimensions of all three dimensions (education, occupation, and income) and the commonality of education and occupation, respectively, are the most critical overlaps when considering fathers’ SES. For mothers, the overlap of the three is the most important. Mood (2017) conducts a similar type of analysis, but for children’s earnings. She also finds that most of the explained variance in children’s earnings are found in the overlap of parents’ education, occupation, and income (Mood 2017: Table 5). In sum, the limited previous studies on this topic suggest that it is the nexus of education, occupation, and income that explains most of the variance in children’s outcomes. We will expand the focus by adding wealth as the fourth dimension of SES and addressing the degree of SES overlap.

**Wealth and SES**

Although wealth is a central variable of interest in the sociological canon (i.e., Marx, Weber, and Pareto) of how inequality in modern society emerged and was maintained, the current literature on SES dimensionality is characterized by the absence of a focus on wealth. As a point of departure, wealth reflects ownership of goods and assets, from which rent and speculation can be extracted. These returns do not necessarily require active effort or labor by the individual who owns the asset, which is much more the case of the other SES variables. Following Weber, wealth operate as the most basic economic principle of class division in that it excludes: “(...) the non-owners from competing for highly valued goods; it favors the owners and gives to them a monopoly to acquire such goods.” (Weber 2009:181). Class in general, and wealth in particular, also grant access to various kinds of Stände distinctions. This refers to “social honor” or status communities, which are centered around specific (and more or less profitable) lifestyles and (sub)cultures—in part related to the normative argument.
By restricting access, or opportunity hoarding (Tilly 1999), through class or status demarcations, barriers to wealth attainment and the benefits that follow from it can be raised—i.e., a form of social closure. Although wealth in its most intuitive form taps monetary resources allowing for the purchase of goods and services, wealth can also involve intergenerational correlations in cultural and cognitive dimensions. Pfeffer (2010) and Pfeffer and Hällsten (2012) discuss the insurance function of wealth, and Hällsten and Pfeffer (2017) discuss the normative function of wealth (Spilerman 2000). Insurance effects of wealth supposedly can buffer individual scarring effects of temporary shocks, such as loss of income or unemployment—over and above welfare state provisions. Parental wealth can also support children in choosing education and occupations risk that are riskier and more rewarding in a long-term setting by, e.g., income smoothing the risk period and making it more comfortable and profitable (perhaps by allowing for unpaid internships, longer educational programs, etc.). Normative functions refer to how parental wealth fosters stronger pro-status attainment norms to enhance intergenerational mobility and lower a singular dependence on wealth and rents. Potentially, they may be of even more importance in high mobility regimes, such as Sweden.

There is a growing empirical literature on wealth and its role in intergenerational processes, claiming that wealth matters over and above the other SES dimensions. There is ample evidence that wealth in prior generations correlates with children’s educational outcomes (cf. Hällsten and Pfeffer 2017 and references therein). In particular, parental wealth correlates with early school careers (Dräger and Müller 2020) in Germany, academic performance in Sweden (Hällsten and Pfeffer 2017) and Norway (Wiborg 2017), as well as secondary and tertiary level field of study (FoS) segregation in Sweden (Hällsten and Thaning 2018). The associations on later parts of individuals’ careers are less studied, however. For the United States, Rumberger (1983) shows an independent association of parental wealth with children’s earnings and wealth. Comparing the United States and Germany, Pfeffer (2011) finds independent associations for parental wealth on children’s education and occupation. Pfeffer and Hällsten (2012) generalize this conclusion to Sweden and also to wages. Mood (2017) states that the parental wealth association accounts for half of the parental earnings association in Sweden.

Recent studies have shown two- and three-generation wealth persistence in the United States (Pfeffer and Killewald 2017). In contrast, research from Sweden by Adermon, Lindahl, and Waldenström (2018) shows that wealth’s persistence is limited to two generations. However, an important finding is that children’s wealth is to the most extensive degree explained by parental wealth and not explained by other SES dimensions. Recent evidence from Denmark suggests that most young individuals’ wealth results from parents’ transfers (Boserup, Kopczuk, and Kreiner 2018). Hansen and Wiborg (2019) show that it is more common to receive transfers in the higher than in the lower social classes. Those originating in the economic upper classes are most likely to receive transfers and inter vivos gifts, suggesting that wealth and social class reproduction is intertwined.
Bringing wealth into the discussion on the decomposition of SES is also crucial since very much family background associations, i.e., as captured by sibling correlations, are unobserved. Erola, Jalonen, and Lehti (2016) show that parents’ education, occupation, and income only explain around 50 percent of the sibling correlation in children’s occupational status in Finland. Andrade (2016) finds that parents’ education, occupation, and income explain only 20 percent of sibling similarities in income in Denmark.

**Wealth Moderation**

Finally, wealth is also a potentially strong moderator of intergenerational correlations in other dimensions. Wealth signifies elite status, and elites typically employ extraordinary efforts to maintain their privilege over time. Top wealth holders will likely activate nonmonetary mechanisms such as pushing investment in educational skills and asserting normative pressure to increase ambitions, resulting in high intergenerational persistence. The reproduction of wealth is higher among the wealthy (Pfeffer and Killewald 2016), and some research shows that the very wealthy are successful in maintaining their social advantage in income (Björklund, Roine, and Waldenström 2012), school grades, cognitive ability, years of education, and occupational prestige (Hällsten 2014). One could hypothesize that wealth is an overarching super dimension of SES that is stickier. The expectation is that wealth spill over onto more substantial family transfers in other SES dimensions. Although elite status in the traditional SES dimensions may also spill over, we expect that these are less potent moderators.

**Summary of Research Questions**

To summarize the discussions above, we have formulated two research questions that we analyze:

RQ1: Does wealth overlap with traditional SES dimensions, or does wealth constitute a unique inequality and mobility dimension?

RQ2: Does wealth moderate intergenerational transfer in other SES dimensions, and is it a more potent moderator that the other SES dimensions?

**Materials and Methods**

We use Swedish register data and define cohorts born from 1930 to 1939 as the parental generation. We match these to their children using the multigenerational register based on medical birth records (Statistics Sweden 2010) and require that there are at least two children above age 35 per family in our last year of data in 2012 (i.e., cohorts born <1973). The mean age of children in 2012 is 50, with a range between 36 and 67, thus born between 1945 and 1976. We have strived to measure each SES dimension as precisely as possible not to confound their unique contribution. This is important since measurement error in one dimension is likely to exaggerate other SES factors’ role since they are highly correlated.
(Kelley 1973). Even though SES status of parents is not measured at the same age for all children (which our data would not allow), we think that this is a minor problem. Erola, Jalonen, and Lehti (2016) find that measuring SES at different ages of the child does not seem to matter substantively. Since we measure SES at the end of parents’ careers, we also capture more of the realized capacity or attainment level that otherwise would have been hidden.

We measure education from the 1985 census and onwards, which means that parents must be alive from their forty-sixth until their fifty-fifth birthday, depending on birth year. We measure the highest attained level of education for parents and children, respectively, and code into to year of education equivalents. For parents, we also supplement this with a measure of FoS so that we measure education in two dimensions—the vertical (years of education) and the horizontal (FoS). We adjust for FoS by treating the three-digit field codes in International Standard Classification of Education (ISCED)-97 as fixed effects (dummies). Parents’ FoS has important implications in the Swedish context (Hällsten 2013). Only measuring (vertical) years of education conceals significant within-year differences in educational branches’ particular qualities and different labor market values (Kirkeboen, Leuven, and Mogstad 2016). Consequently, adding FoS allows us to (rightfully) allocate variance belonging to parental education that else, at least in part, would have been caught by parents’ occupation or income.

Occupation is measured from two data sources: the centennial and quintennial censuses 1960–1990 and the occupation registers 1985. The former contains self-reports, whereas the latter is built on employer reports of occupation. We code these to occupational status scores International Socio-Economic Index (ISEI) (Ganzeboom and Treiman 1996) and take the highest observed score across the career. Moreover, since we aim to capture as much variation related to occupations as possible, we also include Erikson–Goldthorpe–Portocarero (EGP) social classes (Erikson and Goldthorpe 1992) coded from the same sources, separately for mother and fathers. EGP is chosen because it is the conventional empirical workhorse for social class operationalizations (Evans 1992). It is further a much more economical choice than using, e.g., micro classes (Jonsson et al. 2009), especially when including occupational information on both mothers and fathers.

For income, we use disposable income, i.e., with government transfers and after-tax deductions. Our income data stretches back to 1968, which means that we can observe something close to parents’ lifetime income. For children, incomes will typically be mid to late career, but some studies suggest this is reasonably representative of permanent income (Böhlmark and Lindquist 2006). We use the wealth register that existed from 1999 until 2007, when the Swedish wealth tax was abolished, to measure wealth. This register is based on tax data but augmented with several additional sources. Tax data is essentially self-reported but subject to legal responsibility (and possible prosecution for tax fraud). The additional sources cover holdings in banks, insurance companies, and the like, and also estate registers. This data is without censoring. Importantly, all estate types are rated at their market value (rather than nominal tax value). However, utilizing the wealth register means that the oldest parent must be
Wealth as One of the “Big Four” SES Dimensions

alive to at least their sixty-ninth birthday (see the supplementary material for sensitivity analyses where we use earlier data). We compute the average net worth in the available years (1999–2007) to reduce measurement error. The wealth data does not cover assets held outside Sweden and thus not disclosed to the Swedish Tax Authority. It also does not capture the full potential wealth of, e.g., financial or industrial elites, who are often hidden in complex ownership structures. Finally, it severely underestimates holdings in vehicles and personal assets such as jewelry (which is only self-reported). Nonetheless, all the limitations mentioned also apply to survey measures of wealth, and using other data sources than self-reports is a significant improvement relative to most existing research. We enter all SES information on mothers and fathers separately for each parent.

Supplementary table A1 shows the sample selection process. Table 1 contains descriptive statistics for outcomes and parental SES factors. Although outside the paper’s scope, the descriptive statistics give some insight into the household dynamics: Mothers’ have just slightly lower education than fathers but are disadvantaged in all other SES outcome measures, especially the economic variables.

The scale of SES is another critical consideration. Our preferred specification measures SES in relative ranks (within birth cohorts for both parents and children) using the cumulative distribution function (except for EGP, which is categorical and specified with dummies). Previous research has shown that the rank specification is a good functional form since intergenerational correlations appear more linear in ranks than in other transforms (Dahl and DeLeire 2008; Chetty et al. 2014). The rank transform also minimizes attenuation and life cycle biases (Nybom and Stuhler 2017) and accounts for varying distributions between generations. Moreover, the extreme skew of wealth is problematic for most standard transforms, whereas the rank transform appears to be the most suitable metric (Killewald, Pfeffer, and Schachner 2017). That said, ranks have downsides in throwing away information via compressing the distributions, but we believe the upsides in better functional form, and being less sensitive to measurement errors, balance this. For sensitivity analyses, we also measure SES in standard metrics, i.e., years of education, status scores, log income, and the inverse-hyperbolic sine (IHS) of wealth (Johnson 1949) without any different conclusions. We estimate all models for mixed siblings (both brothers and sisters). Such correlations tend to be somewhat smaller than brother and sister correlations since gender imposes some homogeneity. We, however, control for gender in all models.

Methods

To decompose the SES dimensions contributions to intergenerational transfers, we use sibling correlations as a benchmark to estimate the impact of various SES dimensions on intergenerational mobility. Sibling correlations provide an omnibus measure of the impact of family background on children’s outcomes. The correlation captures everything siblings share, including on average 50 percent of their genes, their parents and family environment, extended family,
Table 1. Descriptive Statistics

|                              | Mean   | (SD)    | Min  | Max   | Count   |
|------------------------------|--------|---------|------|-------|---------|
| **Children’s characteristics** |        |         |      |       |         |
| Year of birth                | 1,961.82 | (5.36) | 1,945| 1,976 | 526,240 |
| Female                       | 0.49   | (0.50)  | 0    | 1     | 526,240 |
| Birth order                  | 1.94   | (1.00)  | 1    | 13    | 526,240 |
| No. siblings                 | 2.89   | (1.09)  | 2    | 15    | 526,240 |
| **Children’s SES**           |        |         |      |       |         |
| Years of education           | 12.4   | (2.31)  | 6    | 19    | 526,240 |
| Occupation (ISEI)            | 52.27  | (15.98) | 16   | 90    | 526,240 |
| Log income                   | 4.9    | (0.36)  | −2.8 | 9.4   | 526,186 |
| Wealth (IHS)                 | 3.21   | (5.28)  | −11.2| 13.2  | 526,240 |
| **Parents’ SES**             |        |         |      |       |         |
| Mother’s years of education  | 9.63   | (3.30)  | 6    | 19    | 526,240 |
| Father’s years of education  | 9.72   | (3.66)  | 6    | 19    | 526,240 |
| Mother’s occupation (ISEI)   | 43.48  | (15.32) | 16   | 90    | 526,240 |
| Father’s occupation (ISEI)   | 48.82  | (15.98) | 16.2 | 90    | 526,240 |
| Mother’s ln income           | 4.44   | (0.50)  | −4.4 | 8.8   | 526,234 |
| Father’s ln income           | 5.02   | (0.36)  | 0.3  | 8.6   | 526,232 |
| Mother’s wealth (IHS)        | 5.23   | (3.66)  | −10.1| 13.6  | 526,240 |
| Father’s wealth (IHS)        | 5.70   | (3.82)  | −12.5| 13.9  | 526,240 |
| **Mother’s class**           |        |         |      |       |         |
| Unskilled manual             | 0.32   |         |      |       | 526,240 |
| Skilled manual               | 0.08   |         |      |       | 526,240 |
| Routine nonmanual            | 0.15   |         |      |       | 526,240 |
| Lower service                | 0.18   |         |      |       | 526,240 |
| Upper service                | 0.12   |         |      |       | 526,240 |
| Self-employed professionals  | 0.01   |         |      |       | 526,240 |
| Entrepreneurs                | 0.10   |         |      |       | 526,240 |
| Farmers                      | 0.05   |         |      |       | 526,240 |
| **Father’s class**           |        |         |      |       |         |
| Unskilled manual             | 0.06   |         |      |       | 526,240 |
| Skilled manual               | 0.19   |         |      |       | 526,240 |
| Routine nonmanual            | 0.07   |         |      |       | 526,240 |
| Lower service                | 0.18   |         |      |       | 526,240 |
| Upper service                | 0.23   |         |      |       | 526,240 |
| Self-employed professionals  | 0.02   |         |      |       | 526,240 |
| Entrepreneurs                | 0.16   |         |      |       | 526,240 |
| Farmers                      | 0.09   |         |      |       | 526,240 |

**Note:** See Supplementary table A1 for case selection. Mother’s and father’s field of study is also included in Parents’ SES, but is categorical and not listed.
neighborhoods, and often schools. However, some family background aspects are left out: differential treatment by parents and nonshared genetics and environment. Although we could also do intergenerational correlations (and, e.g., focus on $R^2$), sibling correlations offer us the possibility to relate the observed transfer to the total social background influence. It also fits best with the second research question, where we are interested in the moderation of the total background influence.

Sibling correlations in the social sciences have a long history. The modern literature, which took measurement errors more seriously, started in the early 1990s (Altonji and Dunn 1991; Solon et al. 1991). There is now a rich literature on sibling correlations in earnings in the United States (Solon 1999, section 3) and Scandinavian countries (e.g., Björklund et al. 2002). There are also many studies of sibling correlations in education (Sieben, Huinink, and de Graaf 2001; Björklund and Jäntti 2012), and smaller literature on occupational measures (e.g., Hauser, Sheridan, and Warren 1999; Conley and Glauber 2005). The literature is minimal for wealth, with some notable contributions (e.g., Conley and Glauber 2005; Wiborg and Hansen 2018). One interesting exception is the study on sibling similarities in education, occupation, and wealth in a Hungarian context (Toka and Dronkers 1996). There is also a much larger intergenerational literature on parent–child correlations that document sizable transfers across generations with different magnitudes for all dimensions (but which captures only smaller portions of family background).

There exist some different practices in how data for sibling correlations are processed. We have aimed for a generic approach. We control for birth order and drop singletons but do not differentiate between brothers and sisters, nor do we condition on age differences between siblings, or on being the eldest of siblings. In sensitivity analyses (Supplementary table S8), we do not find such choices to produce very different sibling correlations; brothers have higher correlations than sisters, but the experience is that the overall correlation patterns do not depend on sibship gender (Thaning 2019).

With sibling correlations as a benchmark, we then assess the extent observed SES of parents explain this association. Most recent literature has followed Mazumder (2008) using multilevel restricted maximum likelihood regressions. Here, the sibling $i$ is clustered to family $j$, with family and individual level errors ($u$ and $e$, respectively):

$$Y_{ij} = \beta_0 + X_{ij}\beta + u_j + e_{ij},$$  (1)

where $X_{ij}$ defines the vector of independent variables. The sibling correlation is the relative share of the family variance to overall error variance (also known as the intraclass correlation [ICC]):

$$\rho = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2}. \quad (2)$$

In the baseline or empty model, we estimate the overall sibling correlation only using standard controls for gender, birth order, and birth year, but not including
any SES measures. Our aim then is to estimate how various SES dimensions \((k)\) account for the sibling correlation. The most straightforward way to do this is to add \(k\) SES dimensions separately into \(X_{ij}\) in (1) and record the reduction of the family component (Mazumder 2008):\
\[
\Delta \sigma^2_{\mu \emptyset \text{[gross,k]}} = \sigma^2_{\mu \emptyset \text{[empty]}} - \sigma^2_{\mu \emptyset \text{[add,k]}}.
\]
Dividing \(\Delta \sigma^2_{\mu \emptyset \text{[gross,k]}}\) by the overall error variance and expressing in percent gives us the gross contribution of the given SES in accounting for the total family association. However, since SES dimensions are highly correlated, we isolate their unique contributions by identifying their unique net contributions. First, we use all SES measures in what we call a full model and estimate a new sibling correlation. We then remove the factor of interest \((k)\) and measure how the sibling correlation increases \(\Delta \sigma^2_{\mu \emptyset \text{[net,k]}} = \sigma^2_{\mu \emptyset \text{[removed,k]}} - \sigma^2_{\mu \emptyset \text{[full]}}\). This difference is the unique portion that the \(k\):th SES dimension of interest adds. We create net contributions similar to the gross contribution by converting to shares of the sibling correlation and express this as the percent of the baseline. We denote this as the net contribution in the running text. We proceed by doing this for each \(k\) dimension in turn. Significantly, this contribution cannot stem from any other dimension of SES that is already controlled, which allows us to answer to what extent wealth, and other SES dimensions, statistically explain a unique amount of the variance in the process. It should be noted that the parts of SES that overlap and thus are truly shared over dimensions will not be attributed to any of the dimensions; the net contributions do not add up to 100 percent. We therefore also make further decompositions with combinations of SES dimensions, e.g., the total impact of education and occupation, or any other combination. When we decompose by overlapping dimensions, we cannot use this unique strategy straight off. For example, the joint contribution of education and occupation must be taken net of the individual contributions of education and occupation. For any higher-level factor (e.g., education, occupation, income), all lower order terms must be netted out (e.g., [education, occupation], [education, income], [occupation, income], as well as the individual dimensions of education, occupation, income). We conduct this decomposition by running models with all combinations of parents’ SES. In this way, we can get a complete decomposition: All the net components (including the overlaps) will sum up to the accounted for part of the sibling correlation. All the net components that involve, e.g., education, will sum to the gross contribution of education.

**Analyzing Moderation**

The examination of moderation of the sibling correlation by each parental SES (RQ2) is relatively straightforward. We divide the dimensions into parental quintile groups \((q_1- q_5)\), formed by the averages of the father’s and mother’s SES, and then calculate the sibling correlation for each outcome within these groups. However, despite that it is common to examine sibling correlations across subpopulations, this may be subject to homogeneity biases (Solon 1999, p. 1769). The sibling correlation is the ratio of two variance components, and they may not follow one another proportionally when the sample is split across
groups. Comparing the sibling correlation across groups makes most sense if the overall variance is constant, else the results are ambiguous. An alternative is to focus only on the family variance component. As a safeguard against homogeneity bias, we only interpret findings shared across the measures and note when they are not.

Space does not allow us to cover all methodological considerations and all sensitivity analyses we have done. We have collected the most important ones in the supplementary material.

## SES Overlaps in Intergenerational Transfer

We begin with the first research question (RQ1) on how wealth overlaps with other dimensions of SES intergenerational transfer. Table 2 displays the zero-order rank correlations for children’s and parent’s resources. We find that the associations between children’s resources vary quite dramatically. Education and occupation display high correlations (0.53), occupation and income also show substantial associations (0.42), together with income and wealth (0.29). However, the relationship between children’s education and economic resources (income and wealth) is lower (0.19 for income and 0.14 for wealth), as is the association between occupation and wealth (0.17). The correlations among parents’ resources are higher for paternal SES dimensions and lower for maternal SES in terms of education, occupation, and income. However, maternal wealth is more highly correlated with mothers’ education and occupation than paternal wealth relative to fathers’ education and occupation. In contrast, the opposite again holds for the correlation between income and wealth. Generally, cross parental correlations are lower than within parental associations. Nevertheless, an interesting finding is that mothers’ wealth is more correlated with fathers’ income than mothers’ income. The patterns seem to suggest that wealth is operating quite differently than the other SES resources. By and large, even though SES dimensions go in the same direction, this is far from a unidimensional model.

Tables 3 and 4 present the main results of our decomposition on the rank scale. We find small differences across the rank and standard metrics (compare Supplementary table S5 in the supplementary material) except for wealth, where the rank transformations make for a better representation (i.e., around 50 percent higher sibling correlations). In a few cases, our decomposition shows a negative contribution. We have examined whether small variations in the individual level variance can explain the negative correlations, potentially arising from unmodeled interactions (Purcell 2012), but this is not the case. We have also checked for computational or rounding errors without success. The problem is concentrated to children’s income and wealth. We have no further explanation for this error. One should also remember that the estimation of sibling correlations relies on orthogonality between sibling and individual variance (Conley, Pfeiffer, and Velez 2007).
Table 2. Correlations in SES for Parents and Children

|                  | (a) | (b) | (c) | (d) | (e) | (f) | (g) | (h) | (i) | (j) | (k) | (l) |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Children’s ...   |     |     |     |     |     |     |     |     |     |     |     |     |
| (a) Years of education | 1   |     |     |     |     |     |     |     |     |     |     |     |
| (b) Occupation (ISEI) | 0.53 | 1   |     |     |     |     |     |     |     |     |     |     |
| (c) Income       | 0.19 | 0.42 | 1   |     |     |     |     |     |     |     |     |     |
| (d) Wealth       | 0.14 | 0.17 | 0.29 | 1   |     |     |     |     |     |     |     |     |
| Parents’ ...     |     |     |     |     |     |     |     |     |     |     |     |     |
| (e) M’s years of education | 0.33 | 0.27 | 0.12 | 0.11 | 1   |     |     |     |     |     |     |     |
| (f) F’s years of education | 0.35 | 0.3  | 0.13 | 0.12 | 0.5 | 1   |     |     |     |     |     |     |
| (g) M’s occupation | 0.26 | 0.27 | 0.14 | 0.12 | 0.43 | 0.38 | 1   |     |     |     |     |     |
| (h) F’s occupation | 0.3  | 0.31 | 0.15 | 0.11 | 0.38 | 0.6  | 0.41 | 1   |     |     |     |     |
| (i) M’s income   | 0.17 | 0.18 | 0.12 | 0.04 | 0.42 | 0.24 | 0.42 | 0.24 | 1   |     |     |     |
| (j) F’s income   | 0.3  | 0.3  | 0.21 | 0.16 | 0.34 | 0.53 | 0.36 | 0.63 | 0.21 | 1   |     |     |
| (k) M’s wealth   | 0.24 | 0.2  | 0.16 | 0.32 | 0.26 | 0.25 | 0.25 | 0.22 | 0.19 | 0.29 | 1   |     |
| (l) F’s wealth   | 0.22 | 0.17 | 0.14 | 0.31 | 0.18 | 0.21 | 0.16 | 0.18 | 0.03 | 0.33 | 0.38 | 1   |

Note: All variables are transformed to rank scale. F = father; M = mother.
Table 3. Sibling Correlations in Children’s Education and Occupation with Different Adjustments for Parents’ SES in Rank Scale

| Children’s outcome | Sibling correlation | ΔSibling correlation | Parental SES component | Gross | Gross % | Net | Net % |
|-------------------|---------------------|---------------------|-------------------------|-------|---------|-----|-------|
|                   | Unadjusted          | Fully adjusted      |                         |       |         |     |       |
| Education         | 0.363               | 0.169               | Education               | 0.168 | 46.4    | 0.035 | 9.7   |
|                   |                     |                     | Occupation              | 0.129 | 35.5    | 0.003 | 0.8   |
|                   |                     |                     | Income                  | 0.097 | 26.6    | 0.002 | 0.5   |
|                   |                     |                     | Wealth                  | 0.068 | 18.6    | 0.012 | 3.3   |
|                   |                     |                     | Edu + Occ               | 0.176 | 48.5    | 0.033 | 9.1   |
|                   |                     |                     | Edu + Inc               | 0.177 | 48.7    | 0.003 | 0.9   |
|                   |                     |                     | Edu + Wlth              | 0.187 | 51.5    | 0.004 | 1.2   |
|                   |                     |                     | Occ + Inc               | 0.142 | 39.2    | 0.002 | 0.6   |
|                   |                     |                     | Occ + Wlth              | 0.154 | 42.4    | 0.002 | 0.6   |
|                   |                     |                     | Inc + Wlth              | 0.123 | 33.8    | 0.004 | 1.1   |
|                   |                     |                     | Edu + Occ + Inc         | 0.182 | 50.1    | 0.048 | 13.3  |
|                   |                     |                     | Edu + Occ + Wlth        | 0.192 | 53.0    | 0.008 | 2.1   |
|                   |                     |                     | Edu + Inc + Wlth        | 0.191 | 52.6    | 0.004 | 1.2   |
|                   |                     |                     | Occ + Inc + Wlth        | 0.159 | 43.7    | 0.001 | 0.2   |
|                   |                     |                     | Edu + Occ + Inc + Wlth  | 0.194 | 53.4    | 0.032 | 8.9   |
| Occupation        | 0.270               | 0.113               | Education               | 0.122 | 45.1    | 0.013 | 4.7   |
|                   |                     |                     | Occupation              | 0.124 | 45.8    | 0.010 | 3.8   |
|                   |                     |                     | Income                  | 0.099 | 36.8    | 0.004 | 1.3   |
|                   |                     |                     | Wealth                  | 0.045 | 16.7    | 0.006 | 2.1   |
|                   |                     |                     | Edu + Occ               | 0.144 | 53.4    | 0.022 | 8.3   |
|                   |                     |                     | Edu + Inc               | 0.140 | 51.9    | 0.003 | 1.2   |
|                   |                     |                     | Edu + Wlth              | 0.133 | 49.4    | 0.002 | 0.7   |
|                   |                     |                     | Occ + Inc               | 0.137 | 50.6    | 0.010 | 3.6   |
|                   |                     |                     | Occ + Wlth              | 0.137 | 50.8    | 0.001 | 0.3   |
|                   |                     |                     | Inc + Wlth              | 0.112 | 41.3    | 0.004 | 1.3   |
|                   |                     |                     | Edu + Occ + Inc         | 0.151 | 56.0    | 0.050 | 18.4  |
|                   |                     |                     | Edu + Occ + Wlth        | 0.153 | 56.8    | 0.004 | 1.5   |
|                   |                     |                     | Edu + Inc + Wlth        | 0.147 | 54.3    | 0.003 | 0.9   |
|                   |                     |                     | Occ + Inc + Wlth        | 0.144 | 53.3    | 0.002 | 0.6   |
|                   |                     |                     | Edu + Occ + Inc + Wlth  | 0.157 | 58.1    | 0.025 | 9.3   |

**Note:** \( N = 526,240 \). All the variance components underlying calculations are found in Supplementary table S1.

**Children’s Education**

In table 3, the unadjusted sibling correlation, or gross sibling similarity, in children’s education is about 0.36. This means that 36 percent of individuals’
Table 4. Sibling Correlations in Children’s Income and Wealth with Different Adjustments for Parents’ SES in Rank Scale

| Children’s outcome | Sibling correlation | ΔSibling correlation | Parental SES component | Gross | Gross % | Net | Net % |
|--------------------|---------------------|----------------------|-------------------------|-------|---------|-----|--------|
|                    | Unadjusted          | Fully adjusted       |                         |       |         |     |        |
| Income             | 0.203               | 0.130                | Education               | 0.027 | 13.3    | 0.005 | 2.5    |
|                    |                     |                      | Occupation              | 0.034 | 16.8    | 0.001 | 0.7    |
|                    |                     |                      | Income                  | 0.056 | 27.4    | 0.014 | 6.8    |
|                    |                     |                      | Wealth                  | 0.033 | 16.2    | 0.009 | 4.6    |
|                    |                     |                      | Edu + Occ               | 0.042 | 20.5    | 0.000 | −0.1   |
|                    |                     |                      | Edu + Inc               | 0.061 | 30.2    | 0.001 | 0.3    |
|                    |                     |                      | Occ + With              | 0.054 | 26.5    | 0.001 | 0.6    |
|                    |                     |                      | Inc + With              | 0.067 | 33.0    | 0.009 | 4.3    |
|                    |                     |                      | Edu + Occ + Inc         | 0.064 | 31.5    | 0.009 | 4.4    |
|                    |                     |                      | Edu + Occ + With        | 0.059 | 29.3    | 0.000 | 0.2    |
|                    |                     |                      | Edu + Inc + With        | 0.072 | 35.4    | 0.001 | 0.7    |
|                    |                     |                      | Occ + Inc + With        | 0.068 | 33.6    | 0.001 | 0.6    |
|                    |                     |                      | Edu + Occ + Inc + With  | 0.073 | 36.1    | 0.010 | 5.1    |
| Wealth             | 0.323               | 0.168                | Education               | 0.031 | 9.5     | 0.005 | 1.4    |
|                    |                     |                      | Occupation              | 0.045 | 13.9    | 0.008 | 2.4    |
|                    |                     |                      | Income                  | 0.023 | 7.2     | 0.001 | 0.4    |
|                    |                     |                      | Wealth                  | 0.141 | 43.5    | 0.082 | 25.5   |
|                    |                     |                      | Edu + Occ               | 0.057 | 17.7    | 0.002 | 0.5    |
|                    |                     |                      | Edu + Inc               | 0.040 | 12.5    | 0.000 | 0.1    |
|                    |                     |                      | Edu + With              | 0.147 | 45.4    | 0.005 | 1.4    |
|                    |                     |                      | Occ + Inc               | 0.064 | 19.8    | −0.001 | −0.2   |
|                    |                     |                      | Occ + With              | 0.149 | 46.2    | 0.025 | 7.6    |
|                    |                     |                      | Inc + With              | 0.141 | 43.7    | 0.014 | 4.4    |
|                    |                     |                      | Edu + Occ + Inc         | 0.073 | 22.5    | 0.000 | −0.1   |
|                    |                     |                      | Edu + Occ + With        | 0.154 | 47.6    | 0.007 | 2.0    |
|                    |                     |                      | Edu + Inc + With        | 0.147 | 45.6    | 0.003 | 0.9    |
|                    |                     |                      | Occ + Inc + With        | 0.151 | 46.7    | −0.006 | −1.7   |
|                    |                     |                      | Edu + Occ + Inc + With  | 0.155 | 48.1    | 0.011 | 3.3    |

Note: N = 526,240. All the variance components underlying calculations are found in Supplementary table S1.

Variation in education is explained by family background and shared factors, regardless if we observe such factors or not. This is very close to estimates reported elsewhere for comparable cohorts (Björklund and Jäntti 2012). When all observable factors of families are accounted for, the sibling correlation
Wealth as One of the “Big Four” SES Dimensions

decreases to about 0.17, suggesting that we can statistically explain 53 percent of the total association. The “Gross” column displays the estimated difference in ICC or sibling correlations relative to the unadjusted model when we control each of the SES dimensions separately. Controlling for parent’s education decreases the sibling correlation by 0.17 correlation units. Dividing this gross estimate with the unadjusted sibling correlation (and multiplying by one hundred) then corresponds to the gross percentage contribution for each dimension, which for education is 46.4 percent—which is interpreted as the (gross) share of the total sibling correlation that is accounted for by parental education. The gross contribution is a rough estimate since parts of it can be due to other omitted SES dimensions—and of course, the estimate can also be affected by other factors such as genes and neighborhood effects, etc.

In contrast, the “Net” column shows the difference in sibling correlation estimates for a full model minus the given dimension; for education, this is 0.035. We use this to arrive at each dimension’s unique contribution and their respective overlaps, making it our preferred measure. Again, as shown in the net percentage column, the net estimate is divided by the unadjusted ICC (and multiplied by one hundred), which gives the relative net contribution expressed in percent. The net contribution of parental education in explaining children’s correlation in years of education is 9.7 percent. This is a substantial amount of unique variance solely attributed to parental education. To appreciate the size, remember that this estimate nets out all other main and overlapping SES components and is then expressed as a share of the total sibling correlations.

When we compare the main variable net contributions in explaining children’s education, we find that parental education gives the highest unique contribution. Interestingly, the second highest is the parent’s wealth contributing with 3.3 percent. The reduction attributed to parental income alone is 0.5, whereas occupation explains 0.8 percent. However, the sum of these net contributions is far from SES’s total contributions, roughly 53 percent (the sum of the main variable net contributions ≈ 14 percent, which leaves 53 – 14 ≈ 39 unaccounted for). This is because the remaining variance is found in the overlaps between various SES dimensions. We thus further decompose the sibling correlation by estimating overlapping components. The strongest overlap by far is the one produced by parental education, occupation, and income, which explains 13.3 percent of the total family association. This is the part of parents’ education, which is utilized in the labor market through an occupation, which also gives an income, i.e., it is not surprising that this is the most important overlap. In contrast, the net contribution of education (without overlaps) is what stems from education alone, not traded for any occupational career or income, and the net contribution of occupation is those attributes and features that influence children’s education but have arisen without the help of parent’s education.

The second most important overlap is between parental education and occupation (i.e., excluding income), resulting in a 9.1 percent net contribution. This is followed by the fourth-order overlap, i.e., between all four dimensions, which explains 8.9 percent of the family association in children’s education. The other two- and three-way intersections are all quite unimportant for children’s
education. Comparing the gross contributions with the net contributions, there is a vast discrepancy. For example, a considerable amount of the overlapping dimensions shows gross explanatory contributions of over 30 percent, but a unique explanatory power of roughly 1 percent or lower.

**Children’s Occupation**

For children’s occupational attainment, displayed in the lower panel of table 3, we find that the unadjusted correlation is 0.270. Few, if any, have examined sibling correlations in occupational ISEI (or prestige) in Sweden. Conley and Glauber (2005) report a considerably higher estimate for the United States. Social mobility is thus much higher in occupational prestige than in years of education. The full model returns a sibling correlation of 0.11, which suggests that we can account for about 58 percent of the observed SES variation. Examining the unique net contributions, the most important dimensions in explaining children’s occupation are parental education (4.7 percent), followed by parental occupation (3.8 percent), whereas wealth also matters to some extent (2.1 percent). However, the overlaps show the largest contributions: The three-order intersection between education, occupation, and income is yet again the single most important dimension, explaining 18.4 percent of the total family association. The intersection between education and occupation explains 8 percent, occupation and income correspond to 3.6 percent, whereas the overlap of all of the dimensions roughly corresponds to 9.3 percent.

**Children’s Income**

For children’s income, displayed in table 4, the unadjusted sibling correlation is about 0.2, which is much lower than for education and occupation. Few previous studies have assessed disposable income and instead focused on labor earnings, but our estimate is comparable with such estimates for mixed siblings (Björklund and Jäntti 2012). The fully adjusted correlation is 0.13, which means that we can explain only 35 percent of the total family association, which is less than for children’s occupation and education. This estimate is not far from previous results that exclude wealth as parents’ SES (Björklund, Lindahl, and Lindquist 2010). Income is, in other words, more influenced by factors outside the family of origin than the other outcomes but also more affected by unobserved factors in the family. The most critical net contributions of the single variable components are that of income and wealth (between 5 and 7 percent). Importantly, the single variable component of education account for 2.5, and the net contribution of occupation is only 0.5 percent. The second-order overlap between occupation and income matter account for 5.4 percent, and the influence of the intersection between wealth and income is slightly lower than that (4.3 percent). For the third-order overlaps, we find that the education, occupation, and income intersection show a considerable contribution of 4.4 percent. The overlap between all of the dimensions brings about a 5.1 percent reduction in the sibling income correlation.
Wealth as One of the “Big Four” SES Dimensions

In sum, we see relatively straightforward differences compared with sibling correlations in children’s education and occupation: not surprisingly, the parental income itself, and overlaps that include income, are more central here, whereas income played a more marginal role for children’s education and occupation other than through overlaps. Wealth is also a more central dimension. The results suggest a divide between economic factors and those that involve human and cultural capital in accounting for children’s income.

**Children’s Wealth**

Finally, children’s wealth is also displayed in table 4. We find that the sibling correlations are quite high, about 0.32. This suggests much lower mobility than for income and more on par with education. This estimate is higher than the (highest) one found in Norway by Wiborg and Hansen (2018), despite that data are for similar cohorts. Still, they assess wealth at younger ages and also examine a different wealth measure (gross wealth). Our estimate is also higher than the one reported by Conley and Glauber (2005) for the United States with other measurements and methodology. The adjusted correlation is about 0.17, which means that our SES measures can account for 48 percent of wealth variance. Parental wealth is of utmost importance for children’s wealth attainment, with a net contribution as high as 25.5 percent. Of the other singular SES dimensions, neither parents’ education nor income shows substantial influences, although parental occupation contributes 2.4 percent. Perhaps somewhat surprisingly, the overlap between occupation and wealth contributes to explaining children’s wealth with 8 percent. The other second-order intersection that matters, although less so, is income and wealth, which is associated with a reduction of about 4 percent. Finally, the overlap between all dimensions corresponds to a 3.3 percent contribution, which is low compared with this component’s contribution for other outcomes. Children’s wealth is thus mainly explained by parental wealth, with relatively less influence of other dimensions.

In summary, our results suggest a pattern where children’s education has a similar intergenerational process as children’s occupational status, which is different from the correlation of inequality in income and wealth. Although income and wealth have some similarities, wealth is the most disparate case. Considering the unique contributions, wealth seems to serve as an essential direct transfer for each outcome, being the most or second most important contributor to the four singular resources (except for children’s occupation, where it is third). Finally, the most important overlap component for children’s education, occupation, and income is parental education, occupation, and income. However, this overlap literally does not contribute to accounting for children’s wealth attainment—suggesting that it could be interpreted more strictly as a labor market component. Hence, we find that wealth is a special kind of SES dimension: It is a resource that largely predicts its intergenerational process and is not particularly influenced by factors essential for the other SES dimensions. Nevertheless, and importantly, it spills over and structures correlation in other outcome dimensions.
**The Relative Importance of SES**

One limitation of the decomposition into net components is that the large degree of overlaps provides little information regarding the relative importance of different SES dimensions because so much variance is found in the overlaps. One way to address this is to conduct a so-called Shapley or Lindeman, Merenda, and Gold (LMG) decomposition (Shapley 1953; Lindeman, Merenda, and Gold 1980; Mood 2017). The idea here is to force the overlap into the source factors. The ad hoc procedure of adding the factor of interest as control and examine how much of the total family association it explains is dependent on the order of inclusion. This can be avoided by running the models with all possible inclusion orders and examining the average contribution. For example, for parents’ education, we add education to seven models that contain (1) occupation, (2) income, (3) wealth, (4) occupation and income, (5) occupation and wealth, (6) income and wealth, and (7) occupation, income, and wealth. The decomposition is using information already displayed in tables 3 and 4. These averages are directly comparable as they are adjusted in the same way. We normalize these to sum to 100 percent and display relative percentages in table 5 (both for rank scaling and standard metrics). Again, the functional form’s effect is nicely summarized here: wealth is poorly operationalized with the IHS function and explains more in rank form. In general, we find strong support for within resource transmission (Thaning 2019), parents’ education best explains children’s education, parents’ income primarily explains children’s income, and so on, with the only exception of children’s occupation (where parental education and occupation is on par with each other). The decomposition replays the distinction between education/occupation and income/wealth clusters, with the critical exception that parental income is of low relevance for children’s wealth. A further vital matter is that parental wealth contributes roughly one-sixth to education, one-fourth to income, and more than three-fourth to wealth itself. This reinforces the notion that wealth has important spillovers, even though it follows its own unique intergenerational correlation logic.

**Moderation of Parental SES**

For the second research question (RQ2) on moderation, a challenge is that subgroup variances may differ. We therefore compute both sibling correlations and the family component and interpret only when their results agree. The sibling correlations and family variances are shown in figure 1a and b. For children’s education, family similarities tend to increase over each of the parental SES quantile distributions. This would suggest that more privileged children are more similar in their educational outcomes, whereas there are more within-family discrepancies in educational outcomes for disadvantaged children. This pattern is more pronounced for parental wealth, i.e., that the wealthy have higher educational reproduction rates. For children’s occupation, there is a marginal difference over the parental SES distribution—with the exception that parental wealth, again, shows an increasing similarity gradient over the quantiles.
Table 5. The Relative Importance of SES Components Using Shapley/LMG Decomposition

| Children’s | Parents’ |        | Occupation | Income | Wealth |
|------------|----------|--------|------------|--------|--------|
| Rank scale | Education | 51.1   | 22.6       | 11.0   | 15.3   |
|            | Occupation (ISEI) | 35.2   | 34.8       | 19.8   | 10.2   |
|            | Income    | 13.1   | 15.0       | 45.3   | 26.7   |
|            | Wealth    | 6.3    | 13.9       | 5.1    | 74.7   |

For both children’s income and wealth, there are substantially higher levels of similarity in the top quantile across all parental SES resources—with some tendencies to u-shaped patterns, i.e., that the lowest quantile shows higher similarities. Thus, a common finding for all dimensions is that the top quintile in parental wealth always displays markedly higher within-family similarities (and thus lower mobility). This is quite extreme for children’s wealth and corresponds to an increase of roughly 50 percent in the top quintile relative to other quintile groups and reinforces the idea that top wealth holders are driving the intergenerational correlations in children’s wealth. The main difference between the sibling correlation and family variance is that the general top quintile similarity relative to other quintiles in children’s income and wealth is considerably higher in the family variance approach than for sibling correlations. Moreover, for children’s occupation, the family variance component drops in the top quintile for parental education, occupation, and income, whereas this is stable in the sibling correlations.

**Discussion**

In this paper, we have assessed how wealth relates to the standard SES mobility approach. Excluding wealth not only risks underestimating intergenerational inequality, but wealth also exhibits a unique nature, which is of critical importance to intergenerational inequality: It signifies elite status, is less attached to individuals as well as labor markets, and it is also easier to transfer over generations compared with conventional SES dimensions. Given these fluid and polarizing characteristics, wealth has the potential of shaping and increasing the overall reproduction and development of social inequalities.
Our first research question was if and how SES factors overlap in the intergenerational transfers of inequality, with a particular focus on wealth. We do find that wealth is a disparate dimension of SES. Children’s wealth is very
strongly associated with parental wealth—in a much more pronounced way than the relative importance of other parental SES resources. In the relative comparison, our results suggest that parental wealth contributes to explaining children’s education, occupation, and income with between 10 and 27 percent. Moreover, parental wealth does matter more than parental income for children’s educational outcomes. For children’s income, parental wealth is even more important than parental education and occupation. However, parental wealth also shows substantial spillover correlations in explaining children’s education and income, although less so for occupation.

By establishing wealth as a unique SES dimension, we thus continue and advance recent work by Erola, Jalonen, and Lehti (2016) and Mood (2017) to highlight and decompose the overlap between different SES dimensions. Our finding that SES overlaps play a fundamental role in intergenerational inequality adds to the general understanding of social mobility. Although most of the transfers in education, occupation, and income are statistically explained by the “labor market” overlap of parents’ education, occupation, and income, this overlap explains virtually nothing of children’s wealth. We corroborate prior results that suggest resource specificity (parental SES resources show independent associations with various outcomes and are not interchangeable) and within resource transmission, i.e., that transfer in the same parental dimension as the child outcome matter most (Thaning 2019). The within resource association is even stronger for the wealth dimension and holds for education and income.

For the second research question (RQ2), we find that wealth moderate intergenerational correlations in other dimensions: The wealthiest also tend to have lower mobility rates, particularly for children’s income and wealth; this also holds for occupation and education, although it is less profound. In general, wealth supposedly is the “stickiest” of all the dimensions considered—specifically for the within resource transmission of parental to child wealth. Why is this the case? One reason may be the looser connection to the labor market as wealth operates partly outside labor markets’ reward processes, selection, and sorting. Wealth is to no small extent transferred over generations through bequests and inter vivo transfers (Adermon, Lindahl, and Waldenström 2018; Boserup, Kopczuk, and Kreiner 2018). The other SES dimensions require physical transmissions based on genetic predispositions, socialization processes, training of capacities, and the cultivation of social networks, etc. Furthermore, the “stickiness” of wealth translates into a situation where the siblings of the wealthiest parents resemble one another more closely also in other dimensions, like education and occupation, suggesting that a nonmonetary mechanism is also at work. For example, exclusionary social mechanisms can partly be based on property or wealth divisions but also correlate with lifestyle or (sub)culture status community formations (cf. Weber 2009)—where the latter can provide (more or less enclosed) profitable social environments for the wealthy. Relatedly, previous research has shown two- and three-generation associations with school grades (Hällsten and Pfeffer 2017), suggesting a normative effect—i.e., that parents with higher wealth status cultivate and stress pro-status attainment norms to a greater extent.
Concerning the generalizability of our findings, Sweden could be a particular case with, for example, relative equal income distributions and more extreme wealth inequality (cf. Jäntti, Sierminska, and Smeeding 2008b)—also showing dramatic changes over time (OECD 2017). Since the beginning of the nineties, there is a general tendency towards more generous wealth taxation—starting with flat capital gains taxes and abolishing the wealth tax (Fritzell et al. 2014). However, the latter falls out of the time frame of this paper. It is hard to extrapolate from this, but these circumstances could make wealth an even more unique and, potentially, polarizing resource in the Swedish context.

In conclusion, we have expanded the knowledge of intergenerational correlation patterns in social stratification by (1) estimating total decompositions including up to four-order overlap components of parental SES resources for all four corresponding child outcomes, respectively; (2) showing the correlation particularities that pertain to wealth relative to other SES dimensions; and (3) that parental wealth is an essential explanatory factor for children’s education and income attainment—and in particular to children’s wealth itself. We have provided serious empirical arguments suggesting that wealth should be considered integral to the understanding and study of SES inequality, placed alongside the classical SES dimensions of education, occupation, and income. We denote these resources as the “big four” SES variables of intergenerational mobility and social stratification at large.

Supplementary Material

Supplementary material is available at Social Forces online, http://sf.oxfordjournals.org/.

About the Authors

Martin Hällsten is Professor of Sociology at Stockholm University. His current research interests comprise multigenerational inequality processes. His research has appeared in American Journal of Sociology, American Sociological Review, and Social Forces.

Max Thaning is a PhD student in Sociology at Stockholm University. His research centers on inter- and intragenerational inequality in socioeconomic status. Recent work has been published in European Sociological Review and Proceedings of the National Academy of Sciences of the United States of America.

References

Adermon, Adrian, Mikael Lindahl and Daniel Waldenström. 2018. “Intergenerational Wealth Mobility and the Role of Inheritance: Evidence from Multiple Generations.” The Economic Journal 128:F482–513.
Wealth as One of the “Big Four” SES Dimensions

Altonji, Joseph G. and Thomas A. Dunn. 1991. “Relationships among the Family Incomes and Labor Market Outcomes of Relatives.” Research in Labor Economics 12:761–802.

Andrade, Stefan Bastholm. 2016. “Class Origin and Sibling Similarities in Long-Term Income.” Acta Sociologica 59:309–31.

Björklund, Anders, Tor Eriksson, Markus Jäntti, Oddbjörn Raaum and Eva Österbacka. 2002. “Brother Correlations in Earnings in Denmark, Finland, Norway and Sweden Compared to the United States.” Journal of Population Economics 15:757–72.

Björklund, Anders and Markus Jäntti. 2012. “How Important is Family Background for Labor-Economic Outcomes?” Labour Economics 19:465–74.

Björklund, Anders, Lena Lindahl and Matthew J. Lindquist. 2010. “What More Than Parental Income, Education and Occupation? An Exploration of What Swedish Siblings Get from Their Parents.” The B.E. Journal of Economic Analysis & Policy 19, 102.

Björklund, Anders, Jesper Roine and Daniel Waldenström. 2012. “Intergenerational Top Income Mobility in Sweden: Capitalist Dynasties in the Land of Equal Opportunity?” Journal of Public Economics 96:474–84.

Blau, Peter M. and Otis D. Duncan. 1967. The American Occupational Structure. New York: John Wiley & Sons.

Bollen, Kenneth A., Jennifer L. Glanville and Guy Stecklov. 2001. “Socioeconomic Status and Class in Studies of Fertility and Health in Developing Countries.” Annual Review of Sociology 27:153–85.

Boserup, Simon Halphen, Wojciech Kopczuk and Claus Thustrup Kreiner. 2018. “Born with a Silver Spoon? Danish Evidence on Wealth Inequality in Childhood.” The Economic Journal 128:F514–44.

Bratsberg, Bernt, Knut Reed, Oddbjørn Raaum, Robin Naylor, Markus Jäntti, Tor Eriksson and Eva Österbacka. 2007. “Nonlinearities in Intergenerational Earnings Mobility: Consequences for Cross-Country Comparisons.” The Economic Journal 117:C72–92.

Bukodi, Erzsébet, Robert Erikson and John H. Goldthorpe. 2014. “The Effects of Social Origins and Cognitive Ability on Educational Attainment: Evidence from Britain and Sweden.” Acta Sociologica 57:293–310.

Bukodi, Erzsébet and John H. Goldthorpe. 2013. “Decomposing ‘Social Origins’: The Effects of Parents’ Class, Status, and Education on the Educational Attainment of their Children.” European Sociological Review 29:1024–39.

Böhlmark, Anders and Matthew J. Lindquist. 2006. “Life-Cycle Variations in the Association between Current and Lifetime Income: Replication and Extension for Sweden.” Journal of Labor Economics 24:879–96.

Chetty, Raj, Nathaniel Hendren, Patrick Kline and Emmanuel Saez. 2014. “Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States.” The Quarterly Journal of Economics 129:1553–623.

Conley, Dalton. 2001. “Capital for College: Parental Assets and Postsecondary Schooling.” Sociology of Education 74:59–72.

Conley, Dalton, and Rebecca Glauber. 2005. “Sibling Similarity and Difference in Socioeconomic Status: Life Course and Family Resource Effects.” NBER Working Paper No. 11320. National Bureau for Economic Research. Cambridge, MA.

Conley, Dalton, Kathryn M. Pfeiffer, and Melissa Velez. 2007. “Explaining Sibling Differences in Achievement and Behavioral Outcomes: The Importance of Within- and Between-Family Factors.” Social Science Research 36:1087–104.

Corak, Miles. 2013. “Income Inequality, Equality of Opportunity, and Intergenerational Mobility.” Journal of Economic Perspectives 27:79–102.

Dahl, Molly W., and Thomas DeLeire. 2008. “The Association Between Children’s Earnings and Fathers’
Lifetime Earnings: Estimates Using Administrative Data.” University of Wisconsin-Madison, Institute for Research on Poverty, Discussion Paper No. 1342-08.

Domeij, David and Paul Klein. 2002. “Public Pensions: To What Extent Do They Account for Swedish Wealth Inequality?” Review of Economic Dynamics 5:503–34.

Dräger, Jascha and Nora Müller. 2020. “Wealth Stratification in the Early School Career in Germany.” Research in Social Stratification and Mobility 67:100483.

Erikson, Robert and John H. Goldthorpe. 1992. The Constant Flux: A Study of Class Mobility in Industrial Societies. Oxford: Clarendon Press.

Erola, Jani, Sanni Jalonen and Hannu Lehti. 2016. “Parental Education, Class and Income over Early Life Course and Children’s Achievement.” Research in Social Stratification and Mobility 44:33–43.

Evans, Geoffrey. 1992. “Testing the Validity of the Goldthorpe Class Schema.” European Sociological Review 8:211–32.

Fritzell, Johan, Jennie Bacchus Hertzman, Olof Bäckman, Ida Borg, Tommy Ferrarini, and Kenneth Nelson. 2014. “Sweden: Increasing Income Inequalities and Changing Social Relations.” In Brian Nolan, Wiemer Salverda, Daniele Checchi, Ive Marx, Abigail McKnight, István György Tóth, Herman G. van de Werfhorst (eds). Changing Inequalities and Societal Impacts in Rich Countries. Thirty Countries’ Experiences. Oxford: Oxford University Press.

Ganzeboom, Harry B.G., and Donald J. Treiman. 1996. “International Stratification and Mobility File: Conversion Tools.” http://www.harryganzeboom.nl/ISMF/index.htm (last accessed April 6, 2020).

Hansen, Marianne Nordli and Øyvind Nicolay Wiborg 2019. “The Accumulation and Transfers of Wealth: Variations by Social Class.” European Sociological Review 35:874–93.

Hauser, Robert M. 1972. “Disaggregating a Social-Psychological Model of Educational Attainment.” Social Science Research 1:159–88.

Hauser, Robert M., Jennifer T. Sheridan and John Robert Warren. 1999. “Socioeconomic Achievements of Siblings in the Life Course: New Findings from the Wisconsin Longitudinal Study.” Research on Aging 21:338–78.

Hertz, Tom, Tamara Jayasundera, Patrizio Piraino, Sibel Selcuk, Nicole Smith and Alina Verashchagina. 2007. “The Inheritance of Educational Inequality: International Comparisons and Fifty-Year Trends.” The B.E. Journal of Economic Analysis & Policy 7:1–48.

Hällsten, Martin. 2013. “The Class-Origin Wage Gap: Heterogeneity in Education and Variations across Market Segments.” The British Journal of Sociology 64:662–90.

Hällsten, Martin. 2014. “Inequality across Three and Four Generations in Egalitarian Sweden: 1st and 2nd Cousin Correlations in Socio-Economic Outcomes.” Research in Social Stratification and Mobility 35:19–33.

Hällsten, Martin and Fabian T. Pfeffer. 2017. “Grand Advantage. Family Wealth and Grandchildren’s Educational Achievement in Sweden.” American Sociological Review 82:328–60.

Hällsten, Martin and Max Thaning. 2018. “Multiple Dimensions of Social Background and Horizontal Educational Attainment in Sweden.” Research in Social Stratification and Mobility 56: 40–52.

Jaeger, Mads Meier. 2007. “Educational Mobility across Three Generations: The Changing Impact of Parental Social Class, Economic, Cultural and Social Capital.” European Societies 9:527–50.

Johnson, Norman L.. 1949. “Systems of Frequency Curves Generated by Methods of Translation.” Biometrika 36:149–76.

Jonsson, Jan O., David B. Grusky, Matthew Di Carlo, Reinhard Pollak and Mary C. Brinton. 2009. “Microclass Mobility: Social Reproduction in Four Countries.” American Journal of Sociology 114:977–1036.

Jäntti, Markus, Eva Sierminska and Tim Smeeding. 2008a. “How is Household Wealth Distributed?
Evidence from the Luxembourg Wealth Study”. In *Growing Unequal: Income Distribution and Poverty in OECD Countries*, edited by OECD, pp. 253–78. Paris: Organisation for Economic Co-operation and Development.

Jäntti, Markus, Eva Sierminska and Tim Smeeding. 2008b. *The Joint Distribution of Household Income and Wealth: Evidence from the Luxembourg Wealth Study*. Paris: Organisation for Economic Co-operation and Development.

Kelley, Jonathan. 1973. “Causal Chain Models for the Socioeconomic Career.” *American Sociological Review* 38:481–93.

Killewald, Alexandra, Fabian T. Pfeffer and Jared Schachner. 2017. “Wealth Inequality and Accumulation.” *Annual Review of Sociology* 43:379–404.

Kirkeboen, Lars J., Edwin Leuven and Magne Mogstad. 2016. “Field of Study, Earnings, and Self-Selection.” *The Quarterly Journal of Economics* 131:1057–111.

Kotlikoff, Laurence J. and Lawrence H. Summers. 1981. “The Role of Intergenerational Transfers in Aggregate Capital Accumulation.” *Journal of Political Economy* 89:706–32.

Lazarsfeld, Paul F. 1939. “Interchangeability of Indices in the Measurement of Economic Influences.” *Journal of Applied Psychology* 23:33–45.

Lindeman, Richard H., Peter F. Merenda and Ruth Z. Gold. 1980. *Introduction to Bivariate and Multivariate Analysis*. London: Foresman and Co.

Lipset, Seymour Martin and Hans Lennart Zetterberg. 1956. *A Theory of Social Mobility*. Indianapolis, IN: Bobbs-Merrill.

Mazumder, Bhashkar. 2008. “Sibling Similarities and Economic Inequality in the US.” *Journal of Population Economics* 21:685–701.

Mill, John Stuart. 1885[1848]. *Principles of Political Economy*. New York: D. Appleton And Company.

Modigliani, Franco. 1988. “The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth.” *The Journal of Economic Perspectives* 2:15–40.

Mood, Carina. 2017. “More than Money: Social Class, Income, and the Intergenerational Persistence of Advantage.” *Sociological Science* 4:263–87.

Nybom, Martin and Jan Stuhler. 2017. “Biases in Standard Measures of Intergenerational Income Dependence.” *Journal of Human Resources* 52:800–25.

OECD. 2017. *OECD Economic Surveys: Sweden: OECD Economic Survey*. Paris: Organisation for Economic Co-operation and Development.

Pfeffer, Fabian. 2010. *Wealth and Opportunity in the United States and Germany*. PhD Thesis. Madison, WI: University of Wisconsin.

Pfeffer, Fabian T., and Nora Waitkus. 2019. “The Wealth Inequality of Nations.” Working Paper from The Inequality Lab., [www.theinequalitylab.com](http://www.theinequalitylab.com).

Pfeffer, Fabian T. 2008. “Persistent Inequality in Educational Attainment and its Institutional Context.” *European Sociological Review* 24:543–65.

Pfeffer, Fabian T. 2011. “Status Attainment and Wealth in the United States and Germany”. In *The Comparative Study of Intergenerational Mobility*, edited by Erikson, Robert, Jäntti, Markus, Smeeding, Timothy M., pp. 109–37. New York, NY: Russell Sage Foundation.

Pfeffer, Fabian T. and Alexandra Killewald. 2016. “Intergenerational Correlations in Wealth”. In *Economic Mobility: Research & Ideas on Strengthening Families, Communities & the Economy*, pp. 175–201. Washington DC: Federal Reserve Bank of St. Louis.

Pfeffer, Fabian T., and Martin Hällsten. 2012. “Wealth Effects in Three Mobility Regimes: United States, Germany, and Sweden in Comparison.” Berlin: DIW SOEP Paper 500.
Pfeffer, Fabian T. and Alexandra Killewald. 2017. “Generations of Advantage. Multigenerational Correlations in Family Wealth.” *Social Forces* 96:1411–1442.
Purcell, Shaun. 2012. “Variance Components Models for Gene–Environment Interaction in Twin Analysis.” *Twin Research* 5:554–71.
Rumberger, Russell W. 1983. “The Influence of Family Background on Education, Earnings, and Wealth.” *Social Forces* 61:755–73.
Sewell, William H., Archibald O. Haller and Alejandro Portes. 1969. “The Educational and Early Occupational Attainment Process.” *American Sociological Review* 34:82–92.
Shapley, Lloyd S. 1953. “A Value for n-Person Games.” *Contributions to the Theory of Games* 2:307–17.
Sieben, Inge, Johannes Huinink and Paul M. de Graaf 2001. “Family Background and Sibling Resemblance in Educational Attainment. Trends in the Former FRG, the Former GDR, and the Netherlands.” *European Sociological Review* 17:401–30.
Solon, Gary. 1999. “Intergenerational Mobility in the Labor Market”. In *Handbook of Labor Economics*, edited by Ashenfelter, Orley, Card, David, pp. 1761–800. Amsterdam: Elsevier.
Solon, Gary, Mary Corcoran, Roger Gordon and Deborah Laren. 1991. “A Longitudinal Analysis of Sibling Correlations in Economic Status.” *The Journal of Human Resources* 26:509–34.
Spilerman, Seymour. 2000. “Wealth and Stratification Processes.” *Annual Review of Sociology* 26:497–524.
Statistics Sweden. 2010. “Flergenerationsregistret [the Multigeneration Register].” [http://www.scb.se/Pages/List____257501.aspx](http://www.scb.se/Pages/List____257501.aspx) (last accessed March 2, 2010).
Thaning, Max 2019. “Multidimensional Intergenerational Inequality: Resource Specificity in Education, Occupation, and Income.” Stockholm University, The Department of Sociology Working Paper Series No. 37.
Tilly, Charles. 1999. *Durable Inequality*. Berkeley, CA: University of California Press.
Toka, Gabor and Jaap Dronkers. 1996. “Sibling Resemblance in Educational Attainment, Occupational Prestige, and Wealth in Hungary during the Communist Regime.” *European Sociological Review* 12:251–69.
Torssander, Jenny and Robert Erikson. 2009. “Stratification and Mortality–A Comparison of Education, Class, Status, and Income.” *European Sociological Review* Advance Access 26:465–474.
Weber, Max. 2009. “From Max Weber: Essays in Sociology”. In *Class, Status, Party*, edited by Gerth, Hans Heinrich, Mills, C. Wright. London: Routledge.
Wiborg, Øyvind N. 2017. “Family Wealth and School Grades in Norway: Exploring How Immediate and Extended Family Wealth Matters for Children’s School Performance”. In *Social Inequality Across the Generations*, edited by Erola, Jani, Kilpi-Jakonen, Elina. Cheltenham: Edward Elgar Publishing.
Wiborg, Øyvind N. and Marianne N. Hansen 2018. “The Scandinavian Model During Increasing Inequality: Recent Trends in Educational Attainment, Earnings and Wealth among Norwegian Siblings.” *Research in Social Stratification and Mobility* 56:53–63.