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IS INEQUALITY IN SUBJECTIVE WELL-BEING MERITOCRATIC? DANISH EVIDENCE FROM LINKED SURVEY AND ADMINISTRATIVE

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Is Inequality in Subjective Well-Being Meritocratic? Danish Evidence from Linked Survey and Administrative Data*

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Abstract

This paper decomposes inequality in subjective well-being into inequality due to socioeconomic background (SEB) and meritocratic inequality due to differences in individual merits such as school performance. We measure the meritocratic share of well-being, defined as the share of explained variation in life satisfaction attributable to variation in merits not related to SEB. The empirical evidence from Denmark combines survey information on well-being with administrative data on individual characteristics. We find systematic differences in well-being already in early adulthood, where differences in economic outcomes are not yet visible. At age 18-19, about 40 percent of the inequality in well-being is meritocratic. The role of merits rises to 65-85 percent in midlife (age 40-55), where it is also higher than the role of merits in income inequality. The positive conclusions that inequality in well-being is more meritocratic than income inequality and more meritocratic as people grow older get support by corresponding results using an equal opportunity approach.

Keywords: Subjective well-being, inequality, intergenerational mobility
JEL: I31, J62, D30, D63

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1 Introduction

A long-standing literature in social science documents large differences in subjective well-being of people within countries and across countries, which nowadays are under systematic surveillance by policy makers, for example, in the OECD and the UN (Easterlin 1995, Frey and Stutzer 2002, Di Tella et al. 2003, Blanchflower and Oswald 2004, Easterlin et al. 2010, Stone et al. 2010, OECD 2011, Helliwell et al., eds 2020, Killingsworth 2021). Another strand of literature studies the formation of economic inequality and the role of merits (ability and effort) and socioeconomic background (SEB) (Solon 1999, Björklund and Salvanes 2011, Corak 2013, Chetty et al. 2014, 2017, Boserup et al. 2016, Adermon et al. 2018, Elinder et al. 2018, Nekoei and Seim 2022). A classical question in this literature is whether inequality in economic opportunities is meritocratic by rewarding merits rather than SEB (Atkinson 1980, Loury 1981, Bénabou 2000). We ask whether inequality in well-being is meritocratic, i.e., whether differences in subjective well-being are mostly related to SEB factors or to individual merits such as school performance?

To address this question, we use data from Denmark where it is possible to link survey information on subjective well-being and self-assessed abilities to administrative registers from their childhood on socioeconomic status of parents (measured by education, income, and wealth), their school performance, shocks to the family (unemployment, bad health, and divorce), and affluence of their residential area for a large representative sample of individuals aged 18-55. For subjects in midlife the data also includes their educational achievements, income, wealth, occupation, family status, as well as information on health and labor market shocks (Clark and Oswald 1994). The information in the administrative data is often not available in surveys on subjective well-being and when it is, it is potentially subject to survey response errors that can bias the estimates.[1]

Subjective well-being is elicited using the Cantril Ladder question where respondents are asked how satisfied they are with their life on a scale from zero to ten (Cantril 1965). We predict

[1]Measurement errors can occur, for example, because respondents lack precise knowledge of parental socioeconomic status as documented in Hvidberg et al. (2021). Classic measurement errors in the explanatory variables, which are independent of the true values, create attenuation bias. In reality, survey measurement errors are often correlated with true values across variables, which makes it hard to evaluate the size of the biases (Kreiner et al. 2015). There may also be social-desirability bias where some respondents report too high values of, say, their SEB and subjective well-being, thereby creating an upward bias in the estimated relationship.

well-being with variables capturing merits and SEB and measure meritocratic inequality in well-being as the share of the variation in predicted well-being that is unrelated to SEB (Atkinson 1980, Bénabou 2000). Importantly, the approach only includes the association between well-being and differences in merits that are orthogonal to SEB when computing the meritocratic share of inequality.

Our main analyses focus on two periods in life: beginning of adulthood (age 18-19) and midlife (age 40-55). When entering adulthood, observable economic differences across people are small. Jobs are not yet allocated and income variation is not yet established. Thus, studies of inequality and intergenerational mobility in economic outcomes normally focus on people in midlife where variation in permanent income is well proxied by variation in observable income (Haider and Solon 2006). However, unlike economic outcomes, subjective well-being varies a lot across individuals already in early adulthood. The question is then whether this variation relates to merits or SEB. From standard economic theory, it is not expected that more gifted individuals have higher well-being since differences in merits are not yet materialized in consumption levels. Consumption differences at this point are likely more related to income differences of parents and, therefore, SEB. On the other hand, a high position in the merit distribution can in itself be important to people, give non-economic benefits or be a prediction of future success and therefore be associated with subjective well-being.

We provide non-parametric evidence showing a strong positive and almost linear relationship between an individual's position in the GPA distribution of their cohort and their position in the well-being distribution. The rank-rank coefficient is close to 0.2 at age 18-19 and strongly significant ($p<0.001$). Moving up one percentile in the GPA distribution is associated with a 0.2 percentile increase in the well-being distribution and moving from the bottom to the top in the GPA distribution is associated with an increase of 20 percentiles in well-being. This association is larger than the association between well-being and parental income position, which is the strongest SEB predictor of well-being. When we estimate the meritocratic share of inequality using GPA rank to proxy for merits and parental income rank to proxy for SEB, we find that around 40 percent of the inequality in well-being is meritocratic. Note that this is consistent with a higher rank correlation between well-being and GPA than between well-being and parental income class

because the estimation of the meritocratic share attributes variation in GPA that relates back to parental income class as a SEB component of inequality. We also find that merits account for 40 percent of inequality when including a broader set of factors to capture merits and SEB.

In midlife, at age 40-55, people have finished education, they are well into their careers with permanent income position well captured by their current income, they are not yet close to retirement, and health risks are still modest. At this point in the life cycle, we find that the SEB factors have much less predictive power over inequality in well-being. In contrast, the predictive power of the merit factors is in the same ballpark in midlife as when young. In line with these results, the share of the predicted variation in well-being explained by merits is also considerably higher in midlife. It is 65 percent when only considering school performance and parental income class, while it becomes close to 75 percent when using the full set of SEB and merit factors. Thus, inequality in well-being becomes significantly more meritocratic over the life cycle from age 18 to 55, which we confirm with non-parametric age profiles. We also compare inequality in well-being to inequality in income and find that inequality in well-being is more meritocratic.

During adulthood individuals pursue different educations and careers and experience different life paths that may be affected by unemployment and health shocks. These outcomes likely reflect merits but also good and bad luck. Including educational attainment in adulthood increases the meritocratic share of well-being by only 1 percentage point. If we use a broad definition of meritocracy that includes all information about adult outcomes among the meritocratic factors then the meritocratic share of inequality in life expectancy increases to a maximum of 85 percent. This tells us that SEB only explains 15 percent of all the predicted inequality in well-being.

Denmark and the other Nordic countries are rich with low inequality and high intergenerational mobility (Corak 2013) and the people are ranked among the happiest in the world (Helliwell et al., eds 2020).[2] Policymakers strive to achieve equal opportunities through free public education at all levels, generous student allowances, admission to higher education based on previous school performance, and taxation of inheritances and transfers from parents (Boserup et al. 2016, Kreiner and Svarer 2022). With these very meritocratic institutions, our estimates likely come close to the

[2]The economic performance of the Nordic countries often receives international attention. For example, US Senator Bernie Sanders highlighted Denmark as being the American Dream in his Democratic presidential nomination campaigns in 2016 and 2020 (Moody 2016, Rasmussen 2020).

maximum role played by merits for inequality in subjective well-being across countries.

To sum up, our main conclusion is that 40 percent of inequality in well-being is meritocratic in the beginning of adulthood increasing to 65-75 percent in midlife or up to 85 percent if we use a broad definition of meritocratic inequality. We show that these estimates are quite robust. Whether the numbers are large or small depends on the eye of the beholder. The good news is that a significant share of inequality is meritocratic already in the beginning of adulthood where economic rewards to merits are negligible. Moreover, in midlife, inequality in well-being is mostly driven by merits and more so than income inequality. The bad news is that a country with some of the most meritocratic institutions in the world has not been able to fully break the link to SEB even when people are in midlife.

Arguably, inequality related to differences in merits is better than inequality related to differences in SEB both from an economic efficiency perspective and from a fairness perspective. This does not imply that a meritocratic society is ideal. It is often argued from an equal opportunity perspective that policy should aim to equalize differences in outcomes beyond the control of individuals, including differences in both SEB and innate abilities, while leaving differences due to effort unchanged (Roemer and Trannoy 2016). From an empirical perspective, this is more complicated because of the difficulty in isolating effort. An empirical approach often taken is to analyze how much of the variation (sum of explained and unexplained) in an adult outcome is attributable to parental background or to pre-adulthood characteristics, the idea being that the individuals themselves are not responsible for this part of the variation. Using a simple analysis along these lines, we find more equal opportunities when it comes to life satisfaction than to income and more equal opportunities in life satisfaction as people grow older. These results echo our findings that inequality in life satisfaction is more meritocratic than income inequality and that life satisfaction inequality becomes more meritocratic as people grow older.[3]

Our results contribute to literature on subjective well-being and inequality. Our main novelty is to measure whether inequality in well-being is meritocratic. The large empirical literature on inequality mainly focuses on economic outcomes, such as income or wealth (Piketty and Saez 2003, Kopczuk et al. 2010, Saez and Zucman 2016, Atkinson and Søgaard 2016, Piketty 2018,

[3]More results on equal opportunity in life satisfaction can be found in Mahler and Ramos (2019).

Jäntti et al. 2020, Hammar and Waldenström 2020). However, inequality in subjective well-being is also important as we are ultimately interested in the well-being/utility/welfare of individuals (Oswald 1997).[4] Studies on inequality often use administrative registers and some studies also combine administrative registers with surveys but not on inequality in subjective well-being as we do (Karadja et al. 2017, Epper et al. 2020, Hvidberg et al. 2021, Bastani and Waldenström 2021).

Closest to our work in the literature on subjective well-being are four empirical studies measuring the association between childhood characteristics and adult life satisfaction using longitudinal survey data. Clark and Lee (2021) use data from the Wisconsin Longitudinal Survey to study the distal and proximal correlates of adult life satisfaction, finding that childhood characteristics such as IQ score, parental income, and parental education are strong predictors of adult life satisfaction. This is somewhat in contrast to Layard et al. (2014), who use British cohort surveys and find that childhood characteristics have only limited power in predicting adult life satisfaction even though childhood characteristics also affect adult outcomes. Frijters et al. (2014) and Flèche et al. (2021) also use British cohort surveys and combine life satisfaction measured at different adult ages starting at age 26 and ending at age 50 with a comprehensive set of childhood characteristics including test scores and paternal occupation as well as information about the individual in adulthood. Frijters et al. (2014) show that childhood characteristics predict close to 7 percent of the variation in average adult life satisfaction and 16 percent when including adult outcomes. Our agenda of estimating the meritocratic share of inequality is different, but for comparison it is worth noting that our empirical results imply that childhood characteristics predict around 9 percent of life satisfaction in the beginning of adulthood and, together with adult characteristics, predict 13 percent of life satisfaction in midlife. Flèche et al. (2021) show that the effect of childhood variables remains quite stable across the four different ages of measurement. We find stability of merit factors, but a decrease in the importance of SEB factors implying that the meritocratic share of inequality increases with age. Another difference is that we measure life satisfaction already from entry into adulthood at age 18 and find a relatively strong role of merits already at this age before adulthood education and at the beginning of formal independence from parents.

[4] A clear association exists between economic inequality and inequality in subjective well-being, although overall well-being does not grow over time in pace with economic growth, cf., the much debated Easterlin paradox (Easterlin 1995, Clark and Oswald 1996, Easterlin et al. 2010).

The next section discusses the conceptual approach and describes the data. Section 3 presents the empirical results including robustness analyses. Finally, Section 4 provides concluding remarks.

2 Conceptual Approach and Data Construction

2.1 Measurement of Meritocratic Variation

A meritocratic society that rewards merits is normally, at least in the western world, considered to be preferable to a social-class society that rewards SEB such as parental resources. Arguably, rewarding merits rather than SEB is better for economic efficiency and normatively more appealing. But what are the merits that should be rewarded? Is it effort, performance, talent, skills, physical strength, or beauty or some combination of these factors? And how do we measure to what extent a society is meritocratic? These are classical questions for which definite answers do not exist.

Conceptually, our approach is best characterized as school meritocracy. Our most key merit variable is school performance at the end of compulsory schooling, measured by the grade point average (GPA) when individuals are 15-16 years old. This approach is to some extent driven by available data. Note, however, that the reason that we have information on school performance is that society practice meritocracy by letting school performance determine availability of future education and jobs and, thereby also economic rewards. In some of the analysis, we take a broader approach and include financial literacy and capability of self-control among the merit factors.

Another important question is what to do with variation in merits that are a direct consequence of differences in SEB. A social-class society can prevail because parental resources, one way or the other, determine merits such as school performance. When computing the meritocratic share of inequality, our approach only includes variation in merits that are orthogonal to the variation in SEB, while the rest is attributed to SEB. Following previous literature (Bénabou 2000), we measure the meritocratic share of inequality as the share of the predicted variation in inequality that is unrelated to SEB. We regress life satisfaction, y, on factors capturing merits such as childhood school performance, x, and on factors capturing SEB such as income class of parents

during childhood, z,:

$$y = \bar{y} + ax + bz + \epsilon, \tag{1}$$

where $\bar{y}$ is a constant and ϵ is an error term. Here, x and z are scalars, but they can, more generally, be vectors capturing a multitude of factors. If merits and SEB were independent then we could measure the meritocratic share of inequality as

$$m \equiv \frac{Var(ax)}{Var(\hat{y})} = \frac{a^2 Var(x)}{a^2 Var(x) + b^2 Var(z)}, \tag{2}$$

where $\hat{y}$ is the predicted life satisfaction of an individual. In the more realistic case, some of the differences in people's merits are related to differences in SEB:

$$x = \bar{x} + cz + \eta, \tag{3}$$

where c measures the strength of the relationship between merits and SEB while η is the variation in merits orthogonal to SEB. Since we only want to include the predicted variation in y that is due to variation in η in the estimation of the meritocratic share of inequality, we compute

$$M \equiv \frac{Var(\hat{y} - E(y|z))}{Var(\hat{y})} = \frac{a^2 Var(x - E(x|z))}{Var(\hat{y})} = \frac{a^2 Var(\eta)}{Var(\hat{y})}, \tag{4}$$

where we have used equations (1) and (3). With a positive correlation between merits and SEB, it follows from equations (2) and (4) that $M \leq m$. A higher M implies that a larger share of the variation in predicted life satisfaction can be attributed to merits and there is a higher degree of meritocracy. This is the main approach we pursue in the following.

A meritocratic society as defined here is not necessarily ideal from a normative perspective. From an equal opportunity ideal, it is often argued that policy should aim to equalize differences in outcomes beyond the control of individuals, including differences in both SEB and innate abilities, while leaving differences due to effort unchanged (Roemer and Trannoy 2016). Implementing this empirically is more complicated because of the difficulty in separating out effort from other factors. Despite this measurement challenge, researchers have made considerable progress (Björklund et al. 2012, Hederos et al. 2017, Hufe et al. 2017). A simple empirical approach often taken is to analyze

how much of the total variation in outcomes of adults is attributable to parental background or to pre-adulthood characteristics, the idea being that individuals should not be held accountable for this part of the variation. Formally, this can be measured as $R^2 = Var(\hat{y})/Var(y)$ from a regression of y on factors the individual should not be accountable for.[5] We provide some results along these lines in Section 3.4.

2.2 Survey and Administrative Data

Our empirical analysis exploits a unique data infrastructure in Denmark that makes it possible to combine survey data and administrative registers using civil registration numbers. The measure of subjective well-being comes from a short online survey conducted by the Center for Economic Behavior and Inequality at the University of Copenhagen in 2018.[6] Invitations to participate in the survey were sent out to a representative sample of 50,000 Danes between 18 and 64 years old, randomly selected by Statistics Denmark and with an oversampling of the youngest cohort, which is also the main focus of our study.

The invitations were sent out through Digital Post, which is a digital postal service used by most government institutions to send information to citizens instead of using postal services. It is also used to receive salary statements from employers, account statements from banks, etc., but private companies can only send information if an individual has given consent in advance, which excludes information not demanded, such as advertisements.

We focus our analysis on cohorts up to age 55 for whom we have information on parents during childhood in the administrative data. For these cohorts, 10,464 individuals completed the survey corresponding to a response rate of 29 percent. This is reasonably high when contacting a random

[5] Implicitly, this assumes that individuals are equally accountable for residual variation due to differences in effort and luck.

[6] Card et al. (2010) emphasize the Danish micro data and data infrastructure as a blueprint for data construction. Previous studies exploiting the data infrastructure to combine survey/experimental data and administrative data include Kreiner et al. (2019), Epper et al. (2020), Andersen and Leth-Petersen (2021), Hvidberg et al. (2021), and Epper et al. (2022). The survey question on well-being we use was included as part of a bigger data collection that focused on experimental elicitation of economic preferences (Epper et al. 2020, 2022). Including these preference measures in our analysis does not change the conclusions and since it requires a lengthy description of the elicitation procedure and construction of the preference measures, we have chosen not to include it.

sample of individuals who have not signed up to participate in surveys beforehand.[7]

Subjective well-being is measured using a modified version of the Cantril Ladder Question, "Please imagine a ladder, with steps numbered 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?" (Cantril 1965). The Cantril Ladder Question is a widely used evaluative measure of life satisfaction and is, for example, part of the Gallup World Poll Surveys. Life satisfaction scales have been shown to reflect the quality of respondents life and be significantly correlated with how others rate an individual's happiness (Diener et al. 2013). Further, responses to the Cantril Ladder Question have been shown to correlate with other well-being measures and duration of positive affect (Larsen et al. 1985). Appendix Figure A.1 shows a histogram of the responses in our survey, which looks similar to previous findings for Western Europe.[8] The standard deviation of life satisfaction in our sample is 1.65, corresponding to the 1.64 reported for Denmark in the comparative study by Veenhoven (2022), where Denmark is among the countries with most equality in life satisfaction.

At birth an individual is given a civil registration number (CPR number in Danish) which is stored together with the the civil registration numbers of the parents. We use this information from the population register together with historical registers on income, wealth, education, and family composition to measure the socioeconomic status (SES) of the respondents and of their parents when the individual entered adulthood at age 18. We use standard measures of total income and wealth computed by Statistics Denmark. This is based on tax return data, which provides precise measurement of income and wealth components due to comprehensive third-party reporting (Kleven et al. 2011). We compute three-year averages of annual income and wealth for the individual and the parents to reduce the importance of temporary variation. We presume that the individual has experienced an unemployment shock if they were unemployed within the last three-years before the survey and a health shock if they received sickness benefits within

[7]For comparison, a recent study in Denmark invited respondents by ordinary mail and obtained a response rate of 13 percent (Epper et al. 2020).

[8]See for example the distribution of life satisfaction by world regions on ourworldindata.org (Ortiz-Ospina and Roser 2017).

the last five years. Similarly, they have experienced a parental unemployment shock if either of their parents were unemployed in the three years around the individual turning 18 and a parental health shock if either parent received sickness benefits in the five years around the individual turning 18. Using a 10 percent random sample of the Danish population, we compute the affluence of different neighborhoods and occupations. For neighborhoods, we calculate the average annual income of individuals between 40 and 55 years old living in the municipality in a given year. For occupations, we calculate the average annual income of individuals between 40 and 55 years old in each occupation in 2017.

School grades of the respondents at the end of compulsory schooling (age 15-16) are available in administrative registers for people up to age 32. We compute a GPA based on the exam grade and the teacher assessment, which are included on the grade transcript, in the mandatory courses Math and Danish. Including other courses does not increase the explanatory power. For the older respondents where administrative registers on school performance do not exist, we use self-reported GPA. Old grade transcripts included an official GPA, which we asked respondents to report in the survey. For individuals age 26-32, the two data sources overlap, which imply that we can compare the computed GPA from the administrative data with the self-reported GPA. Appendix figure A.2 plots their cumulative distributions, which track each other quite closely with the exception of higher density at round numbers for self-reported GPA.[9]

In addition to school grades, a measure of financial literacy and self-assessed self-control from the survey are included as proxies for merits.[10] Financial literacy is based on participants' answers to three different questions testing their understanding of interest rates and risks associated with investments.[11] Self-assessed self-control is measured by the extent to which respondents agree with

[9]For those younger than 26, a reform in 2005 changed the grading scale to make it more internationally comparable. The old scale (in Danish "13-skalaen") included ten grades, while the new one (in Danish "7-trins-skalaen") has seven grades. The data break from the old to the new scale does not affect our results presuming that the change of scale did not affect the ranking of people within cohort.

[10]The survey also includes self-assessed impulsivity, but this is not significantly related to life satisfaction. It also includes self-reported belief in own abilities. This is significantly related to self-reported life satisfaction, but arguably this concept is very similar to life satisfaction and is therefore not included among the regressors.

[11]The three survey questions on financial literacy are; (1) Suppose you had 100 DKK in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow? Answer options are more than 102 DKK, exactly 102 DKK, or less than 102 DKK, (2) Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. After 1 year, would you be able to buy more than, exactly the same as, or less than today? (3) Do you

the statement "I am good at exercising self-control in my actions and decisions". Self-control is known to be a strong predictor of many outcomes, e.g., criminal behavior (Epper et al. 2022).

Table 1 provides summary statistics of the data underlying the empirical analysis. We provide separate information on the youngest cohort (age 18-19) and on the cohorts in midlife (age 40-55), whom are the main focus of our analysis. We have administrative data for all people invited to participate in the survey, so we can also analyze whether there are important differences between the participants, our sample, and those invited. For our sample of young adults, the female share is 50 percent and the education length is 10.4 years, same as for those invited. Those in the sample are on average from a higher income families and with a lower divorce rate of parents. This pattern is similar for the sample of people in midlife. Although some of the differences are statistically significant, they are not very large. For example, the mean income level of parents is only around 3 percent higher for the sample compared to those invited for both age groups.

For people in midlife, the top 10% income share in our sample is 22%. The Gini coefficient is 0.25, which corresponds to the 0.26 reported for Denmark by Kreiner and Svarer (2022), which places Denmark among the 6 countries with the lowest income inequality among the 36 OECD countries in their analysis.

We follow previous studies on inequality and intergenerational mobility (Chetty et al. 2014, Epper et al. 2020), and focus our analysis on people's rank relative to others in the same cohort at the same point in time. We do this by computing the percentile position in the within cohort $\times$ time distribution of the sample. This has several advantages. It neutralizes life cycle variation or time variation in the levels of income, subjective well-being, etc., which are not in focus here. The rank transformation works well with zeros in the underlying data in contrast to, for example, logarithmic transformations. More generally, ranks are insensitive to any monotone transformations of the underlying data, including for example changes over time in the way the underlying variables are measured as long as individuals' relative positions are preserved.[12]

think that the following statement is true or false? "Buying a single company stock usually provides a safer return than a stock mutual fund."

[12]In addition, Chetty et al. (2014) demonstrates with population-wide income tax data that estimates of the classical intergenerational income elasticity vary tremendously depending on where in the distribution it is computed. In contrast, the rank-rank elasticity is stable.

Table 1: Summary statistics

	(1) Young Participants	(2) Young Invited	(3) (1)-(2)	(4) Midlife Respondents	(5) Midlife Participants	(6) (4)-(5)
Individual characteristics						
Age at survey	19.00	19.00	-0.00	47.72	47.86	-0.14
Female (d)	0.50	0.49	0.01	0.51	0.50	0.01
Single (d)	0.98	0.98	-0.01	0.23	0.27	-0.04***
Dependent children (d)	0.00	0.00	0.00	0.68	0.64	0.04***
GPA	8.12	7.33	0.79***			
Years of education	10.38	10.39	-0.01	15.01	14.48	0.53***
Income	28,393	29,839	-1,447***	475,711	438,001	37,710***
Wealth	38,723	37,491	1,231	204,324	172,268	32,055**
Occupation income	246,479	246,941	-462	441,995	406,721	35,274***
Unemployment (d)	0.00	0.00	-0.00	0.13	0.14	-0.02**
Sickness benefits (d)	0.00	0.00	-0.00	0.13	0.14	-0.01*
Neighborhood income	939,512	942,405	-2,893	941,368	941,248	120
Family characteristics						
Mom age at birth	30.20	29.90	0.31***	26.15	26.14	0.02
Parents divorced (d)	0.33	0.35	-0.02***	0.21	0.22	-0.01*
Parent years of education	14.64	14.33	0.31***	12.56	12.18	0.38***
Parental income	962,204	930,594	31,610***	652,473	633,599	18,874***
Parental wealth	619,611	527,402	92,210***	415,295	416,839	-1,542
Parental unemployment (d)	0.20	0.21	-0.01**	0.37	0.39	-0.02*
Parental sickness benefits (d)	0.18	0.19	-0.00	0.23	0.24	-0.02**
Neighborhood income at 18 YO	939,512	942,405	-2,893	637,423	636,987	436
Observations	3,937	11,608	15,545	2,903	12,031	14,934

Note: Variables are based on 2017 values. (*d*) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. Unemployment is equal to one if the individual was unemployed within the last three years. Sickness benefits is equal to one if the individual received sickness benefits within the last five years. GPA is not available in the administrative data for those aged 40-55 years old. Income refers to gross income including labor market income, transfers and wealth income. Occupation income is based on the average income by occupation for a 10 percent random sample of the population. Similarly, neighborhood income is the average income of individuals between age 40 to 55 living within a given municipality in a given year. Parent education is the average years of education for the parents. Parent income (wealth) is the sum of the average annual income (wealth) for the mother and father over three years when the individual was 17, 18 and 19 years old. Parental unemployment is equal to one if either of the parents were unemployed when the individual was 17, 18 or 19 years old. Parent sickness benefits is equal to one if the parents received sickness benefits in the five years prior to the individual turning 18. Monetary values are measured in Danish Kroner (DKK). * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ based on p-values from t-tests for equality of means adjusted for overlapping samples.

3 Empirical Results

3.1 Young Adults

We first look at young adults who are 18-19 years old and, therefore, have just entered adulthood according to Danish law. We begin by providing non-parametric evidence on how their life satisfaction correlates with their school performance and the income class of their parents. Figure 1 panel (a) shows a bin scatter plot of their position in the life satisfaction distribution against their position in the GPA distribution. It reveals a linear and strongly significant relationship with a rank-rank coefficient (the slope) close to 0.2. People in the bottom of the grade distribution are on average around percentile 40 in the life satisfaction distribution, while people in the top of the grade distribution are at percentile 60 in the life satisfaction distribution, and moving up 10 percentiles in the GPA distribution is associated with moving up approximately 2 percentiles in the life satisfaction distribution. Note that life satisfaction is completely uncorrelated with individual income at this age (see Appendix Figure A.4). Hence, the strong systematic variation across individuals in life satisfaction would not be visible by looking at income. However, the strong association of life satisfaction with GPA might reflect that school performance is a strong predictor of future prosperity (see Appendix Figure A.5, panel a).

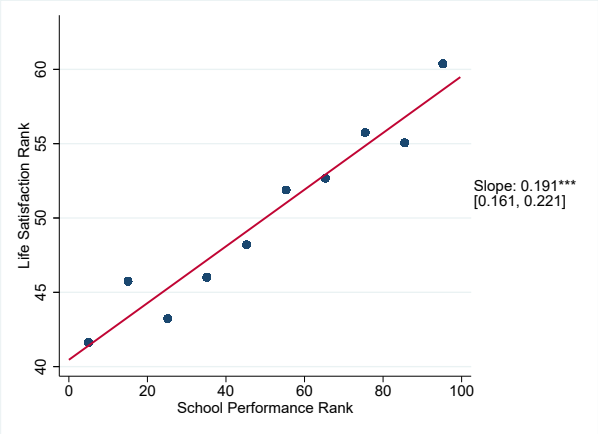
The changes in the (mean) life satisfaction rank in panel (a) mask changes in the underlying distribution. In panel (b), we zoom in on people who are depressed defined as being in the bottom 10 percent of the life satisfaction distribution. The graph shows that almost 20 percent of the depressed people come from the bottom 10 percent of the GPA distribution, while only 5 percent come from the top 10 percent of the GPA distribution. The share of depressed falls linearly when we move upwards in GPA rank.

Panels (c) and (d) show the corresponding non-parametric relationships between life satisfaction and parental income. These relationships are very similar to the GPA plots although not quite as strong. Thus, school performance has at least the same predictive power of life satisfaction as parental income class.

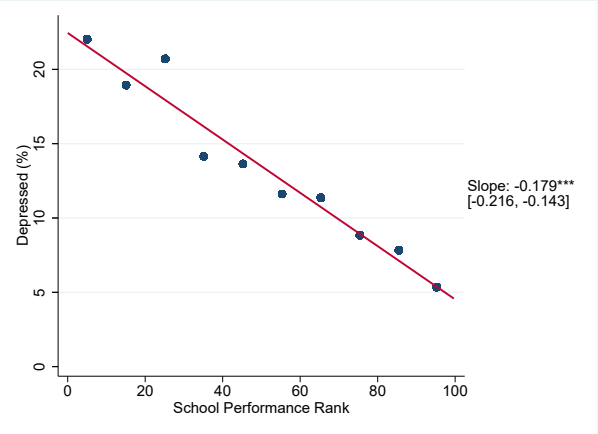
In the following analyses, we focus on people's rank in the life satisfaction distribution. We

Figure 1: Life satisfaction and depressed by school performance and parental income for the young

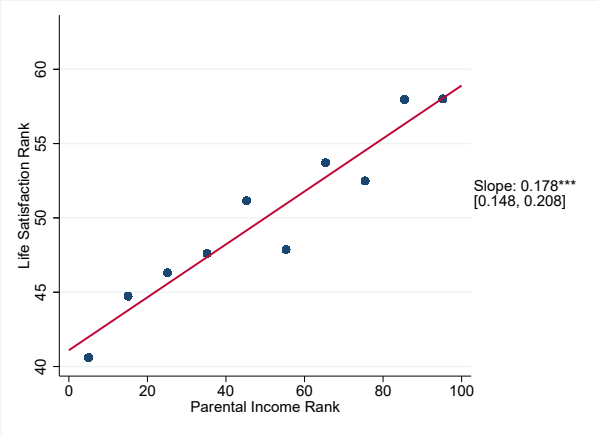
(a) Life satisfaction by school performance



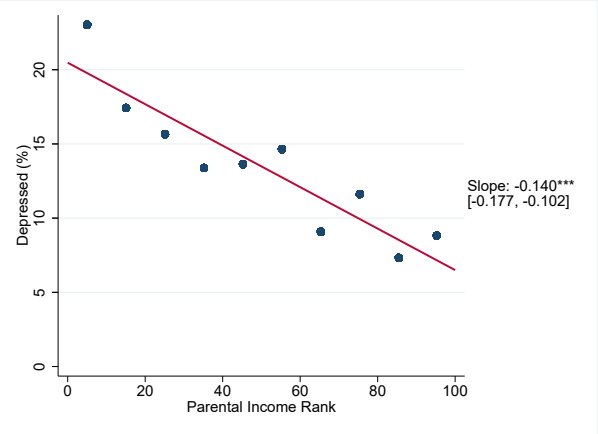
(b) Depressed by school performance



(c) Life satisfaction by parental income



(d) Depressed by parental income



Note: Panel (a) shows life satisfaction rank plotted against GPA rank for individuals aged 18-19. Panel (b) shows depressed, a dummy for being in the bottom 10 percent of the life satisfaction distribution, plotted against GPA rank for individuals aged 18-19. Panel (c) shows life satisfaction rank plotted against parent income rank for individuals aged 18-19. Panel (d) shows depressed plotted against parent income rank. Slope is the rank-rank correlation between the two variables. The 95 percent confidence interval is given in square brackets. $^{*}p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

get very similar results if we instead consider the indicator of being depressed as the outcome (see Section 3.3). Table 2 shows multivariate regression results using equation (1) and estimates of the meritocratic share of inequality in life satisfaction (M) computed using equation (4). Column (1) combines school performance and parental income class and reports rank-rank coefficients multiplied by 100. Thus, the coefficient on GPA stipulates that moving from the bottom (percentile 1) to the top (percentile 100) in school performance is associated with a 15 percentile increase in

life satisfaction conditional on parental income class. The coefficient on parental income class is slightly smaller, while both coefficients are strongly significant ($p<0.001$).

The meritocratic share of inequality (M) computed from equation (4) becomes 38 percent, cf., Table 2. One might have expected an even larger share because of the higher coefficient on GPA rank than on parental income rank. However, the estimated share accounts for the fact that school performance is strongly related to SEB (rank-rank coefficient of 0.34). The part of the association between life satisfaction and GPA, which can be traced back to parental income class, is not included in the meritocratic share of inequality. Had GPA and income class been independent then M would have been 57 percent instead of 38 percent. The 95 percent confidence interval, obtained by bootstrapping with 2,000 replications, shows that merits account for at least a quarter of the inequality in life satisfaction and at most a half.

Next, we include a broader set of factors capturing merits and SEB. Panel (a) in Figure 2 shows the bivariate association between life satisfaction and each of these factors. All variables measure rank position in the underlying cohort distribution with the exception of parental unemployment shock, health shock and divorce, which are dummy indicators. In addition to income class of parents, strong SEB predictors are education length of parents and wealth of parents with coefficients larger than 10. Thus, going from the bottom to the top in the parental wealth distribution is associated with more than a 10 percentile increase in life satisfaction. Parental unemployment shock, divorce, mother age at birth and neighborhood affluence are also significantly associated with life satisfaction. Beyond school performance, factors capturing merits include self-assessed self-control and survey elicited financial literacy. Self-control has a coefficient close to 20 and has therefore the same predictive power as school performance. Financial literacy is also strongly significant, but with a smaller effect.

Column (2) of Table 2 shows the results when we include all these factors in the multivariate regression. The two largest coefficients are on the merit factors school performance and self-control, which are both strongly significant ($p<0.001$). Going up 10 percentiles in school performance rank, conditional on all the other factors, is associated with more than a 1 percentile increase in life satisfaction rank. Parental income class is also sizable and the strongest predictor among the SEB factors. Parental education, wealth, employment, and divorce are also significant. With the broad

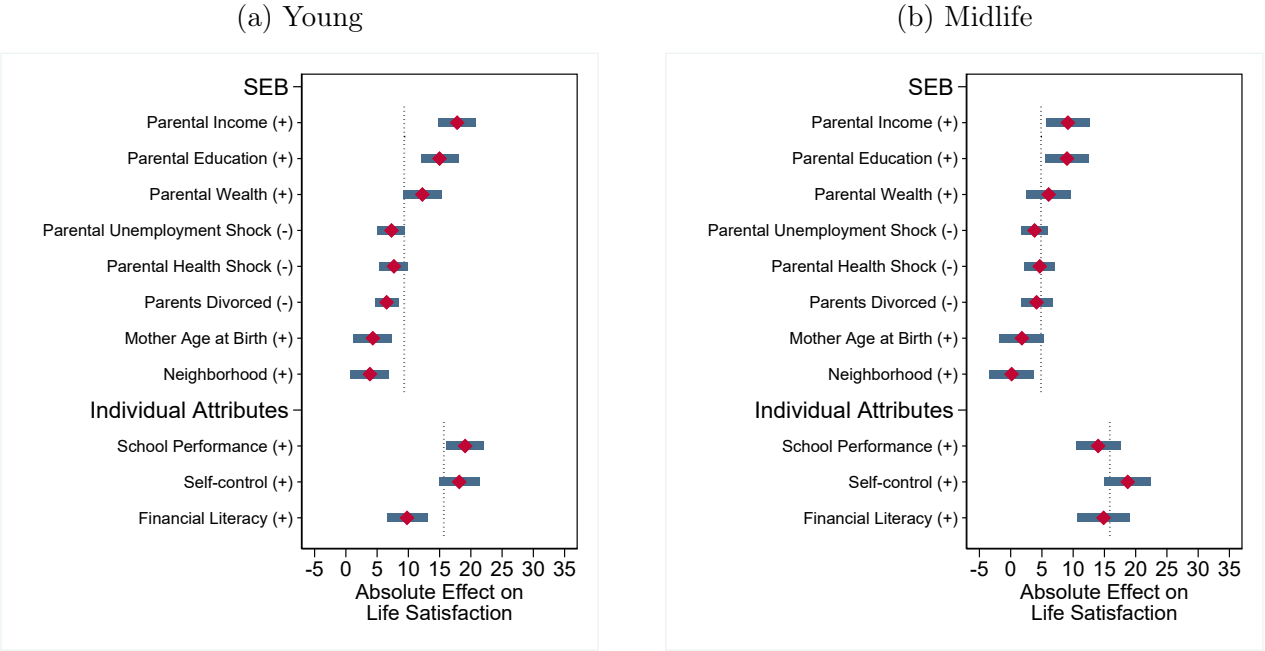
Table 2: Role of merits in life satisfaction of young adults

	(1) Life Satisfaction Young	(2) Life Satisfaction Young
A. Socioeconomic Background		
Parental Income	12.84***	7.70***
	(1.64)	(1.93)
Parental Education		3.83*
		(1.83)
Parental Wealth		4.19*
		(1.66)
Parental Unemployment Shock (d)		-2.50*
		(1.17)
Parental Health Shock (d)		-2.48*
		(1.22)
Parents Divorced (d)		-3.14**
		(0.96)
Mother Age at Birth		-1.39
		(1.60)
Neighborhood		-0.90
		(1.56)
B. Merits		
Individual Attributes		
School Performance	14.76***	10.75***
	(1.64)	(1.74)
Self-control		15.07***
		(1.63)
Financial Literacy		1.49
		(1.71)
Role of Merits (M)	37.9	40.6
	[24.5, 51.3]	[31.2, 51.7]
N	3,937	3,937
R^2	0.053	0.086

Notes: OLS regressions of life satisfaction on SEB and merits. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

set of factors capturing merits and SEB, the meritocratic inequality share becomes 40 percent, which is almost the same as the estimate in column (1).

Figure 2: Bivariate regressions



Note: Panel (a) shows estimates from bivariate regressions of life satisfaction rank against the variables on the y-axis for 18-19 year-olds. The red dots are coefficient estimates and the blue bars are 95% confidence intervals. The dotted line shows the average of coefficient estimates for SEB and individual attributes separately. Panel (b) shows the same as panel (a) but for 40-55 year-olds.

3.2 Midlife

The second set of results focuses on people in the aged 40-55. At this point in the life-cycle, people are no longer enrolled in formal education, they are well into their careers with a large share of their lifetime income realized, their family situation is reasonably stable, they are not yet close to retirement and their own and their partners' health risks are still modest. Panel (b) in Figure 2 shows the bivariate associations between life satisfaction and the same pre-adulthood factors capturing merits and SEB we studied for the young adults. The most striking observation is the big drop in the predictive power of the SEB factors compared to the young in panel (a). For example, the coefficient on parental income class drops from 18 to 9 and the average of all SEB coefficients (the vertical dotted line) is almost halved. In comparison, the average of the merit coefficients is in the same ballpark when comparing those in midlife to the young adults.

Table 3 reports estimates from multivariate regressions and calculations of the share of merito-

Table 3: Role of merits in life satisfaction in midlife

	(1) Life Satisfaction Midlife	(2) Life Satisfaction Midlife	(3) Income Midlife
A. Socioeconomic Background			
Parental Income	6.53***	3.68	9.59***
	(1.81)	(2.02)	(2.03)
Parental Education		2.56	8.35***
		(2.01)	(1.99)
Parental Wealth		0.95	-0.09
		(1.91)	(1.89)
Parental Unemployment Shock (d)		-0.84	-3.14**
		(1.18)	(1.12)
Parental Health Shock (d)		-0.78	-0.69
		(1.37)	(1.29)
Parents Divorced (d)		-1.64	-2.46
		(1.31)	(1.27)
Mother Age at Birth		-1.40	1.28
		(1.87)	(1.78)
Neighborhood		-1.84	-1.07
		(1.80)	(1.75)
B. Merits			
Individual Attributes			
School Performance	12.62***	9.37***	15.20***
	(1.85)	(1.87)	(1.84)
Self-control		16.73***	9.70***
		(1.93)	(1.79)
Financial Literacy		9.75***	28.88***
		(2.18)	(2.01)
Role of Merits (M)	64.1	72.5	55.1
	[41.2, 83.8]	[62.0, 84.6]	[47.1, 63.3]
N	2,903	2,903	2,903
R^2	0.025	0.065	0.180

Notes: OLS regressions of life satisfaction on SEB and merits. The variables are ranked from zero to 100 using fractional ranks.The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

cratic inequality. The regression specifications in columns (1) and (2) correspond to columns (1) and (2) in Table 2. In line with the bivariate evidence, the SEB factors have much less predictive

power over life satisfaction, while the coefficients on the merit factors are more or less unchanged with the exception of financial literacy in column (2), which now has a higher coefficient.

The share of the variation in predicted life satisfaction explained by merits is 64 percent when only using school performance and parental income class in column (1) and 73 percent when using the broader set of factors in column (2). This is considerably higher than the level for the young adults of around 40 percent. Thus, the role played by merits relative to SEB increases over the life cycle. In order to have sufficient statistical power, we have focused on a broad age group in midlife compared to the young where we could focus on individuals just entering adulthood at age 18-19 because of the oversampling of this group. In Appendix Figure A.3 panel (a), we consolidate our finding of an increasing meritocratic share of inequality over the life cycle by providing non-parametric evidence of the estimates by age. It shows that the meritocratic share increases over the life cycle consistent with a gradual fall in the predictive power of parental income class and only a small decrease in the predictive power of school performance.[13]

In the last column of Table 3, we show the results when the outcome is the rank of the individual in the income distribution instead of the life satisfaction distribution. Both merits and SEB play a larger role for income than life satisfaction. More importantly in our context, inequality in life satisfaction seems more meritocratic than inequality in income, i.e., M is 73 percent for inequality in life satisfaction and 55 percent for inequality in income.

In Table 4, we include additional information about individual outcomes in adulthood that are significantly associated with life satisfaction (see Appendix Figure A.6). Column (1) repeats the result from column (2) of Table 3. In column (2), we add educational attainment in adulthood, which is strongly related to life satisfaction conditional on the other factors. However, when we include this variable among the meritocratic factors, it only marginally increases the meritocratic share of inequality from 73 to 74 percent. The reason is that education in adulthood is related

[13]Obviously, we cannot exclude the possibility that the empirical patterns are due to cohort effects rather than life cycle effects. However, our results point to a rather stable relationship between life satisfaction and merits (GPA) by age (Appendix Figure A.3 panel (b)) in contrast to the association between individual income and merits, which is very weak for young adults and very strong for people in midlife (Appendix Figure A.5 panel (a)). We think this relative comparison relates naturally to life cycle effects rather than cohort effects. In the beginning of adulthood and in the twenties, people with a high GPA educate themselves implying low current income but high future income in midlife.

to childhood school performance, which now has a smaller coefficient, and related to SEB, which does not increase the meritocratic share of inequality. Only the variation in education unrelated to school performance and unrelated to SEB increases the meritocratic share of inequality.

In column (3), we include the income class of the individual measured by the position in the income distribution of their cohort. This is the strongest predictor of life satisfaction, in contrast to the young where there was barely any association between income and life satisfaction. After including income class, educational attainment is no longer significant. The meritocratic share of inequality becomes 81 percent. Obviously, income variation does not reflect merits alone, but also more or less random circumstances over the life course of the individuals. However, it still implies that SEB only explains 19 percent of the variation in predicted life satisfaction. In the last column, we also add variation in wealth, occupation, family characteristics, neighborhood, unemployment, and health shocks. In this case, the meritocratic share of inequality goes up to 87 percent reflecting that only 13 percent of the variation in predicted life satisfaction is traced back to differences in SEB.

3.3 Robustness Analyses

This section reports the results from different robustness analyses. Table 5 provides alternative estimates of the share of meritocratic inequality in young adults and in midlife for the specification with all pre-adulthood variables (columns (1) and (2)) and for midlife when we also include all adult outcomes (column (3)). For comparison, row A reproduces the baseline estimates from Tables 2 and 4.

In the baseline regressions, we use average income, wealth, and education of parents. Row B shows estimates of the meritocratic share of inequality based on running regressions with separate variables for fathers and mothers. This doubling of parental background variables only reduces the meritocratic share of inequality slightly. We also estimate regressions for female and male life satisfaction separately (rows C-D). The results suggest more or less the same meritocratic share of inequality across gender.

Our main analysis is based on the relationship between rank positions of individuals in the

distributions of life satisfaction, school grades, income, etc. As described in Section 2.1, analyses of rank-rank relationships provide very robust results, which are unaffected by any monotonous transformations of the variables. We use the relative fractional ranking procedure where identical observations are given the same rank. An alternative is to use ordinal ranking where all observations are given a distinct rank and identical observations are assigned distinct ranks randomly. This is, for example, relevant when we rank people by life satisfaction where the underlying scale is discrete numbers from 0 to 10. Row E shows that the results are almost unchanged if we instead use ordinal ranking. Row F shows the results if we instead of using percentile ranks use Z-scores for all variables (dummy variables are unchanged). Although the meritocratic share for midlife in column (2) falls somewhat, it is still much larger than for the young in column (1), and the estimate of the meritocratic share of inequality in midlife when we also include adult outcomes is the same as the baseline estimate.

As a specification check, we also run a very flexible specification with decile dummies instead of percentile ranks for all relevant explanatory variables (row G). This specification, with 75 explanatory variables in column (1) and (2) and 124 variables in column (3), reduces the estimates in midlife to some extent compared to the baseline, but the overall picture is unchanged.

As discussed in Section 2, non-responses to the survey are not completely random. People who participate tend to have better school performance and come from a slightly richer background. To analyze potential selection bias, we run weighted regressions where observations are weighted to be representative of the individuals invited to participate in the survey using propensity score weights estimated from the observable differences in the register data between participants and people invited to participate. Row H shows that this has almost no effect on the estimates of the meritocratic share of inequality. Further, our main analysis is based on individuals where information exists on all relevant explanatory variables. The estimates fall only slightly if we also include individuals where some of the explanatory variables are missing and instead impute missing values with averages of other participants (row I).

In the last two rows of Table 5, rather than looking at life satisfaction, we zoom in on the tails of the life satisfaction distribution. In row J, we look at the likelihood of being depressed defined as being in the bottom 10 percent of the life satisfaction distribution. This is negatively correlated

with both SEB and merits as shown in panels (b) and (d) of Figure 1. Redoing the analysis with this outcome by running a linear probability model and using equation (4) gives an estimate of the meritocratic share of inequality equal to 47 percent for the young. This is somewhat higher than the estimate in row A suggesting a somewhat larger role played by (disadvantages in) merits for ending up in the bottom of the life satisfaction distribution. In contrast, when zooming in on those in the top 10 percent of the life satisfaction distribution, row K, merits play a similar role as when looking at life satisfaction.

Our overall conclusion from Table 5 is that the estimates of the meritocratic share of inequality in life satisfaction are quite robust to many different ways of measuring variation across individuals in the outcome and in the explanatory factors, to specification checks, across gender sub-samples, and when accounting for potential selection bias. For the young, the meritocratic share, column (1), is in most cases close to 40 percent. The corresponding estimates in midlife in column (2) are in all cases at least 30 percent higher than for the young. When we expand the set of individual factors to include adult outcomes, column (3), the estimates increase to 80-90 percent implying that SEB only accounts for 10-20 percent of the variation in predicted life satisfaction across the different specifications.

As normal when working with large micro data sets, a large part of the variation in the outcome is unexplained (Heckman 2001). The analysis assumes that this is due to variation in life satisfaction unrelated to SEB and merits of people such as random developments in circumstances over the life cycle, survey response noise, etc. Of course, we cannot exclude the possibility that the factors included in our analysis miss important variation. For example, our result that most of the inequality in life satisfaction in midlife is meritocratic (73 percent) could reflect that we do not fully capture the role of SEB with the factors that we include, although it seems more likely that we miss important meritocratic factors given the few variables we were able to include. Note, however, that if we remove one of our SEB factors then the estimate of the meritocratic share of inequality is either unchanged or increases to at most 76 percent, which happens if we remove parental income class (see column (2) of Appendix Table A.11). Likewise R^2 is almost unchanged. The reason for the minor effect on the estimate of removing this key factor is that the remaining SEB factors are sufficient to capture the relevant variation. This indicates that getting additional

SEB factors is unlikely to change the main conclusions.

Our empirical approach in equation (4) accounts for the fact that some of the differences in merits/GPA relate back to differences in people's SEB, which should not be included in the meritocratic variation in life satisfaction. In Appendix B, we show conceptually, using a small subsample of siblings, that this approach works very well to remove family fixed effects and, thereby, isolate variation in merits orthogonal to SEB.

3.4 Equality of Opportunity Measure

As explained in Section 2.1, an interesting alternative to our approach of measuring the meritocratic share of inequality is to measure the degree of equal opportunity in life satisfaction. Such estimates are reported in Table 6. In column (1), we ask how much of the total variation (explained and unexplained) in life satisfaction in midlife can be attributed to socioeconomic background. We use a flexible dummy specification in the regression in order to explain as much as possible. Despite this, it only explains 3-4% of the variation depending on whether we use ranks or standardized variables. If the individuals shall not be accountable for any pre-adulthood variation then we should include school performance (GPA) in the regression. In this case, the accountable share becomes close to 5%. If the individuals should also not be held responsible for self-control problems and differences in financial literacy, although they are probably very correlated with effort, then the estimates are still below 10%. These low numbers point to a high degree of equal opportunity, but are of course also potentially sensitive to omitted variable bias.

A more robust conclusion seems to be that inequality in life satisfaction displays considerably more equal opportunities than income inequality. By comparing columns (1)-(3) to (4)-(6), we see that R^2 is 2-3 times larger when we run the same regression specifications with income. This reinforces our previous positive conclusion about life satisfaction being more meritocratic than income. Note also that R^2 in midlife for the two specifications in Table 3 is considerably lower than R^2 when young for the same specifications in Table 2. Thus, we observe more equal opportunities in life satisfaction when older. This goes hand-in-hand with our previous conclusion that inequality in life satisfaction is more meritocratic when older.

4 Concluding Remarks

Is inequality in well-being meritocratic? According to our estimates around 40 percent of the variation in predicted life satisfaction, in the beginning of adulthood, is driven by merits unrelated to SEB and this increases to 65-85 percent in midlife depending on specification.

As described in greater detail in the Introduction, Denmark has probably some of the most meritocratic institutions in the world aiming to break the dependency on SEB. Therefore, we believe our results likely represent an upper bound on the importance of merits relative to SEB for inequality in life satisfaction.

Our analysis combines survey information on life satisfaction with third-party information from administrative data on background characteristics of people. This gives very reliable data on, for example, SEB factors. On the other hand, we have little survey information compared to many other studies of well-being. For example, we only observe health problems that result in payment of sickness benefits, but not the perceived physical and mental health more generally (Layard et al. 2014, Flèche et al. 2021, Clark and Lee 2021). One might be worried that our results are sensitive to relevant, unobservable factors, in particular that the high meritocratic share in midlife is due to missing SEB information. In this respect, it is comforting that each of the parental characteristics can be removed without having significant effects on the results as long as the other information about parents are included. This indicates that adding additional variables would not overturn the main conclusions.

We use a simple decomposition approach from the literature, building on a parsimonious multivariate regression setting, to estimate the meritocratic share of inequality. Using machine learning algorithms would likely increase the overall predictive power of merits and SEB, but it would not allow for the same simple decomposition of inequality.

Obviously, the decomposition method cannot identify causal mechanisms, which is a general challenge when working with small survey samples. Related to our agenda, recent research identifies causal effects of neighborhood affluence using a causal design that exploits family movements across neighborhoods (Chetty and Hendren 2018), but this relies on large-scale panel data from administrative records, which does not include subjective well-being.

Key in our analysis is the link between subjective information on life satisfaction and objective information on school performance and socioeconomic background from administrative data. We see this combination of data as a fruitful avenue to further enhance knowledge about the determinants of subjective well-being.

Table 4: Role of merits (broad definition) in life satisfaction in midlife

	(1) Life Satisfaction Midlife	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife	(4) Life Satisfaction Midlife
A. Socioeconomic Background				
Parental Income	3.68	3.22	1.83	2.77
	(2.02)	(2.01)	(2.00)	(1.96)
Parental Education	2.56	1.16	0.59	0.23
	(2.01)	(2.05)	(2.03)	(2.00)
Parental Wealth	0.95	0.79	0.90	-0.27
	(1.91)	(1.90)	(1.88)	(1.86)
Parental Unemployment Shock (d)	-0.84	-0.75	-0.25	-0.13
	(1.18)	(1.18)	(1.16)	(1.13)
Parental Health Shock (d)	-0.78	-0.73	-0.64	-0.19
	(1.37)	(1.37)	(1.35)	(1.32)
Parents Divorced (d)	-1.64	-1.46	-1.15	-0.98
	(1.31)	(1.31)	(1.28)	(1.26)
Mother Age at Birth	-1.40	-1.93	-1.81	-1.25
	(1.87)	(1.86)	(1.85)	(1.81)
Neighborhood	-1.84	-1.65	-1.59	-1.44
	(1.80)	(1.80)	(1.77)	(1.80)
B. Merits				
Individual Attributes				
School Performance	9.37***	7.32***	5.97**	6.14**
	(1.87)	(1.94)	(1.92)	(1.91)
Self-control	16.73***	16.43***	14.92***	13.92***
	(1.93)	(1.92)	(1.91)	(1.90)
Financial Literacy	9.75***	8.68***	4.31	2.18
	(2.18)	(2.18)	(2.22)	(2.20)
Adult Outcomes				
Education		7.78***	2.84	3.15
		(1.95)	(2.00)	(1.99)
Income			17.49***	12.45***
			(2.06)	(2.28)
Wealth				4.32*
				(1.78)
Occupation				1.54
				(2.06)
Unemployment Shock (d)				-3.98*
				(1.59)
Health Shock (d)				-5.27***
				(1.58)
Single (d)				-10.85***
				(1.24)
Dependent Children (d)				-0.15
				(1.13)
Neighborhood				0.75
				(1.79)
Role of Merits (M)	72.5	74.4	81.2	86.5
	[62.0, 84.6]	[64.4, 85.4]	[73.6, 90.2]	[80.8, 93.1]
N	2,903	2,903	2,903	2,903
R^2	0.065	0.070	0.095	0.132

Notes: OLS regressions of life satisfaction on SEB and merits. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Summary of robustness analyses

Role of Merits (M)	(1) Young	(2) Midlife	(3) Midlife with Adult Outcomes
A. Baseline	40.6	72.5	86.5
B. Separate Mother and Father Variables	39.4	68.4	84.0
C. Females	41.7	70.9	87.5
D. Males	37.5	72.3	86.6
E. Ordinal Rank	38.9	68.1	86.0
F. Standardized Variables	42.2	60.4	86.2
G. Flexible Specification	41.5	66.0	80.3
H. Weighted Regression	44.7	72.1	86.2
I. All Survey Respondents	37.9	69.8	85.9
J. Depressed as Outcome	47.4	71.3	91.3
K. Very Satisfied as Outcome	39.5	77.8	85.9

Notes: The table shows estimates of M from different robustness regressions. Baseline is the main specification from Tables 2, 3 and 4. Separate mother and father variables are regressions where parent variables are split into father and mother variables. For example, parent income is split into mother and father income. Females and males are estimates from regressions only on females and males, respectively. For ordinal rank and standardized variables, the variables are either ranked using ordinal ranks or converted to z-scores instead of factorial rank. In the flexible specification, variables are included as dummies for deciles. Weighted regression are estimates where observations are weighted by their likelihood to participate. All survey respondents are estimates from including all respondents, even if information in the register data is missing. If register information is missing they are assigned the average value for those where it is not missing. Depressed as outcome are estimates from where a dummy for having a life satisfaction rank below ten is the outcome and very satisfied are estimates from having a dummy for having a life satisfaction rank above 90 as the outcome.

Table 6: Role of circumstances

	Life Satisfaction			Income		
	(1)	(2)	(3)	(4)	(5)	(6)
Socioeconomic Background	Yes	Yes	Yes	Yes	Yes	Yes
GPA	No	Yes	Yes	No	Yes	Yes
Self-control	No	No	Yes	No	No	Yes
Financial Literacy	No	No	Yes	No	No	Yes
N	2,903	2,903	2,903	2,903	2,903	2,903
R^2 Ranked	0.033	0.045	0.096	0.094	0.130	0.196
R^2 Standardized	0.037	0.048	0.093	0.072	0.098	0.142

Notes: The table shows R^2 from regressions of life satisfaction and income on socioeconomic background, GPA, financial literacy and self-control for individuals aged 40 to 55. R^2 ranked are from regressions where life satisfaction and income are ranked within cohort and R^2 standardized are from regressions where life satisfaction and income are standardized within cohort. In column (1) to (3) life satisfaction rank is the outcome of the regressions and in columns (4) to (6), income rank is the outcomes of the regression. Socioeconomic background covariates include decile dummies for parental income, parental education, parental wealth, municipality affluence, mother birth age as well as dummies for whether parents were divorced, experienced unemployment or experienced a health shock. GPA includes decile dummies for GPA, self-control includes dummies for the responses on a scale from one to seven and financial literacy includes dummies for number of correct answers to three questions designed to measure financial literacy.

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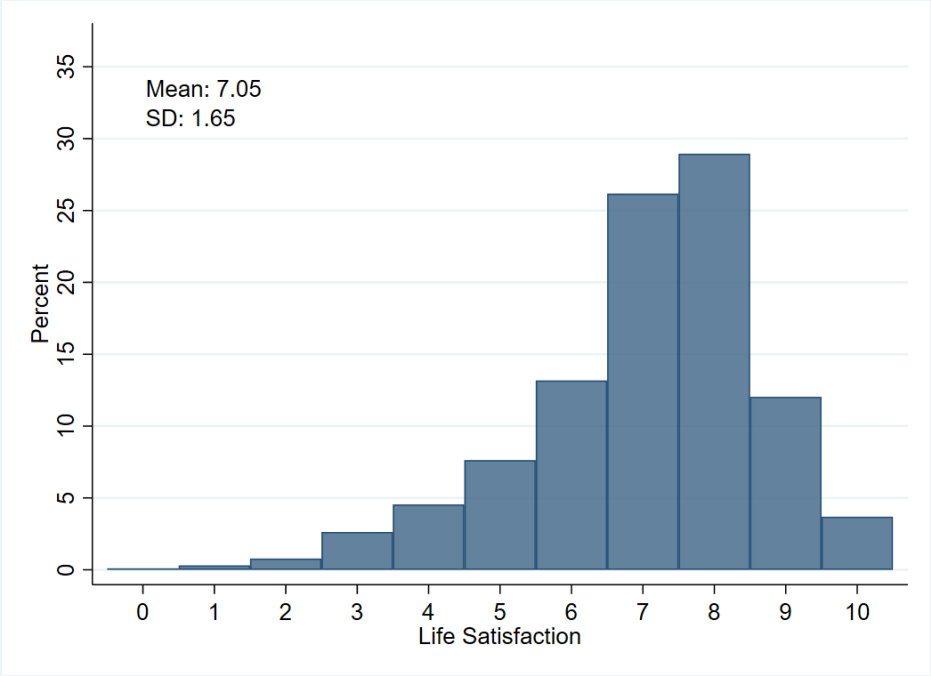
Appendices

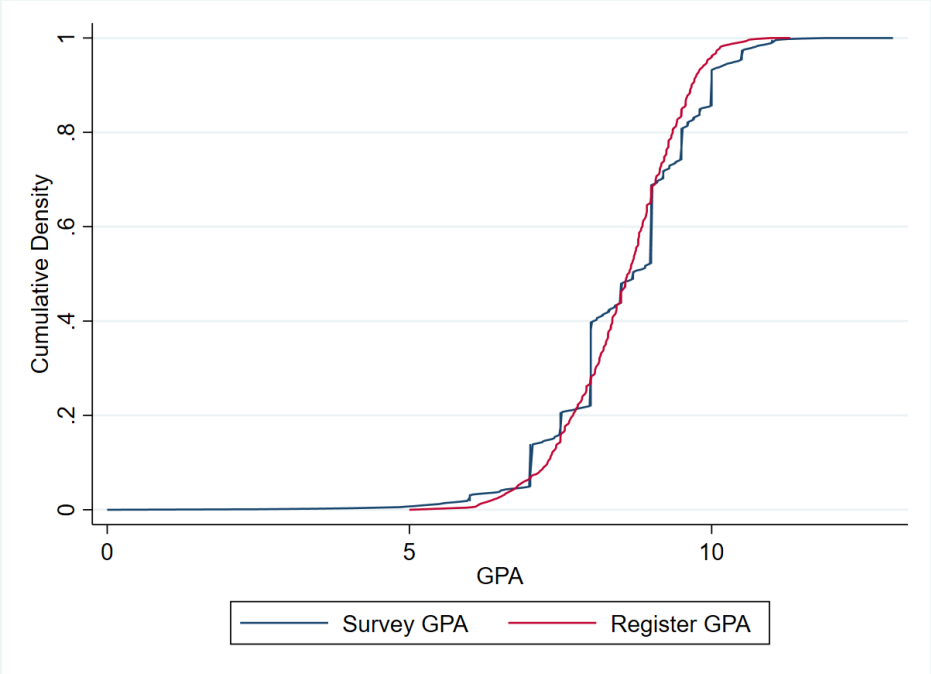
A Additional empirical analysis

Figure A.1: Histogram for life satisfaction



Note: The figure shows the distribution of the responses to "Please imagine a ladder, with steps numbered 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?". Responses are weighted to be representative of the age distribution of the 10 percent random sample of the Danish population.

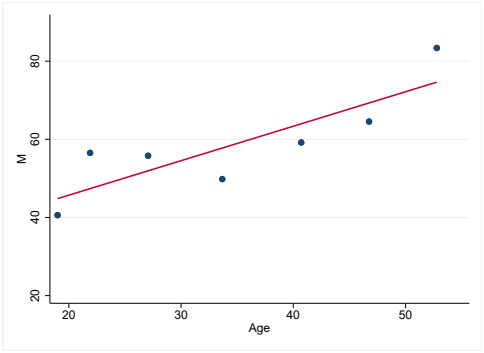
Figure A.2: Cumulative density function for survey and register GPA



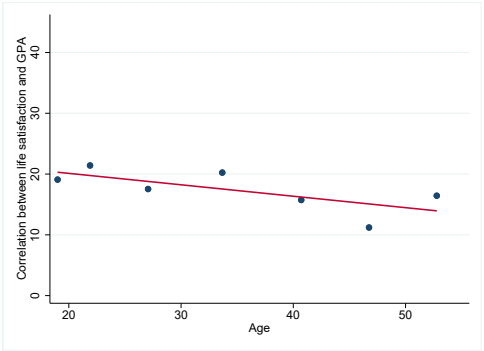
Note: The cumulative density functions for survey and register GPA are based on 905 individuals, who were graded on the old scale ("13-skalaen") and where we have both register and survey GPA available. These individuals are between 26 and 32 years olds.

Figure A.3: Change in relationships over the life cycle

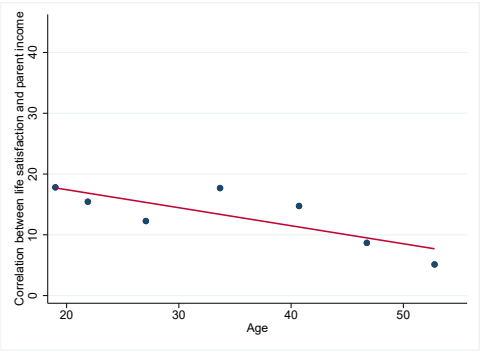
(a) Role of merits (M)



(b) Correlation between life satisfaction and GPA

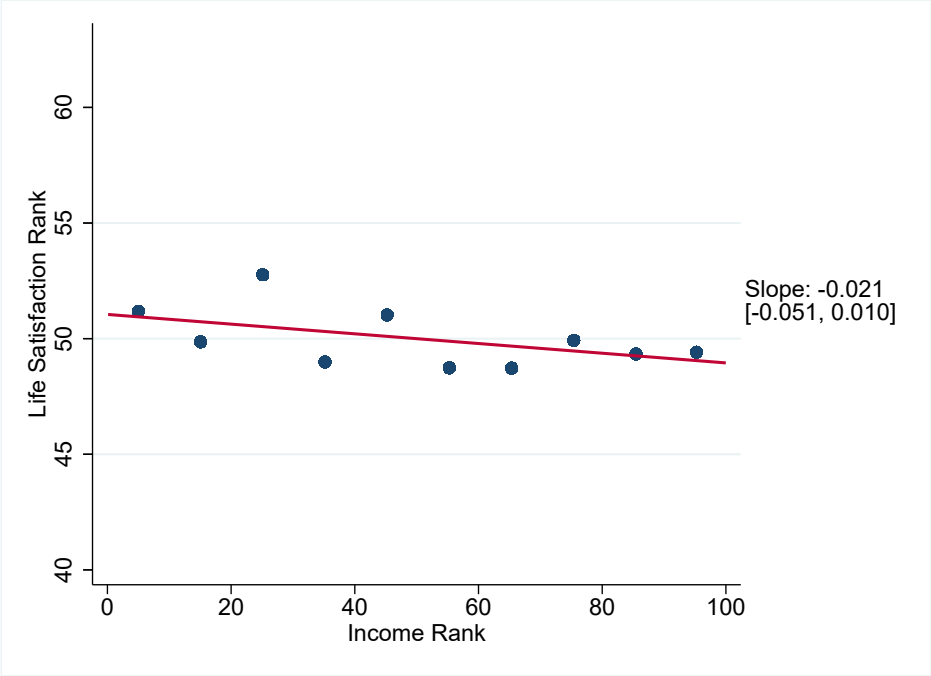


(c) Correlation between life satisfaction and parent income



Note: Panel (a) shows change in estimates of M, defined by equation (4), across age. The blue dots are estimates for M, where M is measure separately for the 19 year-olds, while the remainder of the sample is grouped into six equal sized bins. The red line is a line of best fit between the estimates of M. Panel (b) shows the rank-rank correlation between life satisfaction and GPA, where the blue dots are estimates of the rank-rank correlation for the 19 year-olds and the remainder of the sample, divided into six equal sized bins. The red line is the line of best fit between the estimates by age group. Panel (c) is the same as panel (b) but for the rank-rank correlation between life satisfaction and parent income.

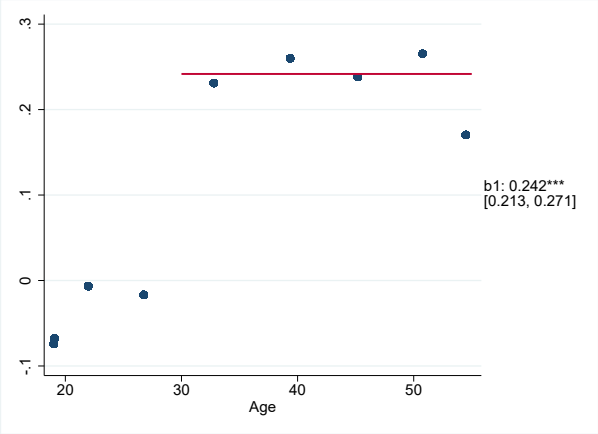
Figure A.4: Correlation between life satisfaction and income at 19 years old



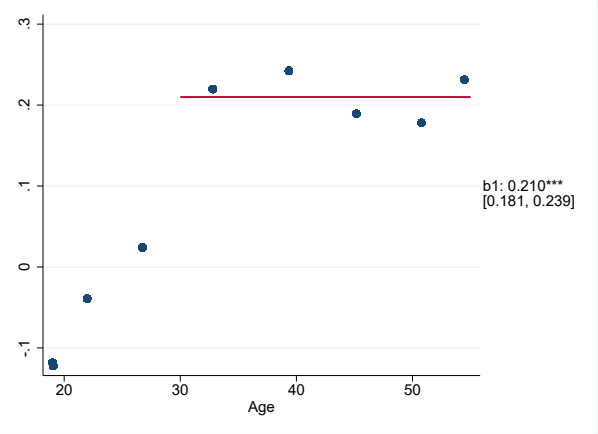
Note: The figure shows life satisfaction rank plotted against income rank for individuals aged 18-19. Slope is the rank-rank correlation between the two variables. The 95 percent confidence interval is given in square brackets. $^{*}p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure A.5: Life cycle graphs

(a) Income against GPA

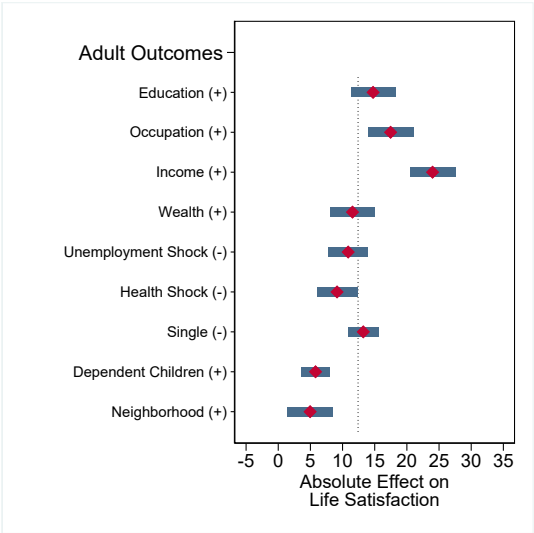


(b) Income against parent income



Note: Panel (a) is constructed by regressing income rank on GPA rank for each cohort. The scatter plots are created by taking the average of the coefficients within bins of 1000 individuals. The red line is the mean coefficient on GPA rank when regressing income rank on GPA rank for those aged 30 to 55. Panel (b) is constructed by regressing income rank on parent income rank for each cohort. The scatter plots are created by taking the average of the coefficients within bins of 1000 individuals. The red line is the mean coefficient on parent income rank when regressing income rank on parent income rank for those aged 30 to 55. The 95 percent confidence interval is given in square brackets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure A.6: Bivariate regressions in midlife with adult outcomes



Note: The figure shows estimates from bivariate regressions of life satisfaction rank against the variables on the y-axis for 40-55 year-olds. The red dots are coefficient estimates and the blue bars are 95% confidence intervals. The grey dotted line shows the average of the absolute value of the estimated coefficients.

Table A.1: Main regressions with father and mother variables

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
A. Socioeconomic Background			
Father Income	7.01***	2.19	1.73
	(1.81)	(2.02)	(1.96)
Mother Income	4.90**	0.04	-0.52
	(1.84)	(1.91)	(1.85)
Father Education	1.11	3.51	2.22
	(1.78)	(2.08)	(2.01)
Mother Education	2.00	0.45	-1.20
	(1.89)	(2.09)	(2.02)
Father Wealth	1.16	2.20	1.38
	(1.83)	(1.93)	(1.87)
Mother Wealth	3.95*	-0.96	-1.96
	(1.82)	(1.84)	(1.78)
Father Unemployment Shock (d)	-0.70	-1.99	-1.13
	(1.63)	(1.39)	(1.32)
Mother Unemployment Shock (d)	-1.95	1.00	1.16
	(1.40)	(1.31)	(1.26)
Father Health Shock (d)	1.36	-3.18	-2.57
	(1.82)	(1.67)	(1.60)
Mother Health Shock (d)	-4.01**	0.26	0.68
	(1.40)	(1.62)	(1.58)
Parents Divorced (d)	-3.29***	-1.26	-0.55
	(0.96)	(1.32)	(1.28)
Mother Age at Birth	-1.43	-1.47	-1.35
	(1.59)	(1.87)	(1.82)
Neighborhood	-0.80	-1.65	-1.21
	(1.56)	(1.80)	(1.81)
B. Merits			
Individual Attributes			
School Performance	10.51***	9.43***	6.14**
	(1.75)	(1.87)	(1.91)
Self-control	15.16***	16.61***	13.85***
	(1.63)	(1.93)	(1.90)
Financial Literacy	1.53	9.76***	2.24
	(1.71)	(2.18)	(2.20)
Adult outcomes	No	No	Yes
Role of Merits (M)	39.4	68.4	84.0
	[30.7, 50.2]	[59.2, 82.6]	[79.0, 92.0]
N	3,937	2,903	2,903
R^2	0.088	0.068	0.135

Notes: OLS regressions of life satisfaction on SEB and merits. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.2: Main regressions with females

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
A. Socioeconomic Background			
Parental Income	7.57**	2.63	2.39
	(2.69)	(2.81)	(2.77)
Parental Education	3.60	3.98	2.38
	(2.57)	(2.74)	(2.74)
Parental Wealth	5.99*	0.54	-0.32
	(2.33)	(2.67)	(2.58)
Parental Unemployment Shock (d)	-1.33	-0.29	0.23
	(1.58)	(1.65)	(1.56)
Parental Health Shock (d)	-2.77	-0.55	0.12
	(1.70)	(1.90)	(1.80)
Parents Divorced (d)	-3.28*	-1.18	-0.39
	(1.34)	(1.76)	(1.70)
Mother Age at Birth	-0.21	0.85	0.53
	(2.27)	(2.58)	(2.49)
Neighborhood	0.05	-3.11	-2.26
	(2.21)	(2.53)	(2.47)
B. Merits			
Individual Attributes			
School Performance	10.57***	8.53**	3.09
	(2.51)	(2.69)	(2.77)
Self-control	16.78***	15.26***	12.47***
	(2.27)	(2.73)	(2.66)
Financial Literacy	2.90	10.87***	5.07
	(2.40)	(2.87)	(2.83)
Adult outcomes	No	No	Yes
Role of Merits (M)	41.7	70.9	87.5
	[29.8, 55.8]	[56.3, 87.7]	[80.4, 96.9]
N	1,956	1,483	1,483
R^2	0.097	0.062	0.145

Notes: OLS regressions of life satisfaction on SEB and merits for females only. The variables are ranked from zero to 100 within gender using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.3: Main regressions with males

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
A. Socioeconomic Background			
Parental Income	7.90**	4.44	2.29
	(2.76)	(2.92)	(2.82)
Parental Education	4.08	1.48	-1.00
	(2.63)	(2.97)	(2.89)
Parental Wealth	2.77	1.33	0.02
	(2.37)	(2.69)	(2.66)
Parental Unemployment Shock (d)	-3.73*	-1.77	-0.76
	(1.72)	(1.70)	(1.62)
Parental Health Shock (d)	-2.23	-0.77	-0.05
	(1.75)	(1.97)	(1.92)
Parents Divorced (d)	-2.96*	-2.69	-2.45
	(1.39)	(1.97)	(1.90)
Mother Age at Birth	-2.61	-4.28	-3.54
	(2.27)	(2.69)	(2.61)
Neighborhood	-1.75	-0.21	-0.61
	(2.22)	(2.55)	(2.60)
B. Merits			
Individual Attributes			
School Performance	9.84***	7.57**	5.05
	(2.54)	(2.69)	(2.70)
Self-control	13.51***	19.21***	15.45***
	(2.34)	(2.70)	(2.70)
Financial Literacy	1.14	12.39***	4.42
	(2.55)	(3.70)	(3.67)
Adult outcomes	No	No	Yes
Role of Merits (M)	37.5	72.3	86.6
	[24.7, 53.7]	[59.9, 89.6]	[79.6, 95.3]
N	1,981	1,420	1,420
R^2	0.077	0.075	0.154

Notes: OLS regressions of life satisfaction on SEB and merits for males only. The variables are ranked from zero to 100 within gender using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.4: Main regressions with ordinal rank

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
A. Socioeconomic Background			
Parental Income	7.41***	2.56	1.74
	(1.97)	(2.13)	(2.07)
Parental Education	3.70*	3.81	1.31
	(1.87)	(2.11)	(2.09)
Parental Wealth	5.02**	1.59	-0.06
	(1.68)	(1.99)	(1.94)
Parental Unemployment Shock (d)	-2.72*	-1.06	-0.34
	(1.19)	(1.22)	(1.17)
Parental Health Shock (d)	-2.76*	-0.70	-0.05
	(1.24)	(1.41)	(1.36)
Parents Divorced (d)	-3.26***	-1.86	-1.13
	(0.98)	(1.37)	(1.31)
Mother Age at Birth	-1.45	-1.16	-1.09
	(1.63)	(1.95)	(1.89)
Neighborhood	-0.87	-2.20	-1.77
	(1.59)	(1.87)	(1.87)
B. Merits			
Individual Attributes			
School Performance	10.92***	8.88***	5.44**
	(1.77)	(1.93)	(1.97)
Self-control	14.35***	14.87***	12.14***
	(1.58)	(1.87)	(1.85)
Financial Literacy	1.57	6.33***	1.33
	(1.63)	(1.87)	(1.85)
Adult outcomes	No	No	Yes
Role of Merits (M)	38.9	68.1	86.0
	[28.7, 49.9]	[58.5, 83.9]	[78.0, 91.7]
N	3,937	2,903	2,903
R^2	0.086	0.052	0.119

Notes: OLS regressions of life satisfaction on SEB and merits. The variables are ranked from zero to 100 using ordinal ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.5: Main regressions with z-score

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
A. Socioeconomic Background			
Parental Income	5.68***	2.23	1.50
	(1.70)	(1.96)	(1.87)
Parental Education	5.14**	4.21*	0.72
	(1.76)	(2.07)	(2.03)
Parental Wealth	2.25	2.00	0.29
	(2.10)	(1.79)	(1.84)
Parental Unemployment Shock (d)	-10.03*	-4.45	-2.21
	(4.24)	(4.26)	(4.07)
Parental Health Shock (d)	-8.60*	-4.72	-1.27
	(4.36)	(5.12)	(4.90)
Parents Divorced (d)	-15.51***	-8.44	-5.69
	(3.44)	(5.03)	(4.74)
Mother Age at Birth	-0.72	-1.61	-1.51
	(1.66)	(1.89)	(1.82)
Neighborhood	-0.35	-0.91	-1.24
	(1.58)	(1.85)	(1.81)
B. Merits			
Individual Attributes			
School Performance	11.71***	7.95***	3.91
	(1.84)	(2.06)	(2.05)
Self-control	12.80***	10.70***	8.31***
	(1.71)	(2.08)	(1.98)
Financial Literacy	1.80	9.09***	2.10
	(1.68)	(2.00)	(1.99)
Adult outcomes	No	No	Yes
Role of Merits (M)	42.2	60.4	86.2
	[33.0, 53.8]	[46.7, 78.3]	[80.5, 92.3]
N	3,937	2,903	2,903
R^2	0.075	0.048	0.139

Notes: OLS regressions of life satisfaction on SEB and merits. The variables are standardized. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 5,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.6: Dummy specification

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
Parental Income	Yes	Yes	Yes
Socioeconomic Background	Yes	Yes	Yes
GPA	Yes	Yes	Yes
Individual Characteristics	Yes	Yes	Yes
Adult Outcomes	No	No	Yes
Role of Merits (M)	41.5	65.9	80.3
	[34.8, 52.8]	[63.7, 74.7]	[80.4, 85.9]
N	3,937	2,903	2,903
R^2	0.109	0.096	0.166

Notes: OLS regressions of life satisfaction on SEB and merits. The control variables are included as decile dummies. SEB variables are measured when the individual is 18 years old. School performance is GPA in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000).

Table A.7: Weighted regression

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
A. Socioeconomic Background			
Parental Income	7.27***	2.70	1.59
	(2.09)	(2.15)	(2.07)
Parental Education	3.07	3.45	1.00
	(1.98)	(2.11)	(2.08)
Parental Wealth	3.45	2.30	1.16
	(1.83)	(2.01)	(1.94)
Parental Unemployment Shock (d)	-2.57*	-0.96	-0.25
	(1.30)	(1.24)	(1.19)
Parental Health Shock (d)	-2.42	-0.64	-0.10
	(1.34)	(1.47)	(1.43)
Parents Divorced (d)	-3.61***	-1.68	-0.75
	(1.06)	(1.42)	(1.37)
Mother Age at Birth	-1.21	-2.04	-1.84
	(1.78)	(1.98)	(1.91)
Neighborhood	0.01	-2.00	-1.64
	(1.73)	(1.91)	(1.91)
B. Merits			
Individual Attributes			
School Performance	10.06***	9.02***	6.04**
	(1.88)	(2.01)	(2.06)
Self-control	16.43***	17.44***	14.32***
	(1.82)	(2.06)	(2.03)
Financial Literacy	1.21	10.62***	2.49
	(1.89)	(2.33)	(2.34)
Adult outcomes	No	No	Yes
Role of Merits (M)	44.7	72.1	86.2
	[33.6, 56.6]	[60.5, 85.6]	[80.1, 92.8]
N	3,937	2,903	2,903
R^2	0.087	0.070	0.140

Notes: OLS regressions of life satisfaction on SEB and merits. The observations are weighted with the inverse probability of being in the sample based on gender, GPA and all SEB variables for the 19 year-olds, and on gender, age, all SEB variables and adult outcomes for the 40-55 year-olds. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.8: Including all survey respondents

	(1) Life Satisfaction Young	(2) Life Satisfaction Midlife	(3) Life Satisfaction Midlife
A. Socioeconomic Background			
Parental Income	9.65***	5.30**	3.72*
	(1.79)	(1.81)	(1.74)
Parental Education	4.57**	2.93	0.26
	(1.73)	(1.80)	(1.77)
Parental Wealth	3.23*	0.79	-0.51
	(1.55)	(1.71)	(1.67)
Parental Unemployment Shock (d)	-2.32*	0.27	0.71
	(1.11)	(1.09)	(1.04)
Parental Health Shock (d)	-1.68	-0.24	0.30
	(1.14)	(1.27)	(1.22)
Parents Divorced (d)	-3.09***	-2.26	-1.50
	(0.90)	(1.16)	(1.11)
Mother Age at Birth	-1.20	-0.54	-0.67
	(1.51)	(1.68)	(1.61)
Neighborhood	-1.18	-1.18	-0.91
	(1.47)	(1.63)	(1.63)
B. Merits			
Individual Attributes			
School Performance	10.58***	8.73***	4.64**
	(1.64)	(1.69)	(1.72)
Self-control	14.97***	15.51***	12.79***
	(1.53)	(1.76)	(1.72)
Financial Literacy	1.54	10.68***	2.25
	(1.61)	(1.98)	(2.01)
Adult outcomes	No	No	Yes
Role of Merits (M)	37.9	69.8	85.9
	[29.5, 47.8]	[60.0, 82.9]	[81.4, 92.8]
N	4,416	3,523	3,523
R^2	0.090	0.063	0.136

Notes: OLS regressions of life satisfaction on SEB and merits including all survey respondents. Respondents with missing register data are given the average for the other individuals. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.9: Role of merits in depressed

	(1) Depressed Young	(2) Depressed Midlife	(3) Depressed Midlife
A. Socioeconomic Background			
Parental Income	-0.053*	-0.044	-0.031
	(0.022)	(0.026)	(0.026)
Parental Education	-0.050*	-0.023	0.010
	(0.022)	(0.026)	(0.025)
Parental Wealth	-0.007	0.003	0.010
	(0.019)	(0.024)	(0.024)
Parental Unemployment Shock (d)	0.018	0.012	0.003
	(0.015)	(0.015)	(0.015)
Parental Health Shock (d)	0.003	0.006	-0.003
	(0.016)	(0.018)	(0.018)
Parents Divorced (d)	0.040**	-0.002	-0.011
	(0.013)	(0.018)	(0.017)
Mother Age at Birth	-0.000	0.000	-0.004
	(0.020)	(0.025)	(0.024)
Neighborhood	0.016	0.045	0.028
	(0.019)	(0.024)	(0.023)
B. Merits			
Individual Attributes			
School Performance	-0.124***	-0.074**	-0.032
	(0.021)	(0.025)	(0.025)
Self-control	-0.134***	-0.129***	-0.094***
	(0.020)	(0.025)	(0.024)
Financial Literacy	0.029	-0.132***	-0.029
	(0.021)	(0.030)	(0.030)
Adult outcomes	No	No	Yes
Role of Merits (M)	47.4	71.3	91.3
	[35.0, 63.2]	[57.4, 89.9]	[86.4, 97.1]
N	3,937	2,903	2,903
R^2	0.046	0.033	0.108

Notes: OLS regressions of dummy for being depressed, having life satisfaction rank below ten, on SEB and merits. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.10: Role of merits in very satisfied

	(1) Very Satisfied Young	(2) Very Satisfied Midlife	(3) Very Satisfied Midlife
A. Socioeconomic Background			
Parental Income	0.067*	0.056	0.052
	(0.032)	(0.029)	(0.029)
Parental Education	0.042	-0.024	-0.042
	(0.030)	(0.030)	(0.030)
Parental Wealth	0.052	-0.004	-0.020
	(0.027)	(0.028)	(0.029)
Parental Unemployment Shock (d)	-0.023	-0.011	-0.007
	(0.018)	(0.017)	(0.017)
Parental Health Shock (d)	-0.028	-0.007	-0.003
	(0.018)	(0.019)	(0.019)
Parents Divorced (d)	-0.049**	-0.032	-0.028
	(0.015)	(0.018)	(0.018)
Mother Age at Birth	-0.009	-0.019	-0.021
	(0.025)	(0.026)	(0.026)
Neighborhood	0.004	-0.001	-0.008
	(0.025)	(0.026)	(0.027)
B. Merits			
Individual Attributes			
School Performance	0.120***	0.066*	0.040
	(0.028)	(0.027)	(0.028)
Self-control	0.161***	0.202***	0.185***
	(0.026)	(0.028)	(0.029)
Financial Literacy	0.028	0.068*	0.025
	(0.027)	(0.030)	(0.031)
Adult outcomes	No	No	Yes
Role of Merits (M)	39.5	77.8	85.9
	[27.6, 55.2]	[65.8, 94.0]	[77.4, 95.0]
N	3,937	2,903	2,903
R^2	0.043	0.032	0.050

Notes: OLS regressions of dummy for being very satisfied, having life satisfaction rank above 90, on SEB and merits. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.11: Main regressions when removing one variable at a time

	(1) Life Satisfaction Young		(2) Life Satisfaction Midlife		(3) Life Satisfaction Midlife with Adult Outcomes	
	M	R^2	M	R^2	M	R^2
Baseline	40.4	0.086	72.5	0.065	86.5	0.132
A. Socioeconomic Background						
Parental Income	46.0	0.083	75.6	0.064	88.2	0.132
Parental Education	43.2	0.085	75.5	0.064	88.1	0.132
Parental Wealth	43.3	0.085	73.6	0.065	87.0	0.132
Parental Unemployment Shock (d)	41.4	0.085	73.0	0.065	86.8	0.132
Parental Health Shock	41.3	0.085	73.2	0.065	86.9	0.132
Parents Divorced (d)	43.2	0.084	74.6	0.064	87.6	0.132
Mother Age at Birth	40.4	0.086	72.5	0.065	86.5	0.132
Neighborhood	40.4	0.086	73.0	0.064	86.8	0.132
B. Merits						
Individual Attributes						
School Performance	33.2	0.077	69.3	0.056	86.2	0.129
Self-control	21.0	0.065	53.4	0.038	84.4	0.115
Financial Literacy	40.2	0.086	69.3	0.058	86.5	0.132
Adult Outcomes						
Education					86.4	0.131
Income					86.5	0.132
Wealth					85.4	0.122
Occupation					86.3	0.130
Employment (d)					86.3	0.130
Sick Payments (d)					86.1	0.128c
Single (d)					83.6	0.109
Dependent Children (d)					86.5	0.132
Neighborhood					86.5	0.132
N	3,937	3,937	2,903	2,903	2,903	2,903

Notes: The table shows estimates of M from regressions of life satisfaction rank on SEB and merits, where the variable on left is removed from the regression. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The variables are ranked from zero to 100 using fractional ranks. SEB variables are measured when the individual is 18 years old. School performance is GPA rank in 9th grade, while self-control and financial literacy are subjective measures from the survey. Adult outcomes are measured in 2017. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name.

B Analysis with Siblings

The empirical approach in equation (4) accounts for the fact that some of the differences in merits/GPA relate back to differences in people's SEB, which should not be included in the meritocratic share of inequality in life satisfaction. Table B.13 shows conceptually, using a small subsample of siblings, that this approach works very well to remove family fixed effects and, thereby, isolate variation in merits orthogonal to SEB.[14] Column (1) follows the procedure in Section 2.2, which gives a meritocratic share of inequality (M) equal to 31.8 percent. In column (2), we first compute the average GPA of the siblings and the distance the sibling average for each sibling, and then estimate the regression again including these two variables. This approach effectively controls for family fixed effects and isolates variation in GPA orthogonal to SEB. This may be seen from column (3) where we run a regression with family fixed effects, which gives the exact same coefficient, i.e., 27.10, as in column (2). Finally, for specification (2) we simply compute M as the predicted variance in life satisfaction due to within family variation in GPA, distance to sibling average, relative to the total predicted variation. This gives an estimate of M equal 29.0, which is very close to the estimate in column (1), showing that our method successfully isolates the role of merits independent of SEB in life satisfaction.

[14]The estimates themselves are not interesting. They are imprecisely measured due to the small sample size and we do not have information on all relevant variables for the brothers/sisters of the people participating in the survey.

Table B.12: Summary statistics for siblings

	(1) Siblings	(2) Respondents excl. siblings	(3) (1)-(2)
Individual characteristics			
Age	27.14	30.32	-3.17**
Female (d)	0.51	0.51	0.00
Single (d)	0.74	0.60	0.14**
Dependent children (d)	0.16	0.30	-0.14***
GPA	8.15	8.28	-0.13
Self-control	5.27	5.38	-0.11
Financial literacy	2.16	2.21	-0.05
Years of education	12.48	12.91	-0.44
Income	166,911	226,284	-59,373**
Wealth	22,573	62,412	-39,839
Occupation income	303,419	342,482	-39,064*
Unemployment (d)	0.11	0.11	-0.01
Sickness benefits (d)	0.04	0.10	-0.06**
Neighborhood income	964,360	936,358	28,002
Family characteristics			
Mom age at birth	28.34	28.51	-0.17
Parents divorced (d))	0.18	0.29	-0.11**
Parent years of education	13.86	13.85	0.01
Parental income	846,160	836,486	9,673
Parental wealth	637,676	568,228	69,449
Parental unemployment (d)	0.25	0.27	-0.02
Parental sick benefits (d)	0.15	0.21	-0.07
Neighborhood income at 18 YO	894,411	824,420	69,991*
Observations	96	10,315	10,411

Note: The table compares summary statistics for siblings within our sample to our sample. Variables are based on 2017 values. (d) specifies a dummy taking the value of one if the individual fulfills the description in the variable name. Unemployment is equal to one if the individual was unemployed within the last three years. Sickness benefits is equal to one if the individual received sickness benefits within the last five years. Income refers to gross income including labor market income, transfers and wealth income. Occupation income is based on the average income by occupation for a 10 percent random sample of the population. Similarly, neighborhood income is the average income of individuals between age 40 to 55 living within a given municipality in a given year. Parent education is the average years of education for the parents. Parent income (wealth) is the sum of the average annual income (wealth) for the mother and father over three years when the individual was 17, 18 and 19 years old. Parental unemployment is equal to one if either of the parents were unemployed when the individual was 17, 18 or 19 years old. Parent sickness benefits is equal to one if the parents received sickness benefits in the five years prior to the individual turning 18. Monetary values are measured in Danish Kroner (DKK). * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.13: Role of individual factors within siblings

	(1) Life satisfaction OLS	(2) Life satisfaction OLS	(3) Life satisfaction FE
A. Socioeconomic Background			
Parental Income	-13.94	-13.23	
	(14.61)	(14.68)	
Parental Education	18.17	21.36	
	(13.71)	(14.80)	
Parental Wealth	4.29	4.77	
	(12.47)	(12.45)	
B. Merits			
Individual Attributes			
School Performance	16.48		27.10*
	(11.38)		(14.59)
Average Sibling School Performance		10.44	
		(15.24)	
Distance to Sibling Average		27.10*	
		(16.28)	
Constant	42.16***	43.24***	39.85***
	(8.08)	(8.31)	(7.70)
Role of Merits (M)	31.8	29.0	
N	96	96	96
R^2	0.073	0.079	0.050

Notes: The tables show regressions of life satisfaction against SEB and merits for our sample of siblings. The variables are ranked from zero to 100 using fractional ranks. The regression estimates are multiplied by 100. SEB variables are measured when the oldest sibling is 18 years old. School performance is GPA rank in 9th grade. Average sibling school performance is the average GPA within sibling pair and distance to sibling average is the distance from the individual grade to the average. M is defined by equation (4). 95% confidence intervals are shown in square brackets. The confidence intervals are bootstrapped (replications = 2,000). Column (3) includes family fixed effects in the regression. Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$