

## Contributions

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# Are We Architects of Our Own Happiness? The Importance of Family Background for Well-Being

DOI 10.1515/bejeap-2015-0037

Published online September 30, 2015

**Abstract:** This paper analyzes whether individuals have equal opportunity to achieve happiness (or well-being). We estimate sibling correlations and intergenerational correlations in self-reported life satisfaction, satisfaction with household income, job satisfaction, and satisfaction with health. We find high sibling correlations for all measures of well-being. The results suggest that family background explains, on average, between 30% and 60% of the inequality in permanent well-being. The influence is smaller when the siblings' psychological and geographical distance from their parental home is larger. Results from intergenerational correlations suggest that parental characteristics are considerably less important than family and community factors.

**Keywords:** subjective well-being, family background, intergenerational mobility

*We hold these truths to be self-evident, that all men are created equal, that they are endowed by their creator with certain unalienable rights, that among these are life, liberty, and the pursuit of happiness.*

(United States Declaration of Independence)

## 1 Introduction

The famous second sentence of the US Declaration of Independence quoted above mentions a promise that most modern societies are built upon: all

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individuals should be able to freely choose actions to achieve their greatest happiness. It is seen as a normative goal to provide all individuals with equal opportunities to develop their happiness. Their success should only be based on the influence of their own effort and not on factors beyond their control. In other words, the promise is that individuals should be architects of their own happiness or well-being. We use a large representative German dataset to investigate whether this promise is fulfilled in one of the biggest western economies.

Beyond doubt, one of the most important factors beyond an individual's control is the family an individual is born into. A large and still emerging literature has documented the importance of family background for offspring's objective markers of economic success like education, earnings, income or wealth.<sup>1</sup> The influence of family factors on well-being has, however, not attracted sustained attention by empirical researchers, yet. Only few studies can be found that investigate the role played by family background for individual well-being (e.g. Winkelmann 2005; Molina, Navarro, and Walker 2011; Headey, Muffels, and Wagner 2014).<sup>2</sup> This is especially surprising as measures of subjective well-being are getting more and more attention as key indicators of prosperity of society. Scientific studies worked out that measures of subjective well-being may deliver insights into people's lives and living conditions that are complementary to information provided by objective indicators, such as income or GDP (e.g., Dolan and Peasgood 2008). Policy makers have also drawn their attention to subjective indicators.<sup>3</sup> Thus, our knowledge about the equality of opportunity is incomplete as long as it is based only on objective markers of success, such as earnings or education.

Most studies in the economic literature estimate intergenerational elasticities or intergenerational correlations as measures of intergenerational mobility to assess the relationship between parental and offspring's outcomes. Although these measures represent the effect of the respective parental characteristic (e.g. earnings or income) on offspring's outcomes, they are one-dimensional measures and thus are only narrow estimates of the full influence of family background.

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**1** An overview of this literature can be found in Solon (1999), Björklund and Salvanes (2011), and Black and Devereux (2011).

**2** Both the sociological and the economic literature on intergenerational mobility also lack a systematic inquiry of subjective well-being. While the sociological literature focuses mainly on the transmission of social status, economic studies are typically concerned with questions of mobility in income and wealth (Erikson and Goldthorpe 2002; Solon 1999; Black and Devereux 2011).

**3** For example, French President Nicholas Sarkozy established a commission chaired by Joseph Stiglitz on the measurement of economic performance and social progress. One of the key recommendations of the final report of the commission is that “[s]tatistical offices should incorporate questions to capture people's life evaluations, hedonic experiences and priorities in their own survey” (Stiglitz, Sen, and Fitoussi 2009, p. 16).

A related strand of literature suggests estimating sibling correlations instead (e.g., Solon et al. 1991; Björklund et al. 2002; Björklund and Jäntti 2012). In comparison to an intergenerational correlation, a sibling correlation is a much broader measure of the influence of family background. It covers all factors shared by siblings of one family and therefore is not restricted to the influence of one single parental characteristic. Hence, the sibling correlation also captures the shared community background, which again is a factor beyond an individual's control.<sup>4</sup>

Since the intergenerational transmission in earnings may differ from the intergenerational transmission in well-being, earnings mobility reveals only part of the picture on intergenerational mobility and the same applies when analyzing the broader influence of family background measured by sibling correlations. Declining earnings inequality and persistent well-being inequality may occur simultaneously when parents transfer material wealth to their children through gifts and bequests (Becker and Tomes 1986). Hence, the use of measures of subjective well-being expands our knowledge of the importance of family background for children's outcomes.

We estimate sibling correlations and intergenerational correlations of subjective well-being to gain knowledge about individuals' opportunities to create their own happiness. We regard family and community factors as potential limiting factors for individuals' autonomy as they are beyond their control. Our approach is based on the following reasoning: if we observe a high sibling correlation in well-being, this means that family and community factors (shared by siblings) have a high influence in determining an individual's well-being. In this case we will regard individuals not as architects of their happiness. If, in contrast, the sibling correlation is low, that is, if the correlation among siblings is not substantially higher than among randomly selected individuals, this means that the influence of shared family and community factors is low. In this case individuals have the power to achieve well-being. We compare the estimated sibling correlations and the estimated intergenerational correlations to analyze how important factors beyond the pure intergenerational transmission of parental well-being are.

We use survey responses to questions about life satisfaction to measure happiness (or well-being) (Frey and Stutzer 2002). In addition, we extend the analysis to domain satisfactions to gain further insights about the importance of family background in different areas of life. We investigate three areas of life: income, job, and health. The approach rests on the bottom-up theory that global life satisfaction is an aggregate of satisfactions in various life domains and that domain

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<sup>4</sup> However, Solon, Page, and Duncan (2000), Page and Solon (2003), Lindahl (2011), and Nicoletti and Rabe (2013) showed that family factors are clearly more important than community factors for objective markers of economic success (e.g., earnings and education).

satisfactions contribute to overall life satisfaction (Diener 1984; Van Praag, Frijters, and Ferrer-i-Carbonell 2003; Easterlin and Sawangfa 2009). We hypothesize that the domain-specific sibling correlations and intergenerational correlations reveal the relative importance of family background in various areas of life.

The intergenerational transmission of well-being effectively requires that children are tied to their family background. In general, economic analyses of the family have shown that the strength of family ties determine, for example, home production, labor force participation, and mobility (see, e.g., Alesina and Giuliano 2010). Similarly, the strength of family ties may determine the intergenerational transmission of well-being. We investigate the role played by family ties by using the geographical and psychological distance between the members of the family as a proxy measure for the strength of family ties. For that purpose, we carry out separate analyses for families that live together and those where the individuals live separately. We hypothesize that stronger family ties imply a stronger influence of the family. Or to put it differently, family background is hypothesized to be of smaller importance when family members live apart than when living together due to weaker family ties.

Our three main contributions are: first, we widen the scope of empirical research on mobility by turning attention to the case of subjective well-being, a hitherto under-explored outcome. The analysis of the mobility of earnings, for instance, may sometimes shroud important information because such analyses often suffer from the lack of data for sisters or daughter–mother pairs. In contrast, well-being measures are available not only for father-son pairs but also for mother-son/daughter pairs. Thus, we are able to compare sibling correlations and intergenerational correlations among brothers and among sisters and reveal potential gender-specific differences.

Second, we analyze well-being in various domains of life. Different areas of life are presumably characterized by different chances to succeed. For example, individuals may have equal opportunities to lead a healthy life (if there is equal access to the health system) but unequal opportunities in the economic sphere (if there is unequal access to educational institutions). Thus, our contribution is to work out a domain-specific influence of family background on the opportunities to lead a self-determined life.

Third, we contribute to the literature by providing detailed results for three different family types that reflect the geographical and psychological distance between the members of the family, using a single analysis framework. In this context, our analysis takes into account families that live together and those where the individuals live separately. The research to date has tended to focus either on families where all siblings live together with their parents (e.g., Winkelmann 2005) or families where all children left the parental home (e.g., Headey, Muffels, and Wagner 2014). Our study conducts equivalent analyses on these specific sample types and compares the results.

Using data from the German Socio-Economic Panel (SOEP), we find that family and community background explains, on average, between 30% and 60% of the inequality in four subjective measures of well-being (life satisfaction, satisfaction with household income, job satisfaction, and satisfaction with health). The influence is particularly large for financial satisfaction, even after children moved out of the parental home. Our evidence shows that sibling correlations depend on the psychological and geographical distance between parents and children and between siblings. Correlations are highest among siblings who live together with their parents in the same household. In comparison, we observe lower correlations among siblings that moved out of the parental home. Interestingly, the difference between sibling correlations of families living together and that of families living apart is smaller for sisters than for brothers, suggesting that there is a stronger linkage among sisters than brothers. The analysis of intergenerational correlations reveals that mothers are more important for job satisfaction of daughters than fathers. Overall, the comparison of intergenerational and sibling correlations shows that the pure intergenerational transmission of well-being explains only a minor part of the full influence of family and community background.

The remaining of the paper is structured as follows: Section 2 gives an overview on the existing literature, Section 3 presents the empirical strategy, Section 4 describes the data, Section 5 presents the results, and Section 6 concludes.

## 2 Literature

This section surveys some selected pieces of literature on intergenerational mobility and the importance of family background for individual well-being. We begin with a review of recent studies about the role of family background for happiness (or well-being). After that, we broaden the scope and give a short overview of more general studies that look at the transmission of factors that may be relevant for determining the influence of the family on well-being.

In a seminal study, Winkelmann (2005) analyzes how family background affects subjective well-being, using an ordered probit model with multiple random effects and SOEP data. He finds that 44% in the variation in long-term well-being is due to family effects.<sup>5</sup> Since the correlation in well-being among

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<sup>5</sup> Winkelmann (2005) includes further control variables for the socio-economic background (i.e. family income, household size, health status, unemployment). Hence, the correlation found is net of these background characteristics.

spouses is smaller than among siblings, Winkelmann concludes that the transmission of well-being may be attributed primarily to biological factors that are shared by siblings but are not shared by spouses. The study uses a sample of families where both spouses plus at least one child 16 or older live in the same household but does not consider families where children moved out of the parental home.

Using data from the European Community Household Panel for 15 countries, Molina, Navarro, and Walker (2011) apply a rank-order instrumental variable procedure to study the intergenerational mobility of income satisfaction. Their approach also controls for socioeconomic background of parents and offspring. Their sample is, similar to the sample used by Winkelmann (2005), restricted to parents and children between 16 and 24 that are still living at home. The authors report low mobility in Southern Europe and high mobility in Northern Europe. Moreover, the intergenerational correlation between children and their mothers is found to be higher than with their fathers.

Using the SOEP data, Headey, Muffels, and Wagner (2014) analyze the linkage in life satisfaction between parents and children who have moved out of the parental home. Their study provides evidence for the transmission of well-being. The results obtained from structural equation models point to two important transmission channels beyond genetic personality traits. Parents transmit (1) pro-social and family values and (2) behavioral choices about work–life balance, social participation, and regular exercise. This research suggests that mothers are more important for adult children’s life satisfaction than fathers.

Next, we look at the literature on the transmission of factors that may have relevance for the transmission of well-being. Studies by Tellegen et al. (1988) and Lykken and Tellegen (1996) reach the conclusion that subjective well-being appears to be heritable to a large degree. Using data from the Minnesota Twin Study, the authors find that about 50% of measured personality diversity and 80% of the stable component in subjective well-being can be attributed to genetic diversity. Based on a sample of young twins 18–24 years old taken from the National Longitudinal Study of Adolescent Health, Christakis et al. (2012) conclude that about a third of the variation in life satisfaction is heritable. Thus, the transmission of genes appears to be an important mechanism through which well-being is transmitted from parents to offspring.

A second important factor for the transmission of well-being is that well-being depends on expectations and aspirations. The literature provides evidence that preferences are shaped by family background. Using data from Denmark, Kleinjans (2010) finds that family background explains the children’s educational expectations. Both daughters and sons have higher educational expectations when their parents have higher education. In addition, sons’ educational

expectations are correlated with parental income. Aspirations are, furthermore, shaped by factors outside the family. The dominant zeitgeist represents another channel through which aspirations are affected. When siblings grow up in a common environment, they are confronted with the same trends and opinions that are disseminated by the media. In a similar way, sociologists argue that the dominant discourse may discourage lower class individuals from making mobility-enhancing investments in schooling, for instance (Piketty 2000). As a result, persistence in well-being inequality may arise from the persistence in family-specific or class-specific aspirations and expectations.

### 3 Empirical Strategy

We are interested in the question of to what extent an individual's well-being is independent from factors that are beyond his or her control, in particular the family and community background. To answer this question, we use two measures. First, we calculate sibling correlations that are a broad measure of the influence of family and community background. Second, we look at intergenerational correlations that tell us about one particular factor of family background, i.e. the relationship between the happiness of parents and their offspring. The comparison of the  $R^2$  measures of these intergenerational regression models and the estimated sibling correlations gives an estimate of the importance of factors besides parental well-being in the determination of offspring's well-being.

The idea of sibling correlations is as follows (Solon et al. 1991): if we observe a high correlation among siblings, then we assume that family background, which is shared by siblings, is an important factor. If, in contrast, the correlation among siblings is not higher than among randomly selected individuals, then we assume that family background plays no role for well-being.

The sibling correlation is a rough omnibus measure (for a discussion, see, e.g., Björklund and Jäntti 2012). It captures any factors that influence well-being and are shared by siblings. These include not only parental characteristics but also community effects. The sibling correlation represents a lower bound for the total effect of family background because factors that are sibling specific but still related to family background are not captured. For example, siblings may experience different childhood environments if first born are treated differently.

The point of departure to model a sibling correlation is the following decomposition of well-being, *SWB*, for child  $j$  in family  $i$  at time  $t$  (e.g., Solon 1999):

$$SWB_{ijt} = a_i + b_{ij} + v_{ijt}, \quad [1]$$

where  $a_i$  represents a family-specific component and  $b_{ij}$  represents individual deviations from the family-specific component.  $v_{ijt}$  represents temporary fluctuations in well-being. Hence, the components  $a_i$  and  $b_{ij}$  capture long-term well-being while the component  $v_{ijt}$  represents short-term fluctuations in well-being (for a detailed discussion of long-term and short-term components, see Winkelmann 2005). By construction,  $a_i$  and  $b_{ij}$  are orthogonal to each other and the variance of the long-term well-being  $SWB$  can be written as the sum of the variances of the two components:

$$\text{Var}(SWB_{ij}) = \text{Var}(a_i) + \text{Var}(b_{ij}) = \sigma_a^2 + \sigma_b^2 \quad [2]$$

The correlation between the long-term subjective well-being of two siblings (the sibling correlation  $\rho$ ) then equals:

$$\rho = \frac{\sigma_a^2}{(\sigma_a^2 + \sigma_b^2)}. \quad [3]$$

The sibling correlation can be interpreted as the share of the variance in long-term subjective well-being that can be attributed to factors shared by siblings. To estimate the variance components, we use the following linear mixed model:

$$SWB_{ijt} = \mathbf{x}'_{ijt}\beta + a_i + b_{ij} + v_{ijt} \quad [4]$$

It is assumed that  $a_i$  and  $b_{ij}$  are normally distributed random error term components with mean zero and variances  $\sigma_a^2$  and  $\sigma_b^2$ , respectively. The error  $v_{ijt}$  is assumed to be an independent and identically distributed random quantity with mean zero and variance  $\sigma_v^2$ .  $\mathbf{x}_{ijt}$  includes a third degree polynomial of age and a set of dummy variables to capture fixed year effect. We do not include control variables for socio-economic characteristics in order to capture the overall family correlation in well-being. Following Mazumder (2008), we estimate the variance components by using restricted maximum likelihood (REML) estimation because REML variance component estimates are consistent and less biased than maximum likelihood estimates (see, e.g., Fahrmeir et al. 2013). The standard errors of the presented sibling correlations are calculated via the delta method.

We calculate intergenerational correlations as a second measure. We use the following bivariate regression approach, where we regress the child's well-being,  $SWB_c$ , on the father's or mother's well-being,  $SWB_p$ :

$$SWB_c = \beta_0 + \beta_1 SWB_p + \varepsilon \quad [5]$$

Again, since long-term measures of well-being are not available, we use averages over all available years (given that the respondent was interviewed at



least three times). With this approach, we reduce attenuation bias due to measurement error in annual well-being, which is affected by random fluctuations from the true long-term values (Solon 1989).<sup>6</sup>

The sibling correlation represents a broader measure of the role played by the family background than the intergenerational correlation. The relationship between the two is as follows (Solon 1999): the sibling correlation in well-being equals the square of the intergenerational correlation plus the influence of all other factors shared by siblings that are uncorrelated with parental well-being. Formally, the relationship can be written as

$$\rho_{SWB} = IGC_{SWB}^2 + \text{all other shared factors uncorrelated with parental SWB.} \quad [6]$$

Hence, while the sibling correlation measures the share of the variance that can be attributed to all shared family and community factors, the  $IGC^2$  measures the share of the variance that can be explained by the respective parental characteristic.

## 4 Data

We use data from the SOEP that provides longitudinal information about children and their parents in Germany (Wagner, Frick, and Schupp 2007).<sup>7</sup> Our sample covers the period 1984–2010 and is restricted to West Germany because well-being was significantly different in East and West Germany throughout the 1990s (Frijters, Haisken-DeNew, and Shields 2004). We include all respondents for whom we have information about the mother and/or father.<sup>8</sup> A particular advantage of the SOEP is that the survey follows children when they leave the parental household. Therefore, we have information not just about siblings and child–parent pairs who live together in the same household but also of those who moved out of the initial household and live separately.

Table 1 reports the sample sizes for brothers, sisters, and mixed sibships. Since we include singletons, the number of individuals is less than twice the number of families in the samples for brothers and sisters, respectively. The sample for mixed-sex siblings does not include singletons and requires that at least two individuals belong to the same family.

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<sup>6</sup> The use of annual measure would lead to a downward bias in estimates of the intergenerational correlations due to classical measurement error.

<sup>7</sup> We use SOEPv27 (DOI: 10.5684/soep.v27). For more information see <http://www.diw.de/soep>.

<sup>8</sup> This may include biological and/or nonbiological parents.

**Table 1:** Sample sizes.

<b>Outcome</b>	<b># of families</b>	<b># of ind.</b>	<b># nT</b>	<b><math>T_{\max}</math></b>	<b>Mean</b>	<b>Std. dev.</b>
<b>Brothers</b>						
Life	3,204	4,268	37,055	27	7.27	1.71
Income	3,156	4,189	35,516	27	6.35	2.25
Job	2,728	3,578	26,468	27	7.23	2.03
Health	3,209	4,273	37,094	27	7.69	1.96
<b>Sisters</b>						
Life	2,862	3,696	30,011	27	7.28	1.73
Income	2,802	3,594	28,364	27	6.36	2.29
Job	2,350	2,944	18,391	27	7.13	2.13
Health	2,870	3,706	30,056	27	7.57	2.02
<b>Mixed-sex siblings</b>						
Life	1,331	3,250	22,589	27	7.30	1.70
Income	1,323	3,181	21,611	27	6.30	2.26
Job	1,234	2,670	15,006	27	7.18	2.06
Health	1,331	3,252	22,604	27	7.69	1.97

Source: SOEPv27. West German respondents.

To further refine our analysis, we split each gender-specific sample into three subsamples that reflect the geographical and psychological distance to the family of origin (i.e. between parents and children and between siblings).<sup>9</sup> First, we coded families in which all siblings live together in the parental home as “siblings living with parents”. We regard the members of these families to have a low distance. Second, families where all siblings moved out of the parental home are coded as “moved out”. Here, we assume a relatively larger distance between the members of the family. Third, families where at least one child moved out and at least one child lives with parents are regarded as “mixed families”. Tables 2, 3, and 4 show the respective sample sizes and report the descriptive statistics for the well-being measures.

For the estimation of intergenerational correlations, we finally use a sample of matched child–parent pairs (son–father, son–mother, daughter–father, daughter–mother). We restricted the age range to 30–45 for both children and parents. This choice of the age range allows us to observe both children and

<sup>9</sup> Our categorical indicator variable captures the geographical and psychological distance in a very fundamental way. The exact kilometer distance would be an alternative measure. However, information about the exact kilometer distance is subject to data protection policies and not included in the standard scientific use file of our data.

**Table 2:** Sample sizes (siblings living with parents).

Outcome	# of families	# of ind.	# nT	$T_{\max}$	Mean	Std. dev.
<b>Brothers</b>						
Life	3,013	3,905	18,719	27	7.38	1.76
Income	2,948	3,804	17,492	27	6.52	2.29
Job	2,391	2,992	11,005	27	7.35	2.08
Health	3,016	3,908	18,739	27	7.98	1.94
<b>Sisters</b>						
Life	2,637	3,293	13,294	25	7.44	1.75
Income	2,553	3,167	11,953	25	6.65	2.28
Health	2,644	3,305	13,322	25	7.91	1.99
<b>Mixed-sex siblings</b>						
Life	1,088	2,557	8,677	19	7.42	1.76
Income	1,075	2,463	8,057	18	6.54	2.30
Job	963	1,822	4,966	18	7.32	2.16
Health	1,088	2,557	8,679	19	7.99	1.99

Source: SOEPv27. West German respondents.

**Table 3:** Sample sizes (siblings moved out of parental home).

Outcome	# of families	# of ind.	# nT	$T_{\max}$	Mean	Std. dev.
<b>Brothers</b>						
Life	1,160	1,415	10,426	27	7.09	1.65
Income	1,158	1,412	10,390	27	6.21	2.13
Job	1,095	1,334	9,403	27	7.09	1.95
Health	1,162	1,417	10,440	27	7.18	1.93
<b>Sisters</b>						
Life	1,231	1,458	10,147	26	7.11	1.71
Income	1,228	1,450	10,081	26	6.16	2.28
Job	1,119	1,297	7,346	26	6.92	2.09
Health	1,232	1,459	10,156	26	7.16	2.01
<b>Mixed-sex siblings</b>						
Life	343	786	4,442	26	7.18	1.63
Income	343	785	4,421	26	6.21	2.11
Job	335	709	3,503	26	7.04	1.93
Health	343	787	4,449	26	7.30	1.89

Source: SOEPv27. West German respondents.

**Table 4:** Sample sizes (siblings in mixed families).

Outcome	# of families	# of ind.	# nT	$T_{\max}$	Mean	Std. dev.
<b>Brothers</b>						
Life	986	1,578	7,910	26	7.25	1.66
Income	974	1,558	7,634	26	6.13	2.25
Job	884	1,364	6,060	26	7.23	2.03
Health	987	1,579	7,915	26	7.71	1.92
<b>Sisters</b>						
Life	967	1,439	6,570	26	7.23	1.69
Income	960	1,408	6,330	26	6.13	2.28
Job	844	1,174	4,176	26	7.09	2.10
Health	970	1,441	6,578	26	7.49	1.98
<b>Mixed-sex siblings</b>						
Life	753	1,906	9,470	26	7.24	1.67
Income	753	1,877	9,133	26	6.12	2.27
Job	717	1,596	6,537	26	7.16	2.06
Health	753	1,909	9,476	26	7.60	1.95

Source: SOEPv27. West German respondents.

parents in a comparable age range. We use all information on subjective well-being in this age range, given that at least three interviews are available.<sup>10</sup>

We use questionnaire data on individuals' subjective well-being as indicators of well-being (or happiness). Today, this approach is widely accepted among economists as well as other behavioral and social scientists (Frey and Stutzer 2002; Kahneman and Krueger 2006).<sup>11</sup> In the SOEP, respondents are asked to evaluate their life in general and specific areas of life using a numerical scale with two unambiguous anchor points (from 0 = completely dissatisfied to 10 = completely satisfied).

Following the consensus in the literature on subjective well-being, we assume cardinality of the well-being measures, as studies show that assuming ordinality or cardinality of well-being measures hardly affects the results of

<sup>10</sup> However, we tend to observe parents at higher ages, on average, than their children. On average, sons and daughters are 34.0 and 33.8 years old while fathers and mothers are on average 41.6 and 40.7 years old, respectively.

<sup>11</sup> Research has revealed factors that help to explain variation in well-being and identified correlates of well-being, such as income (Layard, Mayraz, and Nickell 2008; Clark and Senik 2010), unemployment (Winkelmann and Winkelmann 1998), family status (Lucas et al. 2003), or age (Blanchflower and Oswald 2008; Wunder et al. 2013).

regression analyses (e.g., Ferrer-i-Carbonell and Frijters 2004).<sup>12</sup> Following Kahneman (1999), we assume that the bipolar scale with only two unambiguous anchor points exhibits a unique point of neutrality that is interpersonally comparable. The assumption of interpersonal comparability of subjective well-being ratings is furthermore justified by empirical evidence that external ratings of an individual's well-being by independent observers are clearly correlated with the individual's own subjective report (Diener and Suh 1999). Kristoffersen (2010) provides a comprehensive discussion of interpersonal, intertemporal and international comparison of subjective well-being measures.

This study focuses on well-being measures that are collected in every year: life satisfaction, satisfaction with household income, health satisfaction, and job satisfaction. The descriptive statistics for life satisfaction and income satisfaction show similar averages for brothers and sisters (Table 1). In contrast, averages of job satisfaction and health satisfaction differ significantly between genders.<sup>13</sup>

## 5 Results

This section begins with a discussion of general sibling correlations in well-being. After that, we present more detailed results for subsamples of three family types. This approach enables us to give conjectures about the mechanisms behind sibling correlations. Finally, we turn to estimations of the intergenerational mobility of well-being using child–parent pairs.

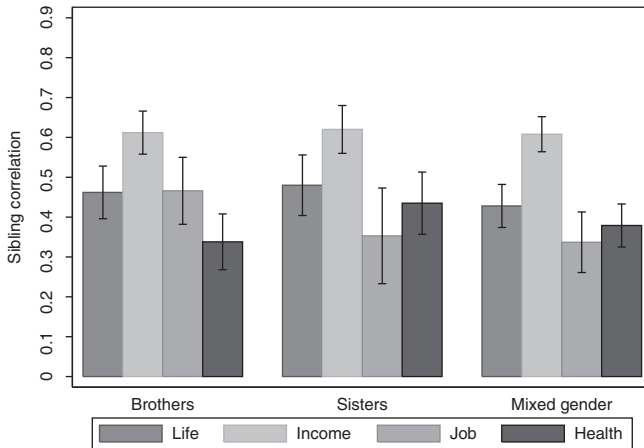
### 5.1 Sibling Correlations

Figure 1 reports sibling correlations in measures of subjective well-being for brothers, sisters and mixed-sex siblings. The sibling correlations in life satisfaction are between 0.43 and 0.48, which is of similar magnitude as the correlations in economic outcomes reported for Germany. For example, Schnitzlein (2014) reports that 43% of the inequality in permanent earnings among brothers can be attributed to family and community factors.

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**12** As a robustness check, we estimated ordered probit models with multiple random effects for a subset of our models (Winkelmann 2005). In general, the results are almost identical. We conclude that the cardinality assumption is not overly restrictive for our study. Since ordered probit models with multiple random effects are far more computationally expensive, we, however, use the linear mixed model. Results are available upon request.

**13** Two-sample mean-comparison tests reject the null hypothesis for job satisfaction and health satisfaction at any reasonable significance level ( $p < 0.00$ ).



**Figure 1:** Sibling correlations for measures of subjective well-being.

Note: Calculations are based on REML estimates of the variance components. All estimations include controls for a third-order polynomial of age and the survey year. Models for mixed-sex siblings also include a gender dummy. Standard errors are calculated using the delta method. The error bars show 95% confidence intervals.

Source: SOEPv27. West German respondents.

The sibling correlation in satisfaction with household income is approximately 0.6, and thus significantly higher than for life satisfaction. This result may be driven in particular by living-together families because members of these families are linked through joint production and consumption of household income. We return to this issue later in Subsection 5.2 where we present separate estimates for children that moved out of the parental home and for those living with their parents.

While sibling correlations in life satisfaction and satisfaction with household income do not differ much across the three subgroups examined, we find some evidence for a gender-specific asymmetry in two other domains of life, though these estimates are somewhat imprecise and have large standard errors. First, the point estimate of the sibling correlation in job satisfaction is clearly smaller for sisters than for brothers (0.35 vs. 0.47). Second, the correlation in health satisfaction is larger for sisters than for brothers (0.44 vs. 0.34). Moreover, the small estimate for brothers, which is the smallest value over all domains, is an unanticipated result.<sup>14</sup> We would have expected a clearly higher sibling correlation in health satisfaction because siblings share a number of health-related influences. For example (non-identical twin) siblings share, on average, 50% of their genes.

<sup>14</sup> However, due to the large standard errors, these differences in point estimates are not statistically significant.

They also share similar nutrition habits, especially when they live in the same household.

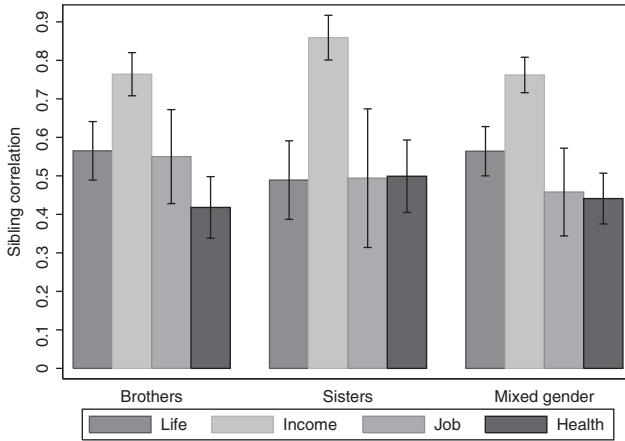
An explanation for the gender-specific asymmetry in the correlation in health satisfaction may be that women and men have distinct roles in family nutrition. Due to the gendered division of labor, which is still persistent in Germany (e.g., Rosenfeld, Trappe, and Gornick 2004), women do most of the housework and cooking for the family while men are the breadwinners. Therefore, sisters are more likely to share the same nutrition habits than brothers after they moved out of the parental home. Thus, we suppose that the higher correlation in health satisfaction among sisters results from the similarity in their health-related life styles. We will go into detail in the next section where we illuminate sibling correlation in different types of families in more detail.

## 5.2 Sibling Correlations and Distance to Parents

The importance of family background to achieve well-being may depend on the psychological and geographical distance between children and their parental family. Moving out of the parental home represents a massive change in the relationship between parents and children and between siblings. Moreover, it implies the development of a more individuated life (e.g., Aquilino 1997). In consequence, we expect that the impact of family background on the child's life and living conditions is weaker if the child left the parental home.

In order to investigate this issue, we partition our sample with respect to three family types: the first subsample includes only siblings that live together with their parents in one household. In this case, the child–parent distance and the distance between siblings is small and we hypothesize that the family background is more important for well-being. The second subsample consists of siblings that moved out of the parental home. Here, the members of the family of origin share less time and less resources compared to families living together. As a result, family background may be less important for well-being. In the third subsample, we use mixed family types where at least one child lives with parents and at least one child left the parental home.

The estimation results for these three subsamples are quite revealing in three ways: first, our expectation about the distance to the original family stated above is clearly confirmed by the empirical evidence. The importance of family background varies with the distance to the original family. In general, we find the highest sibling correlations among children that are living together with their parents (Figure 2). The estimates are between 0.42 (health satisfaction, brothers) and 0.86 (income satisfaction, sisters). In contrast, the family



**Figure 2:** Sibling correlations for measures of subjective well-being (siblings living with parents).

Note: Calculations are based on REML estimates of the variance components. All estimations include controls for a third-order polynomial of age and the survey year. Models for mixed-sex siblings also include a gender dummy. Standard errors are calculated using the delta method. The error bars show 95% confidence intervals.

Source: SOEPv27. West German respondents.

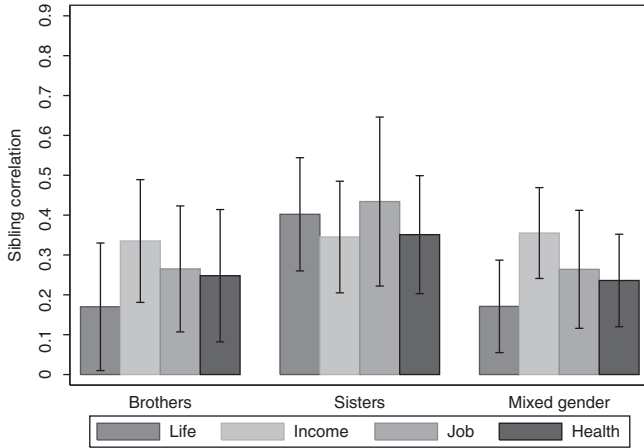
background is least important among siblings that moved out of the parental home (Figure 3). In this case, the highest sibling correlation is found for job satisfaction among sisters (0.43). The results for the mixed family types are generally in between these values (Figure 4).<sup>15</sup>

Second, Figure 3 shows a pronounced gender-specific difference in correlations for siblings that left the parental home. We do not detect such a clear gender-specific pattern for other family types (Figures 2 and 4). The point estimates for the sibling correlation in life satisfaction, job satisfaction, and health satisfaction are considerably smaller among brothers than among sisters and mixed-sex sibships. Hence, leaving the parental home weakens the influence of the family of origin considerably more for brothers than for sisters. Interestingly, there is no evidence for a gender-specific pattern in the financial domain. Thus, the importance of family background for the financial satisfaction seems to be independent of gender.

Third, a comparison of the various life domains shows that family background is more important in the financial domain than for satisfaction with job

<sup>15</sup> The correlation in job satisfaction for sisters is an exception. The smallest value is found for sisters in mixed families.

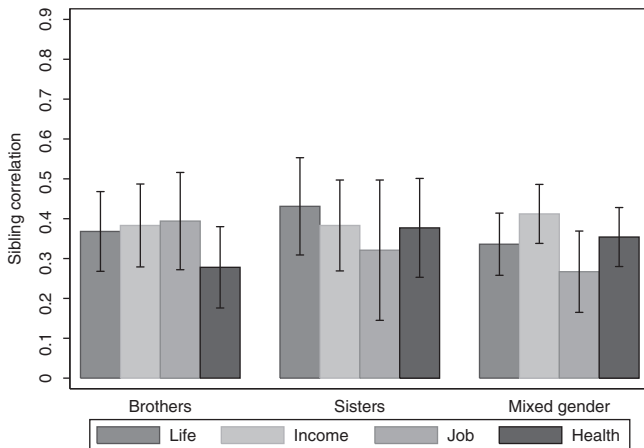




**Figure 3:** Sibling correlations for measures of subjective well-being (siblings moved out of parental home).

Note: Calculations are based on REML estimates of the variance components. All estimations include controls for a third-order polynomial of age and the survey year. Models for mixed-sex siblings also include a gender dummy. Standard errors are calculated using the delta method. The error bars show 95% confidence intervals.

Source: SOEPv27. West German respondents.



**Figure 4:** Sibling correlations for measures of subjective well-being (siblings in mixed families).

Note: Calculations are based on REML estimates of the variance components. All estimations include controls for a third-order polynomial of age and the survey year. Models for mixed-sex siblings also include a gender dummy. Standard errors are calculated using the delta method. The error bars show 95% confidence intervals.

Source: SOEPv27. West German respondents.

or with health. This finding may be explained by financial ties between children and their parents. Most importantly, bequests and inter vivos monetary transfers may be held responsible for the correlation in financial well-being. For example, Reil-Held (2006) reports that approximately 25% of elderly parents aged between 70 and 85 make financial transfers to at least one of their adult children. Hence, financial ties exist between family members, inducing a correlation in financial well-being. The correlation in income satisfaction is particularly high among siblings living together with parents. We estimate very high values of 0.75 and 0.85 for brothers and sisters, respectively. Resource sharing and collective household production may represent factors that determine financial well-being of all members of the family. The results further suggest that parents treat children in an equal way. In this context, Menchik (1980) provides evidence that parents make equal bequests to their children.

### 5.3 Intergenerational Correlations

This section turns to a more narrow measure of the importance of family background that gives an account of the role played by parental background for well-being: we calculate the (population) correlation of the long-term well-being between children and parents to describe the intergenerational mobility in well-being. The intergenerational correlation is a measure of the relationship between parental well-being and all factors correlated with parental well-being and the well-being of the offspring. In contrast to sibling correlations, an intergenerational correlation excludes all factors uncorrelated with parental well-being. Solon (1999) shows that the sibling correlation equals the squared IGC plus all factors uncorrelated with the parental measure.<sup>16</sup>

Table 5 shows the results from OLS regressions for four types of dyads: sons and fathers, sons and mothers, daughters and fathers, daughters and mothers.<sup>17</sup> We report the regression coefficients, their standard error, the  $R^2$  (note that  $IGC^2 = R^2$ ), and the sample size. Our focus is on the intergenerational correlation (IGC). It is calculated as  $(\sigma_0/\sigma_1)\beta_1$ , where  $\sigma_0$  and  $\sigma_1$  is the standard deviation of well-being for parents and children, respectively. The lower the IGC, the higher the intergenerational mobility. In consequence, low values of the IGC indicate that children's well-being tends to be independent of that of the parents.<sup>18</sup>

<sup>16</sup> See also eq. [6].

<sup>17</sup> The results do not change whether or not we control for a third-order polynomial of age. All age coefficients are insignificant in the respective regressions.

<sup>18</sup> Note that due to our age restrictions, we observe parents and children at different points in time.

Table 5: Intergenerational correlations.

Outcome	beta	S.E.	IGC	R <sup>2</sup>	N
<b>Sons and fathers</b>					
Life	0.235	0.063	0.239	0.057	261
Income	0.182	0.059	0.190	0.036	258
Job	0.116	0.067	0.121	0.015	237
Health	0.259	0.067	0.248	0.061	261
<b>Sons and mothers</b>					
Life	0.238	0.044	0.269	0.072	402
Income	0.221	0.045	0.224	0.050	402
Job	0.129	0.060	0.143	0.021	218
Health	0.188	0.051	0.209	0.044	401
<b>Daughters and fathers</b>					
Life	0.194	0.080	0.189	0.036	243
Income	0.222	0.077	0.198	0.039	242
Job	0.123	0.069	0.111	0.012	184
Health	0.251	0.066	0.245	0.060	243
<b>Daughters and mothers</b>					
Life	0.245	0.057	0.242	0.058	359
Income	0.214	0.057	0.196	0.038	359
Job	0.297	0.078	0.261	0.068	174
Health	0.176	0.057	0.180	0.032	359

Note: OLS regressions use average values of well-being over the entire time-window of observation. The intergenerational correlation (IGC) is calculated as  $(\sigma_0/\sigma_1)\beta$ , where  $\sigma_0$  and  $\sigma_1$  is the standard deviation of well-being for parents and children, respectively.

Source: SOEPv27. West German respondents.

In general, the estimates for life satisfaction are between 0.19 and 0.27. The results tend to show a higher correlation for child–mother pairs than for child–father pairs. Hence, mothers seem to be more important for general life satisfaction than fathers. Since mothers do most of the children’s education, they are the ones who teach fundamental attitudes and skills.

The IGC in the financial domain is estimated to be between 0.19 and 0.22. Interestingly, this is of similar magnitude as the IGC in life satisfaction. This result deviates from what we found for the sibling correlation in Subsections 5.1 and 5.2, where we calculated the highest values for the financial domain. The pronounced difference between IGC and sibling correlations suggests that factors uncorrelated with parental well-being play an important role for financial satisfaction. In addition, the higher value for the sibling correlation may reflect that siblings are connected directly (i.e., not via the parents) through

intra-familial transfers and risk sharing, even after they moved out of the parental home.

Our study provides estimates of the IGC that are somewhat smaller than those reported by Molina, Navarro, and Walker (2011). These authors obtain the following OLS coefficients for Germany: 0.312 for fathers–sons, 0.266 for fathers–daughters, 0.324 for mothers–sons, 0.302 for mothers–daughters. They also conclude that mothers are more important for the transmission of well-being than fathers.<sup>19</sup> We suppose that the difference between their results and ours is due to the fact that Molina, Navarro, and Walker (2011) use a sample of parents and children that live in the same household.

The IGC in job satisfaction is relatively low for three of the four dyads: sons and fathers, sons and mothers, daughters and fathers. The estimates are between 0.11 and 0.14. In contrast, we find a considerable correlation of 0.25 between daughters and their mothers. The importance of mothers for daughters' job satisfaction is contrary to what is known about the intergenerational mobility in occupation, where fathers' occupations are more important than mothers' occupations (e.g., Ermisch and Francesconi 2004). Thus, we suppose that work preferences and work attitudes are transmitted from mothers to daughters while fathers' might be more important for daughters' occupational choices. In this context, mothers who are successful in reconciling work and family life might represent a useful role model for daughters.

Next, we turn to the role played by parents for health satisfaction. Judging from the relative size of the point estimates, it turns out that fathers tend to be more important than mothers. This holds for sons and daughters. In contrast, the literature reports important influences of mothers' on early child outcomes. For example, strong intergenerational correlations between mothers and children were reported for birth weight (e.g., Currie and Moretti 2007) and other outcomes of young children (Coneus and Spiess 2012).<sup>20</sup> Our results point out that the relative importance of mothers for children's health declines as children grow older and that factors associated with fathers become relatively more important. A possible explanation could be that fathers' income plays an important role for long-term health.

Finally, we can compare the intergenerational correlations to the estimated sibling correlations. As shown in eq. [6] the sibling correlation equals the

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<sup>19</sup> However, they detect more pronounced differences between countries than for different subgroups within countries.

<sup>20</sup> Using data from the SOEP, Coneus and Spiess (2012) provide evidence for a significant relationship between parental and child health during the first three years of life. Their results suggest that parents with poor health are more likely to have children with poor health.

squared IGC (in our case the  $R^2$ ) plus the influence of all factors uncorrelated with the respective parental characteristic. When we compare the  $R^2$  values from Table 5 to our estimated sibling correlations, it is obvious that the pure intergenerational transmission only explains a minor part of the influence of family and community background.<sup>21</sup>

## 6 Conclusion

This study gave an exploratory empirical analysis of the role played by family background for well-being (or happiness). Estimating sibling correlations and intergenerational correlations, we calculated a lower bound measure for the proportion of happiness over which individuals have no control. The results suggest that family background explains, on average, between 30% and 60% of the inequality in four subjective measures of well-being (life satisfaction, satisfaction with household income, job satisfaction, and satisfaction with health). The importance of family background is particularly large in the financial domain, even after children moved out of the parental home.

Our evidence shows that sibling correlations depend on the psychological and geographical distance between parents and children and between siblings. Correlations are highest among siblings that live together with their parents in the same household. In comparison, we observe lower correlations among siblings that moved out of the parental home. Interestingly, the difference is smaller for sisters than for brothers, suggesting that there is a stronger linkage among sisters than brothers. We suppose that this finding can be explained by the fact that daughters generally have more frequent contacts with their parents than sons which implies more opportunities for intergenerational transmission of well-being relevant family factors for daughters than for sons.<sup>22</sup>

The analysis of intergenerational correlations revealed that parental background is considerably less important than family background (which includes community effects). In line with previous studies, we found that mothers are more important for life satisfaction of children than fathers. In particular, mothers are clearly more important for job satisfaction of daughters than

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<sup>21</sup> This is in line with results found for objective markers of economic success (e.g., Mazumder 2008; Björklund, Lindahl, and Lindquist 2010).

<sup>22</sup> In general, the psychological literature provides evidence that daughters have closer relationships with their parents than sons (see, e.g., Gerstel and Gallagher 1993; Birditt et al. 2009).

fathers. A possible explanation could be that mothers care more about job-related well-being of their children than fathers.<sup>23</sup>

Our findings lead us to the following conclusions: first, our results indicate that, overall, family background and individual factors are of approximately equal importance for permanent life satisfaction. Hence, our conclusion is that individuals have a limited ability to achieve happiness and are therefore only to some extent architects of their own happiness.

Second, we find considerable correlations in well-being in various life domains even among adult children who moved out of the parental home, particular among sisters. This suggests that well-being is interdependent in the family. In consequence, things that make an individual happy are supposed to increase also the well-being of the members of his or her family. Notably, females tend to establish a stronger link to the family of origin than males because their happiness is determined by their family background to a larger extent than that of males.

Our final conclusion is that family effects are of great importance for well-being. Since sibling correlations are clearly higher than what results from inter-generational correlations show, factors beside parental well-being play an important role.

**Acknowledgments:** We thank participants of the SOEP Brown Bag Seminar, the 2013 annual conference of the Scottish Economic Society, the 2013 EEA/ESEM meeting, the 2013 EALE conference, of the research seminar at the University of Bamberg, of the XII. Quality of Life Conference (ISQOLS 2014) of the Social Policy Committee in the German Economic Association (Dresden, 2014), the 2015 ESPE meeting, Carsten Schröder and two anonymous referees for helpful comments and suggestions.

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<sup>23</sup> We thank an anonymous referee for this point.

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