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Conchita D'Ambrosio, Simone Ghislandi and Andrew Clark

For additional information please contact:

Name: Conchita D'Ambrosio

Affiliation: Università di Milano-Bicocca, DIW Berlin and Econpubblica

Email Address: conchita.dambrosio@gmail.com

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# Poverty Profiles and Subjective Well-Being

ANDREW E. CLARK

Paris School of Economics and IZA

Andrew.clark@ens.fr

CONCHITA D'AMBROSIO

Università di Milano-Bicocca, DIW Berlin and Econpubblica

conchita.dambrosio@gmail.com

SIMONE GHISLANDI

Università Bocconi and Econpubblica

simone.ghislandi@unibocconi.it

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## Abstract

We analyze the multi-faceted effects of poverty on the subjective well-being of individuals. Using panel data on more than 42,500 individuals living in Germany from 1993 to 2010 we show that self-reported satisfaction with life decreases as a result of both contemporaneous and past episodes of poverty. The intensity of contemporaneous poverty also plays an additional negative role. In addition, poor individuals prefer income stability so that persistent poverty is less harmful than the same number of years of low income experienced with movements in and out of poverty. The negative effects of being in poverty are permanent and do not vanish over time: individuals do not adapt to poverty, and, even when subsequently out of poverty, they report lower satisfaction with life. These effects differ by population subgroups.

**Keywords:** Income, Poverty, Subjective well-being, SOEP.

**JEL Classification Codes:** I31, D60.

## 1. Introduction

The relationship between an individual's income and their satisfaction with their life has been the focus of many studies both within and across countries, at a single point in time and over time. Research has highlighted three main aspects of this relationship: 1) within each country at a given point in time, richer people are more satisfied with their lives; 2) within each country over time, an increase in average income does not increase substantially satisfaction with life; and 3) across-countries, on average, individuals living in richer countries are more satisfied with their lives. As far as point 2) is concerned, individuals adapt to higher income over time. Di Tella, Haisken-De New and MacCulloch (2010) have shown that this process occurs within four years, and propose adaptation to income as one possible explanation of the Easterlin (1974) paradox, i.e. of the finding that average satisfaction with life remains constant within a country regardless of consistent economic growth. With respect to point 1), additional income increases satisfaction with life, but at a decreasing rate (Frey and Stutzer, 2002).

Much of the analysis in the burgeoning literature on subjective well-being has, with relatively few exceptions, been resolutely atemporal: some outcome variables are correlated with contemporaneous well-being measures in order to make (hopefully) causal statements about the determinants of individual satisfaction. However, at the same time, some recent work in various fields of our discipline has insisted on the importance of the past as a determinant of the outcomes and individual behavior of today. Some contributions in the finance literature have highlighted that personal experience determines investors' behavior. Kaustia and Knüpfer (2008) found a strong positive link between the returns to past initial public offerings and future subscriptions at the investor level, as predicted by reinforcement learning theory. Similarly, Malmendier and Nagel (2011) have shown that individuals' experiences of macroeconomic outcomes have long-term effects on their risk attitudes and willingness to bear financial risks. Some of the burgeoning literature on the role of adaptation in explaining observed phenomena in the domains of labour supply, savings, and asset pricing is surveyed in Clark *et al.* (2008b).

A second strand of analysis which takes time explicitly into account covers adaptation, whereby judgments of current situations depend on the experience of similar situations in the past: as such higher past levels of a certain experience may partly offset

current levels of the same experience, due to changing expectations (see Kahneman and Tversky, 1979). Adaptation produces greater well-being effects towards the beginning of the spell in question as opposed to later on.

Last, the past may matter via the completed events that took place there. Regarding unemployment, say, future well-being in employment may be lower after an unemployment spell: this is often called "scarring". Alternatively, having had a completed unemployment spell in the past can easily be thought to affect the well-being impact of entering a new unemployment spell today.

Despite the general interest across social science in the relationship between income and well-being, there has been only relatively little work that has considered the relationship between poverty as a status and well-being. And to our knowledge, there is none that has taken the above ideas of adaptation and scarring and applied them to the dynamic well-being effects of poverty as a status. We here therefore apply a number of these dynamic ideas to the well-being effects of income poverty. Do the poor learn to be satisfied with less and consequently report the same levels of satisfaction with their lives as the rich? Are subsequent episodes of poverty less harmful than the first one? What is the impact of the event of poverty, and its intensity, on satisfaction with life today and in the future?

As Sen (1990, p. 45) writes "*A thoroughly deprived person, leading a very reduced life, might not appear to be badly off in terms of the mental metric of utility, if the hardship is accepted with non-grumbling resignation. In situations of longstanding deprivation, the victims do not go on weeping all the time, and very often make great efforts to take pleasure in small mercies and cut down personal desires to modest — 'realistic' — proportions. The person's deprivation then, may not at all show up in the metrics of pleasure, desire fulfillment, etc., even though he or she may be quite unable to be adequately nourished, decently clothed, minimally educated and so on.*"

This critique is sometimes referred to as the 'Happy Slave'. Adaptation to poverty raises a number of ethical concerns, especially among development specialists: if we accept adaptation then we should arguably worry less about the poor and the deprived (for an extensive discussion, see Clark, 2009). Analogous concerns can be raised about potential adaptation to unemployment or poor health, say: does the fact that the individual

reports an adequate level of subjective well-being mean that we should ignore their objective difficulties?

In this paper, we aim to analyze the multi-faceted effects of poverty on the individual subjective well-being. We first focus on individuals with low incomes, and analyze the contemporaneous relationship between income poverty and life satisfaction. Although it is well known that richer individuals are more satisfied with their lives, no existing work has, to the best of our knowledge, analyzed income poverty *per se*. We show that self-reported satisfaction with life is indeed lower for those who are classified as being in poverty. As might be expected, not only the fact of being in poverty that matters, but also the intensity of this poverty (i.e. the relative distance from the poverty line) matters with respect to subjective well-being.

Second, we aim to extend the time frame by looking at the role of past episodes of poverty on current life satisfaction. We show that past poverty lowers current life satisfaction. In addition, focusing on the sequence of poverty episodes, we find that poor individuals prefer income stability so that persistent poverty is less harmful than the same number of years of low income experienced together with movements in and out of poverty. The negative effects of experiencing poverty are permanent and do not vanish over time: individuals do not adapt to poverty, and, even when subsequently out of poverty, they report lower satisfaction with life, so that poverty scars.

We find that all of these effects differ by population subgroup. For older individuals it is only the present situation that seems to matter: poverty does not scar when out of poverty nor, when in poverty, does past poverty lowers satisfaction with life. The effect of past poverty is strongest for poor women. It is only for them that the sequence of events makes a difference: women then prefer income stability, which might be thought to provide an interesting counterpart to research on gender differences in risk-aversion.

The empirical analysis is performed with data from one of the most extensively-used panel datasets in the literature on subjective well-being, the German Socio-Economic Panel (SOEP). Our sample is composed of interviews between 1993 and 2010 with 42,500 individuals who live in Germany. The reliability and quality of this data source, as well as the length of the panel, make us relatively confident about our results.

## 2. Measuring poverty

The seminal contribution on poverty measurement is Sen (1976), who distinguishes two fundamental issues: (i) identifying the poor in the population under consideration; and (ii) constructing an index of poverty using the available information on the poor. The first problem has been dealt with in the literature by setting a poverty line and identifying as poor all individuals with incomes below this threshold. Regarding the second issue, the aggregation problem, many indices have been proposed which capture not only the fraction of the population which is poor or the incidence of poverty (the headcount ratio), but also the extent of individual poverty and inequality amongst those who are poor.

The most popular class of indices, known as the *FGT* indices, was proposed by Foster, Greer and Thorbecke (1984). Let  $x = (x_1, x_2, \dots, x_n)$  be the distribution of income among  $n$  individuals, where  $x_i \geq 0$  is the income of individual  $i$ . For expositional convenience we assume that the income distribution is non-decreasingly ranked, that is, for all  $x$ ,  $x_1 \leq x_2 \leq \dots \leq x_n$ . We denote the poverty line by  $z$ . For any income distribution  $x$ , individual  $i$  is said to be poor if  $x_i < z$ . Assume that there are  $q$  poor people in the society. Let  $d_i = \frac{z - x_i}{z}$  be the normalized deprivation of individual  $i$  who is poor with respect to  $z$ , that is, their relative shortfall from the poverty line, where  $1 \leq i \leq q$ . For  $q < i \leq n$ ,  $d_i$  is equal to zero. The *FGT* indices are then:

$$FGT^\alpha = \frac{1}{n} \sum_{i=1}^q (d_i)^\alpha, \quad [1]$$

where  $\alpha \geq 0$  is a parameter. When  $\alpha = 0$ , the *FGT* is equivalent to the headcount ratio. The only dimension of poverty which counts in this case is its incidence, since the index reflects the part of the population which is poor. When  $\alpha = 1$ , the *FGT* also picks up the intensity of poverty, as the index is now the average relative shortfall. The parameter  $\alpha$  can be interpreted as the degree of aversion to inequality.

The literature on poverty measurement has advanced to a considerable degree of sophistication since Sen (1976). However, the explicit inclusion of time has not been at the forefront of these developments. Only recently have a number of measures of

intertemporal poverty been proposed, as opposed to indices where attention is limited to a single-period. The *Journal of Economic Inequality* recently published a special issue on measuring poverty over time. The introduction to this special issue (Christiaensen and Shorrocks, 2012) provides an exhaustive summary of the literature.

Various approaches exist for the measurement of poverty over time. Without going into specifics, it may be useful to distinguish our notion of the *persistence of poverty* from what we think of as being in *chronic poverty*. Generally speaking, we think of chronic poverty as applying to a situation in which an individual is in a state of poverty for a considerable number of the time periods under consideration. This does not however necessarily mean that any attention is paid to the durations of unbroken poverty spells given the total number of periods spent in poverty. In other words, given that an individual is poor for six periods out of ten, say, does it matter if these six periods occurred consecutively, or in two blocks of three periods, or three blocks of two periods? Our notion of persistence explicitly takes this continuous nature of poverty spells into consideration. In other words, chronic poverty occurs when there is a frequent recurrence of poverty states while persistent poverty requires, in addition to frequency, that poverty be manifested in periods that are consecutive. To include information on the recurrence of poverty, we apply the index of persistent poverty proposed by Bossert, Chakravarty and D'Ambrosio (2012).

Let  $d_i^t$  be the normalized deprivation of the poor person  $i$  in period  $t$ . These normalized deprivations are raised to the power  $\alpha \in \{0,1\}$  and are collected in a  $T$ -dimensional vector. When  $\alpha = 0$ , which is the only case that we will apply on this contribution, the vector is a list of ones and zeros, where a one indicates a period in poverty and zero a period out of poverty. For example (1, 1, 1, 0, 1) indicates that the individual spent the first three periods in poverty, one period out of poverty and then returned to poverty in the final period. The first spell of poverty is of length 3 while the last is of length 1. Similarly, (1, 1, 0, 1, 1) indicates that the individual spent the first two periods in poverty, one period out of poverty and then returned to poverty for two additional periods. Both spells of poverty are of length 2. When  $\alpha = 0$ , the index captures the incidence of persistent poverty. The index proposed by Bossert, Chakravarty and D'Ambrosio (2012) to capture persistence weights each spell by its length,  $l$ . It is the

weighted average of the individual normalized deprivation scores where, for each period, the weight is given by the length of the spell to which this period belongs:

$$BCD_i^\alpha = \frac{1}{T} \sum_{t=1}^T l^t (d_i^t)^\alpha, \quad [2]$$

with  $\alpha \geq 0$  being a parameter,  $\alpha = 0$  is the only case we will analyze.

For the example, (1, 1, 1, 0, 1), the index value is  $BCD_i^0 = \frac{1}{5}(3(1+1+1)+0 \cdot 1+1 \cdot 1) = \frac{10}{5}$ . For the second example, (1, 1, 0, 1, 1), the index value is  $BCD_i^0 = \frac{1}{5}(2(1+1)+0 \cdot 1+2(1+1)) = \frac{8}{5}$ .

We prefer to normalize the index between  $[0, 1]$  by dividing its values by  $T$ .

The measure of chronic poverty we use in this paper is the index proposed by Foster (2009), which is simply the average poverty as measured by *FGT* that an individual has experienced over time, that is:

$$F_i^\alpha = \frac{1}{T} \sum_{t=1}^T (d_i^t)^\alpha, \quad [3]$$

with  $\alpha \geq 0$  being a parameter. When  $\alpha = 0$  we measure the average incidence of poverty the individual faced, which is the only value of the parameter we will analyze.

### 3. The literature review

It is well known that on average richer individuals are more satisfied with their lives. Some evidence exists on the (unsurprising) fact that also the poor enjoy high levels of life satisfaction. Rojas (2009), for example, analyzing a sample of 1000 individuals in Costa Rica in 2004 and 2006 reports that 76% of people in the survey who are classified as poor based on their income report moderate or high life satisfaction. Low life satisfaction is reported by only 24% of poor people. In addition, 17.9% of people in the survey who are classified as non-poor on the basis of their income report low life satisfaction.

In our sample, 3.87% of poor individuals report the maximum level of life satisfaction while the percentage is 4.80% for the rest of the population. Conversely,



1.26% of the poor are completely dissatisfied with their life as opposed to 0.35% of the non-poor.

No contribution, to the best of our knowledge, has analyzed income poverty as a determinant of satisfaction with life in a multivariate setting. Hence our contribution represents a novelty in this respect. We look at both the effects of being poor as well as its intensity. Drawing on the recent literature on measuring poverty over time, we include also past poverty as a determinant of present well-being.

Some recent work in various fields of our discipline has insisted on the importance of the past as a determinant of the outcomes and individual behavior of today. We have already surveyed in the introduction some of the contributions in the finance literature. Perhaps unsurprisingly, if we consider behavior to be driven by individual utility, past personal experience has also been shown to have a wide influence on individual attitudes. Fernández, Fogli and Olivetti (2004), for example, have argued that the growing presence of men brought up in a family in which the mother worked is a significant factor in the increase in female labor force participation over time. This transmission is also observed with respect to educational outcomes, as well as labor supply. Work on US data has shown that each additional year of mother's schooling prior to the birth of her child adds 1.6 points to child outcomes in maths and reading, 2.1 points in vocabulary and increases the probability of attaining the tertiary level (Rosenzweig and Wolpin, 1994). The same kind of relationship can be found in developing countries: in India, children whose mothers are better educated study almost two more hours per day than do the children of uneducated women (Behrman *et al.*, 1999).

This past personal experience need not be within the household. Another strand of this literature has considered the role of the individual's past experiences in determining their current beliefs or outcomes. When these past experiences are at some aggregate level, the problem of causality over time is alleviated (my current risk-aversion, for example, cannot have caused the regional unemployment rate when I was growing up). Some well-known examples of such transmission include Alesina and Fuchs-Schündeln (2005), who show that East Germans (presumably as a result of their history) are currently more pro-redistribution than are West Germans. Regarding the labor market, Giuliano and Spilimbergo (2009) explicitly use the arrow of time and consider the role of

economic growth experienced during the ages of 18 and 25 on individual's current beliefs regarding fairness in the US General Social Survey. Blake (2012) uses a battery of indicators of the individual's environment between birth and the age of 16 (parental unemployment, household financial situation, and the regional GDP growth rate), and shows, using HRS data, that some of these are significantly predicted with current beliefs (regarding the likelihood of future recession, and also of own personal job loss) and risk-related behaviors (investment in shares, and the making of a will).

Last, some relatively new work has appealed to cohort data, in which individuals (or their parents) are repeatedly interviewed over periods of many decades (a longer period than even the longest available panel data allows), to show how factors present at childbirth relate to outcomes at very young ages, which in turn feed through to outcomes at adolescence, and so on all the way up to outcomes when the individual is aged around 40. One such example is Frijters *et al.* (2011*b*).

A second strand of analysis which takes time explicitly into account is that regarding adaptation. This latter occurs when judgments of current situations depend on the experience of similar situations in the past: as such higher past levels of a certain experience may partly offset current levels of the same experience, due to changing expectations (see Kahneman and Tversky, 1979). While it is possible to look for evidence of adaptation in revealed preferences (either experimentally or in survey data, as in Hotz *et al.*, 1988), recent work has appealed to subjective well-being data in this context. Here, well-being at time  $t$  is related to the individual explanatory variables measured not only at the same point in time, but also with respect to their past (or even future) values. As such, it is possible to trace out the profile of well-being around a particular event. This event could be a pay rise, a marriage, a divorce, migration, or the entry into unemployment, amongst others (see Clark *et al.*, 2008*a*, Clark and Georgellis, 2012, Frijters *et al.*, 2011*a*, Nowok *et al.*, 2012, and Oswald and Powdthavee, 2008). This literature has broadly concluded in favour of adaptation for many life events, but not for unemployment.

Adaptation is commonly-understood to refer to the way in which judgments, or well-being, change within a certain spell. With respect to unemployment, for example, we consider whether the well-being effect of unemployment depend on the duration of the latter. As such, we trace out the well-being profile over time of those who become

unemployed and then stay unemployed. The empirical literature mentioned above has considered this kind of within-spell adaptation.

A third type of temporal question is to ask what happens to an individual's well-being once the spell is complete. Carrying on with our unemployment example, does the fact of having had an unemployment spell in the past reduce my current level of well-being when I am back in work? This idea that some kind of past exposure can have ongoing current effects, even when the past spell is finished.

There are two facets of this potential impact of the past. With respect to unemployment, say, future well-being at work may be lower after an unemployment spell. This is often referred to as "scarring", which in Labour Economics was originally used to refer to the effects of past (involuntary) unemployment on current labor-market earnings (see Ruhm, 1991, for example). More recent incarnations of this literature have asked whether past unemployment reduces the current well-being of individuals. Work on the SOEP (Clark *et al.*, 2001) finds evidence of such a correlation. It is an open question as to why such scarring effects occur. Knabe and Rätzel (2011) use SOEP data to argue that scarring may pertain via expectations of the future: the past exposure to a negative event may make individuals more scared of its future reappearance, a finding re-examined in European Social Survey data by Lange (2012).

In addition to an effect of a past unemployment spell on the well-being of the currently employed, there may well be an analogous effect on the well-being of the currently unemployed. Intuitively, entering unemployment a second time may well be psychologically less damaging than entering it the first time. If this is indeed the case, then repeated entrances into the unemployment state may become easier and easier to bear, psychologically. Note that this is a separate concept to any adaptation within a spell. The latter refers to my well-being on being unemployed for one year to my well-being on being unemployed for three years, within the same spell. If the latter is smaller than the former (in absolute terms), *ceteris paribus*, we have evidence that is consistent with adaptation to unemployment.

The spell effect implies that my second entrance to unemployment is easier than my first entrance. It says nothing about the existence or otherwise of any adaptation to unemployment within either of the two spells.

Literature exists on adaptation to income but not to poverty. It has been shown that income aspirations and expectations increase with income. Stutzer (2004), for example, using Swiss data reports that income aspirations, as measured by the minimum amount of income which the individual believes is sufficient to live a decent life (the Minimum Income Question, the MIQ) is higher the more the individual received in the past.

Another strand of the literature has focused on adaptation to rising incomes with the aim of explaining the Easterlin (1974) paradox (the same results can be interpreted for decreasing incomes). These contributions appeal to both contemporaneous and lagged incomes as a determinant of current life satisfaction. Complete adaptation pertains when the sum of the lagged coefficients is zero. Using the same data as we do for Germany, Di Tella, Haisken-De New and MacCulloch (2010) show that complete adaptation occurs within four years. Di Tella and MacCulloch (2008) provide further estimates across different subgroups of the population. Their aim is to see whether differences exist between poor and rich individuals. When poverty is proxied by homeownership and not measured according to poverty status, full adaptation over seven years is rejected for the tenants but not for the homeowners.

Burchardt (2005) is also of interest in this respect. Using the first ten years of the British Household Panel Survey, it is shown that people who have experienced a fall in income are less satisfied than those with a constant income, while people experiencing an income gain are not more satisfied.

All of the above findings suggest that life satisfaction is influenced by previous experience, that people adapt to rising incomes but less so to falling incomes, and that renters, who are on average poorer than homeowners, do not adapt to poverty.

No contribution, to the best of our knowledge, has treated poverty as an event like unemployment. For the latter with our same data, Clark *et al.* (2008a) show that the date of past entry into unemployment does not matter for those who are still currently unemployed, that is, individuals do not adapt to unemployment. On the contrary, complete adaptation is found for events related to the life course, and which are perhaps less relevant for the individual's social status, such as marriage, divorce, widowhood, and birth of a child.

#### 4. The data and method

The dataset used in the paper is the German Socio-Economic Panel (SOEP, see below). Our measure of the individual's well-being, i.e. 'satisfaction with life' is measured on an 11-point scale, ranging from 0 ('completely dissatisfied') to 10 ('completely satisfied').

The German Socio-Economic Panel (SOEP) is an ongoing panel survey with a yearly re-interview design (see <http://www.diw.de/gsoep>). The starting sample in 1984 was almost 6,000 households based on a random multi-stage sampling design. A sample of about 2,200 East German households was added in June 1990, half a year after the fall of the Berlin wall. This gives a very good picture of the GDR society on the eve of the German currency, social and economic unification which happened on July 1, 1990. In 1994/95 an additional subsample of 500 immigrant households was included to capture the massive influx of immigrants since the late 1980s. An oversampling of rich households was added in 2002, improving the quality of inequality analyses especially at the upper end of the distribution. Finally, in 1998, 2000 and 2006 three additional population representative random samples were added boosting the overall number of interviewed households in the survey year 2000 to about 13,000 with approximately 24,000 individuals aged 17 and over. The data used in this analysis covers the period 1992 (the first wave of data for which annual income information is available for the East German sample) to 2010. Our overall sample is pooling all adult respondents with valid information on income and subjective satisfaction, leaving us with approximately 282,000 observations based on about 37,200 individuals in East and West Germany.

The income measure we employ for most of our analyses is the annual equivalent household income. In order to control for differences in household size and the economies of scale, we apply an equivalence scale with an elasticity of 0.5, given by the square root of household size.

The results are reported for both the entire population and for subgroups according to gender and age. For the latter we distinguish between individuals with more than 50 years of age and individuals at most 50 years old. The reason for these partitions of the population is that life satisfaction and adaptation to various life events have been shown to differ depending on them (see, for example, Clark *et al.*, 2008a).

In order to make full use of the panel nature of our data, controlling for otherwise unobserved individual characteristics and potentially different use of the underlying satisfaction scale (running from 0 to 10) across individuals, we apply a fixed-effects estimator.

## 5. The results

In the following multivariate regression models, we control for age, marital status (separated, single, divorced, widowed, guest workers whose spouses remained in their native country, distinguishing on their ages), whether employed, residency in East or West Germany, years of education, and number of children in the household. In the fixed-effect specification of our models, by definition, time independent variables such as sex and immigration status cannot be included in the estimation. Year dummies are included but the coefficients are not reported.

All models are first estimated for the entire population. In a second stage we then run separate analyses according to gender and by individual age, separating the over-fifties from the under-fifties.

The effect of being poor as well as its intensity is estimated in the first basic model. Past poverty as a determinant of present well-being is contained in the second specification with two different variables. We include lagged average incidence, that is the average number of past years spent in poverty excluding the present (the index reported above in equation [3], indicated in the tables as  $L.Foster^0$ ). We are also interested in analyzing whether a given number of poverty years are worse off if consecutive. To this aim we include lagged average past persistence, that is the normalized Bossert, Chakravarty and D'Ambrosio index computed over the past years excluding the present (the normalized index reported above in equation [2], indicated in the tables as  $L.BCD^0_T$ ).

The results are reported in Table 1. The various control variables yield the expected results: life satisfaction is U-shaped in age, at least up until age 80. The results differ here for young men and women, with only the latter being more satisfied than the reference group (individuals aged between 41 and 50). Education exerts a positive effect on life satisfaction in the overall sample. The positive coefficient is the result of contrasting

effects between genders: positive for men and negative for women. The education coefficient is insignificant when we separate the population based on age. Although these education results may look surprising to some, it is worth underlining that this is a fixed-effect analysis, so that we are looking at changing education for the same individual (and part of the strong cross-section relationship between education and well-being may reflect reverse causality, with those in better psychological health more likely to obtain higher qualifications). Also, we are controlling for a number of different measures of income here, and it may well be that on the main channels via which education affects well-being is income.

Those who marry are more satisfied. We also confirm the detrimental effect of recent widowhood on life satisfaction, especially for women. Divorced individuals are more satisfied. This effect is due to men and individuals with at most fifty years of age. Those who separate, especially separated women, report lower levels of life satisfaction. *Ceteris paribus*, East Germans are less satisfied with their life in general. With respect to individual labor force status, we find the expected positive effect of being employed. These results are for the most part fairly standard.

More novel, and central to our research question, are the coefficients on the various different poverty specifications: the event of poverty ( $FGT^0$ ), the intensity of poverty ( $FGT^1$ ), and the measures of past poverty (L.Foster<sup>0</sup> and L.BCD<sup>0</sup>\_T).

The empirical results show that the event of poverty always attracts the expected negative and significant coefficient in the well-being equation. The coefficient for being in the state of poverty for men and women is very similar to that for the whole sample. When we cut the sample up by age, it is individuals who are aged up to 50 who suffer the most from being poor, with an estimated coefficient which is around three times that for the older age group.

It is not only the incidence of poverty that matters: the intensity of poverty is also detrimental for well-being in all of the model specifications. As for the incidence above, the intensity of poverty is fairly similar for men and women in terms of its life satisfaction effect. This is not the case by age, where the opposite result to that reported above holds: the intensity of poverty matters more for older individuals.

When we turn to the past, we find that the lagged average experience of poverty (L.Foster<sup>0</sup>) has an additional detrimental effect on life satisfaction everywhere, controlling for both the incidence and intensity of current poverty, except in the older group where the estimated coefficient is negative but not significant.

We also consider lagged average past persistence (L.BCD<sup>0</sup>\_T). This attracts a positive and significant coefficient in the whole sample, and in the sub-sample of women. Poor individuals thus prefer income stability, so that persistent poverty of a certain number of years is less harmful in well-being terms than the same number of years of low income experienced together with movements in and out of poverty. The persistency of past poverty does not attract a significant coefficient in most of the population subgroups, although the estimated coefficient is always positive. The estimated coefficient on this variable for women is however significant (and larger than that for the whole sample), suggesting that this preference for stable incomes rather than moving in and out of poverty (given a total number of periods spent in poverty) is a female trait.

One result that seems worthy of attention is that past poverty, however measured, does not add anything to our understanding of the determinants of life satisfaction of those who are aged over 50, once present poverty has been controlled for. This suggests that for older individuals it is only the current situation that is important. On the contrary, it is for women that past experiences seem to matter the most.

The second question that we wanted to address in this paper is whether individuals adapt to poverty: that is, if whether the negative life-satisfaction impact of being in poverty is attenuated after a number of years. If adaptation to poverty is complete, then those who have been in poverty long enough will end up just as satisfied as with their lives as they were before they entered poverty. We follow a number of different strategies to test for adaptation.

The first method is that suggested by Clark *et al.* (2008a). The idea is to treat poverty as a new event and study what happens to satisfaction with life when individuals experience it. As such we restrict the sample to individuals for whom we observe the first entry, i.e. individuals who entered their first spell of poverty while in the panel, and analyze only this first spell. For these individuals we estimate the effect of having entered poverty at different points in the past, up to 10 years or more, conditional on currently



being poor. We therefore generate eleven dummy variables which describe poverty of different durations: these indicate, for the currently poor, whether the individual entered poverty within the past year (pov01y), 1-2 years ago (pov12y), and so on until 10 or more years ago (pov10oy). Under adaptation, the coefficients on these dummies should become smaller, since having entered poverty longer ago has a more muted effect on life satisfaction than having become poor more recently.

This is what we test in Table 2. The estimated coefficients there, which are also plotted for ease of comparison in Figure 1, show that poverty is associated with significantly lower well-being whatever its duration. In Table 1, the coefficients on the last three poverty duration dummies are always insignificant, although they remain negative. It is likely that this reflects the small cell size: the estimated coefficients here are not that much different to those on the shorter-duration dummies, but the standard errors increase sharply. The estimated coefficients on poverty of different durations in Table 1 are mostly not significantly different from each other in whole sample results in column 1. The only significant difference is a smaller well-being effect for those who entered poverty 2-3 years ago, but in general there is here very little strong evidence of adaptation to poverty: poverty starts off bad and pretty much stays bad.

When we repeat the same exercise for different subpopulation groups we do not find any striking differences when gender is taken into account. On the contrary, we do find adaptation for individuals whose are over 50 starting from the 5<sup>th</sup> year of being in poverty. This is in line with our previous result on the effect of the past on present well-being: older individuals seem to live more day-to-day, by adapting more to circumstances and making the best out of what is currently available.

As a robustness check we have re-estimated these regressions under two different sample restrictions. First, we consider the first spell of poverty also for those individuals who were poor at the time of their first interview (i.e. for whom we do not observe their entry into poverty, Robustness 1); second, no restrictions at all were imposed on the sample, so that we analyze adaptation in all of the spells for all of the individuals (Robustness 2). The results from these regressions appear in Figures 2 and 3 respectively. The main picture is very similar to the previous one, although there is now some evidence that men now adapt more to poverty.

The last research question of this paper was to see if poverty has a scarring effect on well-being, that is if the reported level of satisfaction with life is lower for someone who was poor in the past but is now out of poverty. The results appear in Table 3. We estimate two models. In the first, we include the dummy variable (Pastpov) for individuals who experienced poverty sometime in the past. In the second model, we also control for the length of the past poverty experience, introducing an index of the average past years spent in poverty (Foster<sup>0</sup>). Poverty has a scarring effect for the entire sample. However, when we look at different sub-groups of the population, we again find that it is the older population that is relatively unaffected by the past.

## **6. Conclusion**

In this paper we have analyzed the effects of poverty on an individual well-being. We show that both the event of poverty and its intensity have a negative effect on satisfaction with life. When past episodes of poverty are taken into account, poor individuals prefer income stability so that persistent poverty is less harmful than the same number of years of low income experienced with movements in and out of poverty. The negative effects of being in poverty are permanent and do not vanish over time: individuals do not adapt to poverty, and, even when subsequently out of poverty, they report lower satisfaction with life. These effects differ by population subgroups.

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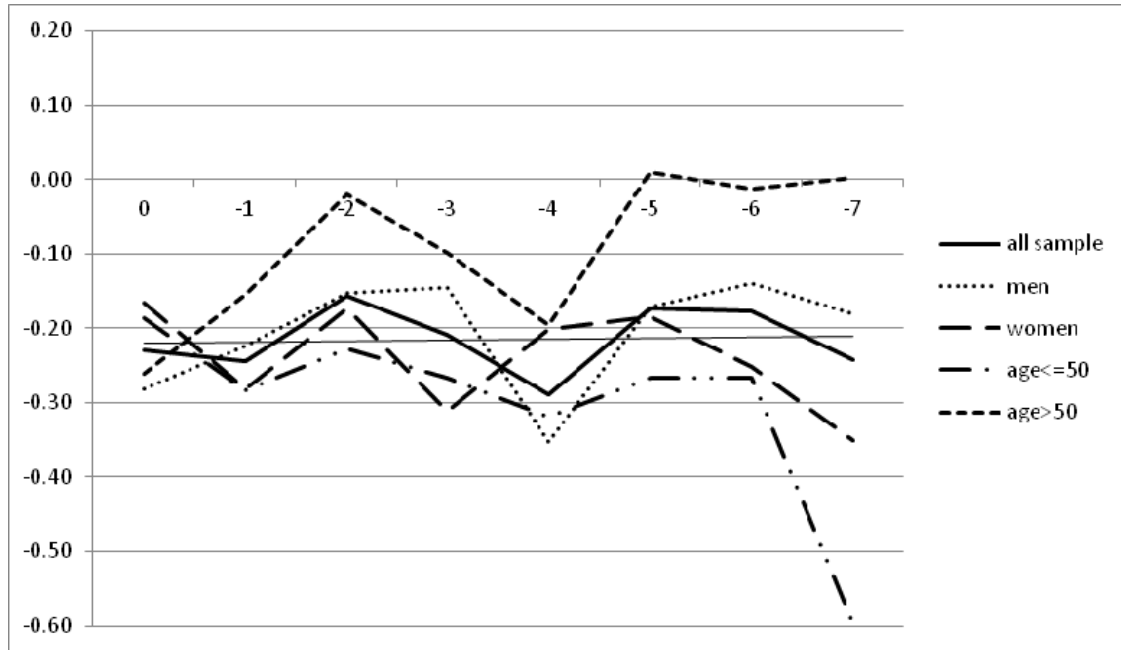
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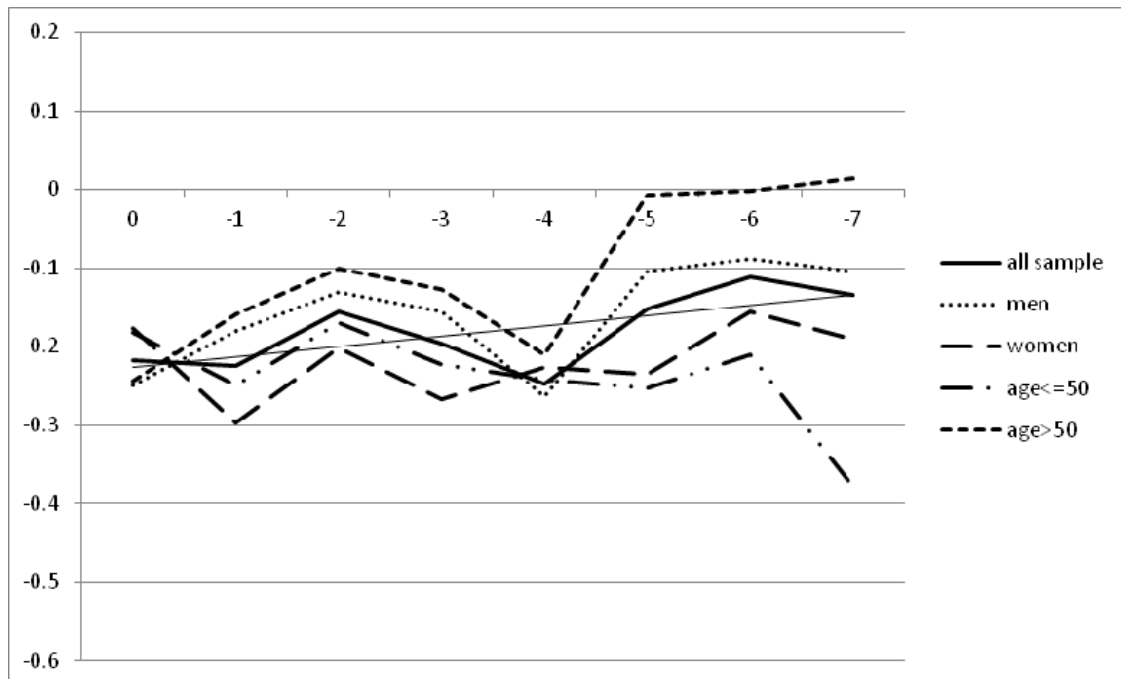
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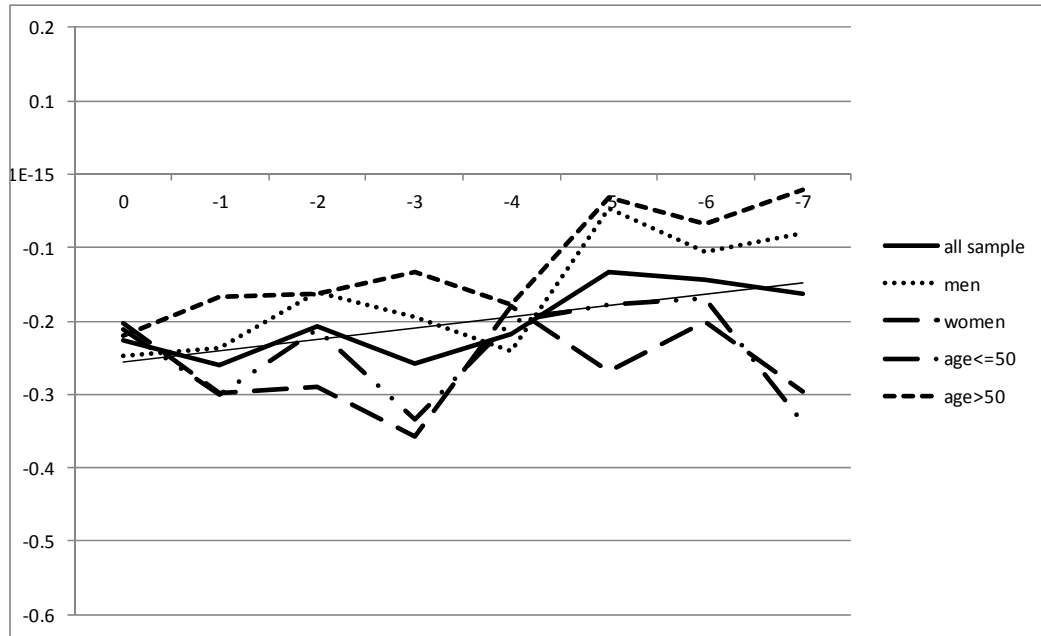
**Figure 1: Adaptation to poverty. First seven coefficients of panel fixed effects regressions for individuals who entered the first poverty spell while in the panel.**



**Figure 2: Adaptation to poverty. First seven coefficients of panel fixed effects regressions during the first observed poverty spell (Robustness 1).**



**Figure 3: Adaptation to poverty. First seven coefficients of panel fixed effects regressions (Robustness 2).**



**Table 1: Incidence, intensity and past poverty. Results from fixed effects models.**

	Whole sample		Men		Women		Age<=50		Age>50	
	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction
Employed	0.111** (0.009)	0.119** (0.009)	0.059** (0.012)	0.068** (0.012)	0.184** (0.014)	0.192** (0.014)	0.155** (0.011)	0.171** (0.012)	-0.011 (0.015)	-0.016 (0.016)
Age: 16-20	0.109** (0.030)	0.098** (0.032)	-0.019 (0.043)	-0.030 (0.046)	0.253** (0.042)	0.239** (0.045)	0.125** (0.033)	0.118** (0.036)		
Age: 21-30	-0.020 (0.021)	-0.016 (0.022)	-0.053+ (0.029)	-0.050 (0.031)	0.015 (0.029)	0.019 (0.031)	-0.011 (0.023)	-0.005 (0.025)		
Age: 31-40	-0.005 (0.013)	-0.003 (0.013)	-0.041* (0.018)	-0.042* (0.019)	0.036* (0.018)	0.041* (0.019)	0.002 (0.014)	0.004 (0.015)		
Age: 51-60	0.018 (0.013)	0.014 (0.014)	0.043* (0.019)	0.039+ (0.020)	-0.014 (0.019)	-0.017 (0.020)				0.195** (0.045)
Age: 61-70	0.269** (0.022)	0.263** (0.023)	0.271** (0.030)	0.261** (0.032)	0.266** (0.030)	0.264** (0.032)			0.240** (0.016)	0.430** (0.036)
Age: 71-80	0.125** (0.030)	0.111** (0.031)	0.177** (0.042)	0.161** (0.044)	0.067 (0.042)	0.055 (0.045)			0.125** (0.028)	0.308** (0.028)
Age: 80-max	-0.213** (0.042)	-0.235** (0.044)	-0.136* (0.057)	-0.161** (0.061)	-0.310** (0.063)	-0.327** (0.066)			-0.179** (0.043)	
No. Years of Education	0.008* (0.004)	0.008* (0.004)	0.029** (0.005)	0.030** (0.006)	-0.014** (0.005)	-0.016** (0.005)	0.006 (0.004)	0.005 (0.004)	0.011 (0.009)	0.015 (0.009)
Married	0.147** (0.017)	0.152** (0.019)	0.142** (0.024)	0.157** (0.027)	0.134** (0.024)	0.129** (0.026)	0.161** (0.018)	0.162** (0.019)	-0.073 (0.085)	-0.025 (0.093)
Widowed	-0.090** (0.029)	-0.109** (0.032)	-0.056 (0.038)	-0.073+ (0.041)	-0.183** (0.050)	-0.196** (0.054)	-0.041 (0.075)	-0.045 (0.081)	-0.296** (0.086)	-0.276** (0.094)
Divorced	0.073** (0.024)	0.082** (0.026)	0.111** (0.034)	0.118** (0.037)	0.017 (0.035)	0.028 (0.038)	0.072** (0.027)	0.077** (0.030)	-0.084 (0.086)	-0.036 (0.094)
Separated	-0.200** (0.027)	-0.184** (0.030)	-0.094* (0.038)	-0.070+ (0.041)	-0.336** (0.039)	-0.332** (0.043)	-0.177** (0.030)	-0.167** (0.033)	-0.398** (0.095)	-0.328** (0.103)
Above 18, not living with partn	0.068	0.116	0.255	0.485+	-0.106	-0.174	0.164	0.494+	-0.039	-0.117



Under 18, not living with partn	(0.140)	(0.160)	(0.224)	(0.269)	(0.178)	(0.197)	(0.208)	(0.254)	(0.224)	(0.243)
	-0.287	-0.283			-0.396	-0.402	-0.247	-0.246		
	(1.564)	(1.545)			(1.536)	(1.516)	(1.548)	(1.529)		
East Germany	-0.291**	-0.261**	-0.318**	-0.289**	-0.249**	-0.218**	-0.279**	-0.254**	-0.172+	-0.106
	(0.033)	(0.035)	(0.045)	(0.049)	(0.048)	(0.051)	(0.036)	(0.039)	(0.093)	(0.099)
No. Children in HH	0.018**	0.023**	0.011	0.018*	0.021**	0.023**	0.019**	0.025**	0.025	0.025
	(0.005)	(0.006)	(0.008)	(0.008)	(0.007)	(0.008)	(0.006)	(0.006)	(0.018)	(0.019)
<i>FGT</i> <sup>0</sup>	-0.142**	-0.111**	-0.141**	-0.101**	-0.148**	-0.129**	-0.186**	-0.147**	-0.066**	-0.053*
	(0.014)	(0.015)	(0.018)	(0.020)	(0.021)	(0.022)	(0.018)	(0.020)	(0.021)	(0.022)
<i>FGT</i> <sup>1</sup>	-0.466**	-0.477**	-0.507**	-0.531**	-0.406**	-0.400**	-0.298**	-0.337**	-0.702**	-0.690**
	(0.041)	(0.045)	(0.053)	(0.058)	(0.066)	(0.072)	(0.052)	(0.056)	(0.069)	(0.074)
L.BCD <sup>0</sup> _T		0.058+		0.020		0.108*		0.051		0.084
		(0.030)		(0.045)		(0.043)		(0.043)		(0.056)
L.Foster <sup>0</sup>		-0.132**		-0.077+		-0.212**		-0.177**		-0.069
		(0.033)		(0.042)		(0.050)		(0.036)		(0.055)
Constant	7.402**	6.851**	7.263**	7.134**	7.531**	7.410**	7.407**	7.280**	7.487**	7.071**
	(0.063)	(0.069)	(0.088)	(0.096)	(0.089)	(0.097)	(0.071)	(0.077)	(0.175)	(0.194)
Observations	332015	291325	172485	151495	159530	139830	194355	168332	137660	122993
Individuals	42695	37326	21826	19170	20869	18156	28587	24755	19399	17258
R-squared	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.03	0.03
MLog likelihood	-529352.24	-460985.61	-277940.95	-242349.87	-251188.93	-218429.01	-305828.87	-262699.63	-217791.00	-193310.55

Standard errors in parentheses, + significant at 10%; \* significant at 5%; \*\* significant at 1%. Additional control variables include dummies for year of observation.

Source: Authors' calculation from SOEP.

**Table 2: Adaptation to poverty. Results from fixed effects model.**

	Whole sample life satisfaction	Men life satisfaction	Women life satisfaction	Age<=50 life satisfaction	Age>50 life satisfaction
Employed	0.096** (0.010)	0.043** (0.013)	0.169** (0.015)	0.135** (0.012)	-0.011 (0.016)
Age: 16-25	0.112** (0.032)	-0.037 (0.046)	0.267** (0.045)	0.100** (0.035)	
Age: 26-35	-0.022 (0.022)	-0.056+ (0.031)	0.014 (0.031)	-0.034 (0.025)	
Age: 36-45	0.003 (0.013)	-0.030 (0.019)	0.040* (0.019)	-0.002 (0.015)	
Age: 46-55	0.007 (0.014)	0.038+ (0.020)	-0.029 (0.020)		
Age: 56-65	0.235** (0.023)	0.240** (0.032)	0.230** (0.032)		0.213** (0.017)
Age: 66-75	0.090** (0.032)	0.120** (0.045)	0.059 (0.044)		0.087** (0.030)
Age: 76-85	-0.218** (0.046)	-0.170** (0.064)	-0.271** (0.067)		-0.193** (0.047)
No. Years of Education	0.007+ (0.004)	0.024** (0.006)	-0.011* (0.005)	0.008+ (0.005)	-0.001 (0.009)
Married	0.141** (0.018)	0.138** (0.026)	0.127** (0.026)	0.157** (0.019)	-0.026 (0.089)
Widowed	-0.148** (0.033)	-0.115** (0.042)	-0.220** (0.055)	-0.213* (0.088)	-0.296** (0.091)
Divorced	0.065* (0.027)	0.120** (0.038)	-0.005 (0.037)	0.079** (0.030)	-0.042 (0.091)
Separated	-0.230** (0.030)	-0.106* (0.043)	-0.362** (0.042)	-0.208** (0.033)	-0.404** (0.100)
Above 18, not living with partn	0.027 (0.153)	0.331 (0.266)	-0.183 (0.186)	0.015 (0.228)	0.076 (0.248)

Under 18, not living with partn	-0.324 (1.523)		-0.416 (1.500)	-0.283 (1.508)	
East Germany	-0.304** (0.036)	-0.298** (0.051)	-0.302** (0.051)	-0.277** (0.040)	-0.239* (0.097)
No. Children in HH	0.015** (0.006)	0.010 (0.009)	0.016* (0.008)	0.015* (0.006)	0.033+ (0.019)
pov01y	-0.229** (0.017)	-0.281** (0.024)	-0.166** (0.026)	-0.187** (0.022)	-0.262** (0.028)
pov12y	-0.244** (0.028)	-0.223** (0.038)	-0.281** (0.044)	-0.284** (0.036)	-0.155** (0.047)
pov23y	-0.156** (0.038)	-0.153** (0.050)	-0.173** (0.059)	-0.227** (0.049)	-0.021 (0.060)
pov34y	-0.208** (0.048)	-0.146* (0.063)	-0.312** (0.075)	-0.267** (0.065)	-0.098 (0.072)
pov45y	-0.289** (0.060)	-0.353** (0.079)	-0.202* (0.093)	-0.319** (0.085)	-0.196* (0.085)
pov56y	-0.173* (0.073)	-0.171+ (0.096)	-0.184 (0.115)	-0.266* (0.112)	0.010 (0.099)
pov67y	-0.178* (0.086)	-0.140 (0.111)	-0.251+ (0.136)	-0.267+ (0.137)	-0.013 (0.111)
pov78y	-0.243* (0.101)	-0.180 (0.131)	-0.351* (0.161)	-0.598** (0.180)	0.003 (0.123)
pov89y	0.050 (0.118)	0.058 (0.152)	0.039 (0.189)	-0.077 (0.227)	0.189 (0.139)
pov91y	-0.052 (0.138)	0.011 (0.173)	-0.168 (0.231)	0.039 (0.271)	0.063 (0.162)
pov10oy	-0.171 (0.105)	-0.107 (0.130)	-0.307+ (0.179)	-0.230 (0.262)	-0.087 (0.118)
Constant	7.545** (0.068)	7.416** (0.097)	7.669** (0.095)	7.511** (0.077)	7.784** (0.183)
Observations	281996	142640	139356	165907	116089

Individuals	37257	18654	18603	25244	16749
R-squared	0.02	0.02	0.03	0.02	0.03

Standard errors in parentheses, + significant at 10%; \* significant at 5%; \*\* significant at 1%. Additional control variables include dummies for year of observation.  
Source: Authors' calculation from SOEP.

**Table 3: Scarring effect of poverty. Results from fixed effects models.**

	Whole sample		Men		Women		Age≤50		Age>50	
	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction	life satisfaction
Employed	0.099** (0.010)	0.099** (0.010)	0.054** (0.013)	0.054** (0.013)	0.163** (0.015)	0.163** (0.015)	0.141** (0.012)	0.141** (0.012)	-0.023 (0.016)	-0.024 (0.016)
Age: 16-25	0.086** (0.031)	0.088** (0.031)	-0.051 (0.045)	-0.050 (0.045)	0.230** (0.044)	0.232** (0.044)	0.114** (0.035)	0.115** (0.035)		
Age: 26-35	-0.037+ (0.021)	-0.036+ (0.021)	-0.076* (0.030)	-0.076* (0.030)	0.003 (0.030)	0.004 (0.030)	-0.022 (0.024)	-0.021 (0.024)		
Age: 36-45	-0.001 (0.013)	-0.002 (0.013)	-0.035+ (0.018)	-0.035+ (0.018)	0.036* (0.018)	0.035* (0.018)	0.009 (0.014)	0.008 (0.014)		
Age: 46-55	0.015 (0.014)	0.016 (0.014)	0.042* (0.019)	0.043* (0.019)	-0.018 (0.019)	-0.017 (0.019)			0.161** (0.046)	0.160** (0.046)
Age: 56-65	0.259** (0.022)	0.261** (0.022)	0.266** (0.032)	0.268** (0.032)	0.252** (0.031)	0.253** (0.031)			0.402** (0.037)	0.402** (0.037)
Age: 66-75	0.105** (0.031)	0.106** (0.031)	0.150** (0.044)	0.151** (0.044)	0.057 (0.044)	0.058 (0.044)			0.285** (0.029)	0.285** (0.029)
Age: 76-85	-0.223** (0.045)	-0.223** (0.045)	-0.163** (0.062)	-0.164** (0.062)	-0.286** (0.065)	-0.285** (0.065)				
No. Years of Education	0.008* (0.004)	0.008* (0.004)	0.030** (0.006)	0.030** (0.006)	-0.014** (0.005)	-0.014** (0.005)	0.008+ (0.004)	0.008+ (0.004)	-0.000 (0.009)	-0.000 (0.009)
Married	0.148** (0.018)	0.148** (0.018)	0.138** (0.025)	0.137** (0.025)	0.144** (0.025)	0.144** (0.025)	0.161** (0.018)	0.160** (0.018)	-0.099 (0.092)	-0.100 (0.092)
Widowed	-0.056+ (0.018)	-0.059+ (0.018)	-0.013 (0.025)	-0.017 (0.025)	-0.158** (0.025)	-0.160** (0.025)	-0.059 (0.018)	-0.061 (0.018)	-0.285** (0.092)	-0.281** (0.092)

	(0.032)	(0.032)	(0.042)	(0.041)	(0.053)	(0.053)	(0.086)	(0.086)	(0.094)	(0.094)
Divorced	0.085**	0.084**	0.123**	0.121**	0.034	0.033	0.084**	0.084**	-0.107	-0.106
	(0.026)	(0.026)	(0.037)	(0.037)	(0.036)	(0.036)	(0.029)	(0.029)	(0.094)	(0.094)
Separated	-0.196**	-0.197**	-0.022	-0.024	-0.355**	-0.356**	-0.173**	-0.173**	-0.443**	-0.442**
	(0.030)	(0.030)	(0.044)	(0.044)	(0.041)	(0.041)	(0.033)	(0.033)	(0.104)	(0.104)
Above 18, not living with partn	-0.112	-0.110	0.050	0.054	-0.261	-0.260	-0.089	-0.084	-0.183	-0.186
	(0.152)	(0.152)	(0.249)	(0.249)	(0.190)	(0.190)	(0.216)	(0.216)	(0.257)	(0.257)
Under 18, not living with partn	-0.287	-0.289			-0.411	-0.412	-0.245	-0.246		
	(1.517)	(1.517)			(1.495)	(1.495)	(1.499)	(1.499)		
East Germany	-0.309**	-0.308**	-0.328**	-0.326**	-0.281**	-0.280**	-0.299**	-0.296**	-0.233*	-0.234*
	(0.036)	(0.036)	(0.050)	(0.050)	(0.051)	(0.051)	(0.039)	(0.039)	(0.096)	(0.096)
No. Children in HH	0.017**	0.017**	0.011	0.011	0.017*	0.018*	0.016**	0.016**	0.027	0.027
	(0.006)	(0.006)	(0.008)	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.019)	(0.019)
Pastpov	-0.035*		-0.039+		-0.040+		-0.042*		0.031	
	(0.015)		(0.021)		(0.023)		(0.020)		(0.026)	
Foster <sup>0</sup>		-0.110*		-0.123*		-0.122+		-0.166**		-0.011
		(0.047)		(0.062)		(0.071)		(0.059)		(0.081)
Constant	7.511**	7.513**	7.353**	7.355**	7.656**	7.658**	7.481**	7.482**	7.677**	7.678**
	(0.067)	(0.067)	(0.096)	(0.096)	(0.094)	(0.094)	(0.076)	(0.076)	(0.190)	(0.190)
Observations	295135	295135	150196	150196	144939	144939	174576	174576	120559	120559
Individuals	40595	40595	20571	20571	20024	20024	27400	27400	18256	18256
R-squared	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03

Standard errors in parentheses, + significant at 10%; \* significant at 5%; \*\* significant at 1%. Additional control variables include dummies for year of observation.  
Source: Authors' calculation from SOEP.