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Hedonic Adaptation to Living Standards and the Hidden Cost of Parental Income

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Abstract

High parental income, while undeniably causing benefits for a child in terms of better access to education and more favorable labor market outcomes, may at the same time increase a child's income aspirations and thereby reduce financial satisfaction, *ceteris paribus*. In this paper, we investigate the relationship between financial satisfaction and parental income with data from the German Socio-Economic Panel. The results indicate that there is indeed a negative well-being externality of parental income, and that children appear to compare their actual income situation with the aspiration level acquired while growing up.

JEL Classification: D62, I31

Keywords: Welfare, happiness, income norm, subjective well-being.

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1 Introduction

Most people would agree that parents who work hard and earn a high income do something good for their children. They can choose to live in a good neighborhood, afford to put their children in better schools, buy books and support them in many other ways. Indeed, there is a large literature showing that parental income is a strong correlate of educational attainment (Taubman, 1989 Chevalier *et al.*, 2005, Haveman and Wolfe, 1995). Similarly, there is ample evidence for a high correlation in income and earnings across generations (e.g., Behrman and Taubman 1990, Peters 1992, Solon 1992, Zimmermann 1992).

While we do not question the beneficial effect of parental income *per se*, we explore in this paper the empirical relevance of a potential downside, or “hidden cost”, of high parental income on the well-being of children. The argument is as follows. A person’s subjective well-being, as reflected in satisfaction with life in general, and satisfaction with income as part of it, depends on the individual aspiration level. We conjecture that income aspirations depend strongly on the material situation that prevailed in the family during one’s upbringing. In other words, a higher parental income leads to higher income aspiration levels of the children that, if unfulfilled, may cause unhappiness. Hence, if parents take a broader interest in the well-being of their children, they should be mindful of the negative well-being externality that a very high income – and standard of living – may generate.

Of course, the basic idea described above is not new at all, and the transfer of aspirations for standards of living from parents to children has implicitly or explicitly played a role in many areas of social science research. For example, it lies at the heart of the Easterlin hypothesis (Easterlin, 1987) where it is used to explain the fertility decline in modern Western societies. In the happiness literature, there have been several studies on income norms and aspirations (Stutzer, 2004, Clark and Oswald, 1996), but to the best of our knowledge, only one paper addresses specifically the comparison with and adaptation to perceived living standards of parents. The empirical analysis in McBride (2001) determines the well-being effects of an individual’s subjective comparison of living standards, based on the question: “Compared to your parents when they were the age you are now, do you think your own standard of living now is: much better, somewhat better, about

the same, somewhat worse, or much worse?”.

Using data from the General Social Survey, he finds that as the current standard of living becomes worse relative to the parents’ standard of living, for a given amount of own income, the subjective well-being of respondents decreases. This effect is both statistically and economically significant. A move from ”much worse” to ”much better” decreases the probability of being “unhappy” by more than ten percentage points.

In contrast to McBride (2001) we model the income norm directly, using data from a large household survey – the German Socio-Economic Panel. We also focus on financial satisfaction rather than on general life satisfaction. The data allow us to relate the financial satisfaction of adult children, who have moved out of the parental household and live now independently, to their own income and to the income of their parents. We account for potential specification problems, such as endogeneity of the parental income variable and individual traits. The results suggest the presence of an externality. In particular, we find that higher parental income significantly decreases the children’s financial satisfaction, for a given own income, and that these estimates are robust against various model specifications.

2 Empirical Models of Well-Being Adaptation

While traditional economic theory predicts that individual utility depends on absolute income, research based on self-reported well-being challenges this view. For instance, a positive relation between well-being and income, although present in the cross-section, could not be identified over time: Despite the substantial economic growth people have not become more satisfied in the long run (Easterlin 2001). This and other puzzles call for more flexible concepts that are able to explain these findings. Diener (2002) provides an overview of the different approaches taken.

An important strand of the literature, and the one our paper will contribute to, follows social comparison theory, which claims that the impact of income on well-being is determined by changeable standards stemming from aspirations, habituation levels, and social comparison (Diener and Diener 1984). However, the determination of the relevant others to which an individual compares himself to remains an open issue. Clark and Oswald (1996) propose a model in which workers com-

pare their wage to a wage rate obtained from a conventional earnings equation. Stutzer (2004) considers community income levels as determinants of income aspirations. Ferrer-i-Carbonell (2005) defines over 50 different reference groups based on age, education and geographical region. They all find significant negative effects of comparison levels on satisfaction.

As in McBride (2001), the focus here is on “internal” or “psychological” norms stemming from a comparison with past personal experience, and hence psychological adaptation effects related to past standards of living. We refer to this effect as *inter-generational adaptation*. If we measure the parents standard of living by their income (current or average), the empirical model we have in mind can be written as

$$FS_{it} = f(\text{own income}_{it}, \text{parental income}_i, x_{it}, u_{it}) \quad (1)$$

where FS_{it} , financial satisfaction of individual i in period t , is modelled as a function of own income, parental income, other control variables x that include individual and household socio-economic characteristics, such as age, gender, health status, household size, *etc*, as well as unobserved factors u .

The timing of the parental income variable is not clear. One might expect that it is not current parental income that matters most, but rather past parental income, for example the average income available during childhood and adolescence. Unfortunately, this information is not available in the data, and thus we use parental income in t , keeping in mind that this is only an imperfect proxy for past living standards.

In this framework, we expect that

$$\frac{\partial FS_{it}}{\partial \text{own income}_{it}} > 0$$

A negative externality is present if financial satisfaction depends negatively on parental income, *ceteris paribus*, i.e., keeping own income and other factors fixed:

$$\frac{\partial FS_{it}}{\partial \text{parental income}_i} < 0$$

For practical purposes, we consider a linearized version of Model (1)

$$FS_{it} = \beta_0 + \beta_1 \text{own income}_{it} + \beta_2 \text{parental income}_{it} + \gamma x_{it} + u_{it} \quad (2)$$

To actually estimate the parameters of the model, we face two minor, more technical issues, namely how to address the panel structure and the fact that the dependent variable is ordinal, and a major, substantive one, namely the possible endogeneity of parental income.

The data we will be using are panel data. In other words, there will be repeated measurements on financial satisfaction as well as own and parental income for the same person over time. In many situations, one would want to control for individual specific time-invariant heterogeneity that may be correlated with a regressor of interest. In this case, however, such within-estimation is not very meaningful, because β_2 then implicitly represents the short-term effect of period-to-period variations of parental income on children’s financial satisfaction. But adaptation and adjustment of income norms is inherently a slow process and we would not expect to find any effect in the fixed effects within model. Thus, we report pooled OLS estimates (where standard errors are corrected for clustering at the individual level) as well as between estimates, averaging all individual observations over the available time periods.

We could use ordered probit models but previous research (e.g. Ferrer-i-Carbonell and Frijters, 2004, Van Praag and Ferrer-i-Carbonell, 2004) has shown that it makes little practical difference, and linear models have the advantage of a simple interpretation of coefficients.

We now come to the substantive issue of potential bias in β_2 due to omitted variables. One way to think of this problems is to notice that wealth, both own wealth and parents’ wealth has not been included in model (1). Although the satisfaction question used in the empirical analysis of this paper explicitly refers to income (“How satisfied are you with your household income at present?”) it seems reasonable to assume that this question cannot be answered by the respondent without taking wealth into consideration. Thus, an extended model can be written as

$$FS_{it} = \beta_0 + \beta_1 \textit{own income}_{it} + \beta_2 \textit{parental income}_{it} \\ + \beta_3 \textit{own wealth}_{it} + \beta_4 \textit{parental wealth}_{it} + \gamma x_{it} + u_{it}$$

where, according to an extended adaptation hypothesis, $\beta_3 > 0$ and $\beta_4 < 0$. Unfortunately, there is practically no useful information on wealth in the data. One could interpret house ownership as an indicator of wealth. However, since information on mortgages is missing, even that simple indicator will be quite uninformative.

Omitting wealth from the estimating equation likely leads to a biased estimation of the income adaptation parameter β_2 . The reason is that higher parental income is typically associated with higher wealth of parents. Higher wealth of parents, in turn, can have a direct impact on the children's financial satisfaction for a number of reasons. Financial satisfaction goes up if parents share some of their wealth with their children. The same positive effect can occur if there is no current sharing but children expect a future transfer. Finally, a higher parental wealth might be an additional indicator for standards of living norms, thereby reducing financial satisfaction. We do not worry about the last effect but about the first two. Since we cannot disentangle them, we need to control for parental wealth, and we suggest doing this by controlling for financial satisfaction of parents. The model then becomes

$$FS_{it} = \beta_0 + \beta_1 \text{own income}_{it} + \beta_2 \text{parental income}_{it} + \beta_3 \text{parents' } FS_{it} + \gamma x_{it} + u_{it} \quad (3)$$

A higher financial satisfaction of parents indicates, for a given parental income, a greater wealth of parents. Of course, the parents financial satisfaction potentially captures some other effects as well. For example, there may be altruism at play. In this case, a child's FS increases directly in response to parents' FS. It is not clear, how meaningful it is to define altruism in terms of interdependent financial satisfaction, rather than general life satisfaction, as in Schwarze and Winkelmann (2006), but there is no need to rule out the possibility *a-priori*. In addition, the FS response may be affected by personality traits that are partially inherited. This would generate a positive correlation between parents FS and child FS. As a consequence, the coefficient β_3 in (3) has no interesting interpretation by itself.

This is not a real problem, however, since we want to learn about β_2 , and the parents' FS is only included to avoid bias due to wealth effects. This objective will be achieved by estimating model (3), provided it is the case that a child's wealth does not depend on parental income once we control for parents' wealth, here proxied by way of parental FS. The adaptation effect is then identified by differences in standard of living stemming from income, rather than wealth differences.

Finally, there is a further potential bias when estimating (3), resulting from unobserved transfers between parents and children. In this case, a higher parental income may have a positive effect

on FS, since children will then be more likely to receive a transfer from their parents. However, household income in the data is defined as including all *public and private* transfers. Thus, direct monetary transfers should show up in the own income variable, and therefore be accounted for. This leaves the possibility of in-kind transfers, or expectations of future transfers that are positive functions of parents' income. While we cannot address such a modified transfer argument directly, it should work, if it is relevant, in a direction opposite to adaptation. A negative coefficient on parental income would then provide a lower bound (in absolute value) for the true adaptation effect.

3 Data and Results

The dataset used in this study is drawn from five waves (2000 to 2004) of the German Socio-Economic Panel (GSOEP). The GSOEP is a representative annual panel survey of private households in Germany and includes a wide range of socio-economic and demographic characteristics on all household members (see Burkhauser *et al.* 2001 for details).

The key strength of this data set is that it provides information on extended families. In our case, the relevant extended family consists of a child household and a parent household. In many instances, the full survey instrument is applied to both households, and this information can then be linked.

As the GSOEP initially consisted of a random sample of households in West Germany, there was practically no chance that two such linked households would be observed in the data, and even in that extremely unlikely case, one would not know about it. However, over time, the sample was extended to include households of all those persons, who were at first part of one of the original households but later moved out to form a separate, independent household. Such new households could result from divorce or separation or, more important for our analysis, from a child growing up and moving out.

Clearly, following up on these children requires both information on the location of the new household, as well as their willingness to participate, two conditions that were met in many but certainly not all of the cases. The number of such linkable parent-child observations was very

low initially (the GSOEP was started in 1984) but has increased over recent years. In 2000, for example, there were 1,118 parent households that could be matched to at least one child household. Extracting such data for the period 2000-2004, and considering pairs with complete parent households (with mother and father present), we obtain a total of 4697 observations for 1434 different children.

The observational unit is the child, for which we observe, among other things, own financial satisfaction (the response to the question “How satisfied are you with your income at present?” given on an eleven-point scale from 0 to 10 where 0 means “completely dissatisfied” and 10 means “completely satisfied”), own income, parental financial satisfaction (taken as the average of both parents’ responses) and the parental household income. Further controls include a health indicator, age, education, gender, employment and marital status, as well as the year of observation.

— Insert Table 1 about here —

Descriptive statistics for selected variables, for parents and children, are reported in Table 1. The average financial satisfaction, on the 0-10 scale, is 6.1, equal for both parents and children. This is despite the fact that parents have an income that is on average about 17 percent higher than that of children. The age difference is on average 27 years, which is thus the average age of the parents at the time of birth of these children. Cohort and life-cycle effects are also reflected in the house ownership rates and in education levels: while parents have substantially higher ownership rates, their education levels (measure in years of schooling) trails that of their children by more than a year. All these differences are statistically significant.

In order to test the hypothesis that financial satisfaction is negatively affected by parents’ income, due to adaptation that leads to increased income aspiration levels, we report results from a number of alternative regressions using the aforementioned sample of 4697 pooled observations. The results of these regressions are shown in Table 2, where we report coefficients on the key variables of interest, together with their standard errors. The full results including the controls (that are identical in all models) are available on request.

— Insert Table 2 about here —

Without controlling for parental wealth by way of their financial satisfaction, log parental income has a positive, though statistically insignificant effect, on child FS (see the column labelled (1)). The own income effect is positive and large. A unit increase in log own income is predicted to increase financial satisfaction by 1.9 points on the eleven points scale. After we control for parental FS, in the column labelled (2), the parental income parameter switches its sign and becomes statistically significant and we therefore find indeed evidence for adaptation – and thus for a negative externality of parental income.

As one might expect, the effect is not particularly large, but it is not negligible either. Comparing own and parental income effects, we find that a *ceteris paribus* increase in parental income by ten percent lowers financial satisfaction by roughly the equivalent of a two percent reduction in own income. As we mentioned earlier this is a lower bound of the effect if there is some additional bias due to unobserved transfers.

The next columns corroborate the main conclusion. In column (3), we show results for a model with log-income ranks rather than levels. This specification reduces the sensitivity to potential outliers, i.e., a few very large incomes, that might have a disproportionate effect on the OLS results. In this case, the question is how the financial satisfaction depends on the position in the income distribution occupied by parents, keeping the own distributional position fixed. We find that this does not really make any difference. The coefficients are about half as large, a consequence of the different scaling. In relative terms, however, things stay the same. A ten percent increase in parental income rank is predicted to lower financial satisfaction by about the same amount as a two percent reduction in own income rank.

The next column shows a discretized version of the adaptation model. It includes an indicator variable that is one if the parental income exceeds the own income, and zero else. Individuals, whose own income (in household equivalence terms) falls short of that of their parents report a substantially lower financial satisfaction, for a constant own income, than those individuals whose income exceeds that of their parents. The point estimate is a 0.412 loss in financial satisfaction for the former group, clearly a large effect.

Finally, we investigate whether the effect is asymmetric: individuals may lose more from falling short of the income norm (i.e., having a smaller income than their parents), than they

gain from exceeding the norm (for a similar approach see Ferrer-i-Carbonell 2005). Formally, we estimate a spline function that allows the slope of the relationship between parental income and financial satisfaction to differ below and above the own income point. And indeed, the results show that there is a significant difference in slopes: the effect of parental income is significantly greater (in absolute value) if the parental income is higher than own income. Or to put it differently, the loss of financial satisfaction implied by an increased income norm is larger if the own income is below the norm than above.

4 Further sensitivity checks

In order to explore the extent to which the effect of income norms as a determinant of financial satisfaction might depend on the particular specification, we performed some sensitivity analyses. First, we considered a model where the estimation is based on individual level means rather than pooled data. Using individual means has the disadvantage that effects tend to be estimated less precisely. The main advantage is, however, that measurement error in the parental income proxy for the standard of living norm is reduced. Under the classical measurement error assumptions this would reduce attenuation bias, and thus lead to larger (in absolute value) adaptation effects. The results in Table 3 show that this is the case indeed. While the coefficients of the own income variable are very similar to those of the pooled model shown in Table 2, the parental income effects are now around 30 percent larger. This evidence thus certainly supports the previous conclusion that income norms acquired through parents play a role in determining financial satisfaction.

— Insert Table 3 about here —

The German re-unification in 1990 provides an interesting “natural experiment” for all sorts of questions in social science research, and questions related to hedonic adaptation may count among them. Presumably, the income distribution was very compressed in pre-unification Eastern Germany (Biewen 2000). The children in our East German sample are on average in their thirties at the time of the interviews in 2000-2004. Thus they were born and spent most, if not all, of their childhood years before re-unification in East Germany. One might hypothesize that income aspirations for this group were completely different than that of their otherwise comparable West

German peers. In particular, the current income of their parents in 2000-2004 should be only a very poor indicator of their true experiences during childhood. The resulting adaptation and increase in aspiration levels for those whose parents have higher incomes (now) may not be relevant at all, or measurement error may bias the coefficients towards zero for that group. Also, as the unification “shock” raised the incomes of all by a substantial amount, one would expect financial satisfaction to be higher among East Germans, for a given income, than for West Germans.

— Insert Table 4 about here —

It turns out that none of these predictions is supported by the data. For example, a regression of financial satisfaction on current income and a “West” indicator yields a significant positive effect for “West”, not a negative one. Also, from Table 4, we see that income adaptation across generations is evident for both subsamples, the West German as well as the East German one. The own income effects tend to be larger in East Germany (a similar result for life satisfaction found also by Frijters, Haskin-DeNew and Shields 2004), as are the parents’ income effects (though not in relative terms). One possible explanation is that by the time of our sample period, people had already lived for at least ten years in unified Germany, and children may have adopted the living standards of their parents during that period as an inner norm. Another explanation would be that the Eastern pre-unification income distribution was not so equal after all, and that there is a high correlation between pre-and post-unification income ranks. We are not aware of any direct evidence along those lines. Clearly, the East-West German comparison should be scrutinized more intensively. Here, we conclude that income adaptation, as defined in our set-up, appears to be present in both (former) East and West Germany.

Finally, it is relevant to understand how this result for financial satisfaction translates to general life-satisfaction. In the usual view, life satisfaction is an aggregation of various *domain* satisfactions, life satisfaction being one among them. If the financial domain is the only domain affected by parental income, then it should be the case that the effect of parental income on life satisfaction is simply the product of its effect on financial satisfaction times the weight that financial satisfaction has in determining life satisfaction. It should be the case then that a higher parental income reduces life satisfaction *ceteris paribus*, for a given own income. However, it is

also possible that parental income affects life satisfaction through other domains, such as health or education. In this case, the overall effect is less clear.

The last two columns of Table 5 show the pooled and between results with life satisfaction as dependent variable. Perhaps surprisingly, there is no evidence for adaptation here. All the estimated parental income effects are insignificant. A possible interpretation, consistent with the remarks above, is that the financial domain effect of adaptation is “undone” by indirect effects of parental income (or correlates thereof) in other domains. It would be worthwhile to further pursue this issue in future research.

5 Conclusions

This paper examines a potential downside, or “hidden cost”, of high parental income on the financial satisfaction of children. We hypothesize that the availability of material resources while growing up is an important determinant of the level of income aspirations, and parental income serves as a proxy for these material resources. When compared to the actual own income situation, such unfulfilled expectations may cause financial dissatisfaction of the child.

We tested our hypothesis using data from the German Socio-Economic Panel 2000 to 2004. The results confirm, by and large, those of McBride (2001). This was not necessarily to be expected as we use a different data set for a different country and period of time, a different dependent variable (financial satisfaction rather than subjective well-being) and a different measure for the internal income norm (direct income information for parents rather than a subjective comparison by the child).

The negative externality of parental income on the well-being of children implies, for example, that own income must increase by about a quarter of a percent to compensate (in terms of constant financial satisfaction) for each percent increase in parental income. Our results are robust to various model specification changes, OLS versus between estimation, using ranks rather than levels, or splitting the sample into West and East German observations.

Since we focus on income only, our study can not say anything on the transmission of standard of living norms through parental wealth. Presumably, this is an important channel as well and

thus the overall aspiration effect is possibly underestimated by our numbers. Finally, the results do not imply that parents shouldn't try to provide their children with the best possible, nourishing environment to grow up in. However, a focus on material aspects may be less beneficial than investing in the stimulation of artistic, intellectual and social development (all areas in which such adaptation effects are presumably less pronounced).

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Table 1: Sample Means of Selected Variables (N=4697)

Variable	<u>Children</u>		<u>Parents</u>	
	Mean	Std. Err.	Mean	Std. Err.
<i>Log household income</i>	8.164	0.008	8.331	0.006
<i>Log Household size</i>	0.763	0.007	0.868	0.004
<i>Financial satisfaction</i>	6.078	0.031	6.076	0.028
<i>Age</i>	30.25	0.083	57.42	0.114
<i>Years of schooling</i>	12.46	0.036	11.20	0.031
<i>House ownership</i>	0.258	0.006	0.571	0.007

Table 2: Regression results for adaptation to parental income

Dependent Variable: Financial Satisfaction					
	(1)	(2)	(3)	(4)	(5)
<i>Log own income</i>	1.905**	1.887**		1.647**	1.800**
	(0.106)	(0.103)		(0.110)	(0.112)
<i>Log parental income</i>	0.094	-0.331**			-0.208*
	(0.089)	(0.093)			(0.112)
<i>Log rank own income</i>			0.785**		
			(0.050)		
<i>Log rank parental income</i>			-0.177**		
			(0.045)		
<i>Parents' income higher</i>				-0.413**	
				(0.080)	
<i>(Log par. inc. – Log own inc.)</i>					-0.305**
× <i>(par. inc. higher)</i>					(0.145)
<i>Parent's fin. sat.</i>		0.222**	0.227**	0.215**	0.222**
		(0.023)	(0.023)	(0.022)	(0.023)

Notes:

Source: German Socio-Economic Panel 2000-2004. n=4697

Standard errors in parentheses; Significance levels: * 10%, ** 5%;

The dependent variable is the respondents' financial satisfaction coded from 0 to 10. The pooled models have been estimated by ordinary least squares, and the standard errors are adjusted for clustering. All models include controls for household size, health, age, education, gender, employment and marital status, house ownership and the data wave.

Table 3: Regression results using individual means

Dependent Variable: Financial Satisfaction					
	(1)	(2)	(3)	(4)	(5)
<i>Log own income</i>	1.872**	1.856**		1.562**	1.730**
	(0.122)	(0.117)		(0.133)	(0.126)
<i>Log parental income</i>	0.106	-0.471**			-0.287**
	(0.099)	(0.110)			(0.129)
<i>Log rank own income</i>			0.738**		
			(0.053)		
<i>Log rank parental income</i>			-0.232**		
			(0.055)		
<i>Parents' income higher</i>				-0.535**	
				(0.125)	
<i>(Log par. inc. – Log own inc.)</i>					-0.543**
× <i>(par. inc. higher)</i>					(0.198)
<i>Parent's fin. sat.</i>		0.285**	0.285**	0.266**	0.286**
		(0.027)	(0.027)	(0.025)	(0.027)

Notes: see Table 2; n = 1434.

Table 4: Further sensitivity checks

	Financial Satisfaction				Life Satisfaction	
	<u>East Germany</u>		<u>West Germany</u>		OLS	Between
	OLS	Between	OLS	Between		
<i>Log own income</i>	2.205 (0.172)	2.140 (0.227)	1.566 (0.173)	1.566 (0.193)	0.420 (0.068)	0.367 (0.083)
<i>Log parental income</i>	-0.201 (0.179)	-0.509 (0.236)	-0.250 (0.140)	-0.288 (0.166)	0.070 (0.063)	0.008 (0.071)
<i>Parent's fin. sat.</i>	0.188 (0.042)	0.267 (0.052)	0.184 (0.038)	0.208 (0.047)	0.137 (0.021)	0.172 (0.022)
<i>Observations</i>	1297	381	2143	595	4722	1440

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