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Savings and Consumption When Children Move Out

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German Socio-Economic Panel Study (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: Uta Rahmann | soeppapers@diw.de

Savings and Consumption When Children Move Out[a]

Simon Rottke[b] and Alexander Klos[c]

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Abstract

Based on the Italian Survey on Household Income and Wealth (SHIW) and the German Socio-economic Panel (SOEP), we show that household consumption drops after a child moves out of a household, while at the same time, per capita consumption increases significantly. Parents approximately upgrade their personal lifestyle up to the level of childless peers after all children are gone and save only a small proportion of the freed-up resources. Since parents had fewer resources to save while they were young, retirement preparedness among them is a more serious concern than among childless individuals.

Keywords: Household Finance, Consumption, Savings, Children, Retirement Preparedness

JEL-Classification: D12, D14

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[b] Corresponding Author, Institute for Quantitative Business and Economics Research (QBER), Christian-Albrechts-Universität zu Kiel, Heinrich-Hecht-Platz 9, 24118 Kiel, Germany, simon.rottke@qber.uni-kiel.de, +49-431-8805596.

[c] Institute for Quantitative Business and Economics Research (QBER), Christian-Albrechts-Universität zu Kiel, Heinrich-Hecht-Platz 9, 24118 Kiel, Germany, alexander.klos@qber.uni-kiel.de, +49-431-8805551.

1. Introduction

The adequacy of savings rates represents a hotly debated topic in the field of household finance. While a number of papers argue that households do not save enough in order to maintain their consumption level in retirement and even go as far as speaking of a "retirement savings crisis" (Munnell et al., 2007, p. 6, or Benartzi and Thaler, 2013, p. 1152), others disagree. Scholz et al. (2006), Gale et al. (2009) as well as Love et al. (2009) see American households generally preparing well for retirement. German households are even shown to be "enthusiastic" in terms of saving (Börsch-Supan and Essig, 2005).

The difficult question of how much wealth a household needs to meet consumption needs during retirement has many facets, one being the role of children. Households' consumption needs obviously change over time in the presence of children. This paper looks at the point in time when children move out because this event is likely to free up financial resources. Specifically, we analyze how parents' savings and consumption change after this potential turning point. If parents use the freed up resources to save more and build up wealth in the years remaining before retirement and continue to consume in a similar order of magnitude in terms of personal consumption as before, they may not be at risk of having inadequate resources later in life. Furthermore, their consumption needs may be relatively low, since they could be accustomed to consume less than their childless peers from the time when the children were still there. But if parents choose to consume more after their children leave the household, they may not have enough time left to build up the financial resources that are necessary to maintain the higher standard of living after retirement.

Skinner (2007, p. 69), who critically reviews the debate, summarizes the former reasoning as follows:

> *"Parents are already used to getting by on peanut butter, given that a large preretirement budget has been devoted to supporting children, so it's not difficult to set aside enough money to keep them in peanut butter through retirement. By contrast, childless households with the same income accustomed to caviar and fine wine must set aside more assets to maintain themselves in the style to which they have become accustomed."*

Skinner (2007) further suggests that part of the disagreement on retirement preparedness may be caused by different assumptions about the consumption behavior of parents after the kids move out.

This paper tackles this question empirically by analyzing changes in households' savings and consumption behavior at and after the point in time when children move out. The time after the move-out is critical to assess the empirical role of children in building up retirement wealth, as the household is typically close to its own income peak and changes in the consumption/savings behavior matter most for final retirement wealth.

The analysis is based on the Italian Survey on Household Income and Wealth (SHIW) and the German Socio-economic Panel (SOEP). To the best of our knowledge, this is the first paper that addresses this particular issue on large representative panel datasets.

We employ fixed effects (SHIW) and random effects Tobit (SOEP) panel regressions to show that parents use parts of the freed up resources after a child moves out to increase their savings. At the same time, parents upgrade their per capita consumption to a level around that of childless peers.

The decrease in consumption starts approximately one year after the move-out and is significantly more pronounced for university graduates. Adding support payments to non-

resident children alleviates the reaction – especially for those with a university degree. This leads to the conclusion, that university graduates financially support their children more extensively than others.

These results have implications for the practice of retirement savings advice. A reasonable starting point for assessing the target standard of living of parents is current total household consumption adjusted for the number of children. However, this starting point may lead to a severe underestimation of the target wealth at retirement if parents plan to consume significantly more after the kids have left. As a consequence, retirement preparedness may be a more serious concern for parents than for their childless peers.

2. Related Literature

Our research is related to the large literature on life-cycle theories, which goes back to Friedman (1957) and Modigliani and Brumberg (1954). This literature typically considers a forward looking agent with time-constant and separable utility function $u(C_t)$ in period t who maximizes her consumption plan. With a constant interest rate r and a constant intertemporal discount rate equal to r, one obtains the well-known first-order condition $E_{t-1}[u'(c_t)]=u'(c_{t-1})$ for a given household. Households smooth marginal utilities, and if utility functions are quadratic, they also smooth consumption per se. However, a large number of studies have found only modest empirical support for consumption smoothing (see Jappelli and Pistaferri, 2010 for a recent review). In particular, consumption is not smooth but rather increases over the typical life-cycle in the beginning and decreases later in life (Thurow, 1969). At first glance, consumption appears to be tracking income, meaning, the more a household earns, the more it consumes (Carroll and Summers, 1991).

Irvine (1978) was one of the first to suggest that some part of the observed behavior could be due to changes in family size. Similarly, Attanasio et al. (1999) argue that uncertainty with respect to income and capital markets as well as demographics – in particular the number of children – suffice to generate the "hump" in consumption. Attanasio and Browning (1995) demonstrate the importance of family effects for explaining the excess sensitivity of consumption to income. In their analysis of UK Family Expenditure Survey (FES) data from 1970 to 1986, it virtually disappears once demographics are controlled for. Browning and Ejrnæs (2009) show that household composition can fully explain the hump-shape, if the number and age of children are taken into account.

The effect of children on the optimization problem is usually modelled through a period utility function that depends not only on consumption but also on family tastes (see, e.g., Zeldes, 1989). In order to estimate the influence of children empirically, additional assumptions on the precise functional form of how children affect the utility of a household are needed (see Browning and Ejrnæs, 2009, for a recent example).

Our paper focuses solely on the point in time where children move out. By doing so, our study creates empirical facts about consumption changes when children decide to leave the household. This direct approach has the advantage that explicit assumptions about how children affect the utility of a household are not needed and that (in the case of fixed effect estimation) unobserved time-invariant differences between households are controlled for.

Studies investigating this particular time of children moving out are scarce. By calibrating and solving a comprehensive life-cycle model, Love (2010) prescribes an increase in savings right around the age at which children move out of the household and finish post-secondary school as optimal behavior. He derives a "hump-shaped" consumption path similar to that observed in other studies, with a noticeable upturn in savings at the age when children leave the

household. One additional interesting feature of his model is a slow drawdown of wealth in retirement, stressing the importance of bequest motives. Both the acceleration in savings and the lower drawdown of resources are even more pronounced for college graduates. Unlike Love (2010), our empirical analysis is not based on a life-cycle model and our interest is on households' consumption reactions and not their asset allocation changes. Although our approach differs substantially from Love (2010), we can confirm the empirical prediction of his model that educated households' consumption decreases more when children move out.

Similar to our approach, Coe and Webb (2010) empirically identify households whose children move out in a household survey (the U.S. Health and Retirement Study (HRS) from 2001 to 2007). They find no significant change in nondurables household consumption and consequently a sharp increase per capita.[1] Their results are based on 2,880 observations from 833 households. While 90 of these units have children, only 36 households report a move-out during that period. The average parent's age of the latter is 60 for men and 56 for women at the time of the children's exit, which they acknowledge to be considerably older than their cohorts' averages. They hypothesize that since these individuals are rather close to retirement, they might be more responsive to the move-out of their children when it comes to finally starting to put more money aside for retirement. From that perspective, their results seem to be even more striking. However, their evidence is based on the elderly with a relatively low

[1] There is also a literature that looks directly on household expenditures in the presence of children. Coulibaly and Li (2006) and Souleles (1999) find a general sensitivity of non-durables and in particular food consumption to changes in the number of children. These results seems to be at odds with Coe and Webb (2010). However, this literature does not distinguish between children moving in (or being born) and moving out. Furthermore, they use the Consumer Expenditure Survey, which does not allow consistent measurement of children moving out for different household types, such as singles or households with more than two adults. There is also no information about non-resident children, which renders a distinction by the number of children and order of move-outs impossible.

number of observations. Our paper adds to their findings by empirically analyzing the reaction in parents' consumption in two representative samples with the whole age range considered. The results are therefore not subject to selection bias with respect to age that is potentially present in the HRS data and rely on a large number of observations. As it turns out, we find a decrease in overall and nondurables consumption, while simultaneously observing an increase of overall per capita consumption.

3. Data

We use the Italian Survey on Household Income and Wealth (SHIW) and the German Socio-economic Panel (SOEP) to conduct our analyses. The former is made available by Banca d'Italia, the latter by the "Deutsches Institut für Wirtschaftsforschung" (DIW). The variables of interest for our purposes are available from 1995 in both datasets. Since then, the SHIW was carried out biennially except between 1995 and 1998, where the gap amounted to three years. The SOEP is an annual panel.[2] Our data set consists of 8,185 (16,896) households in Italy (Germany). The typical household stays several years in the survey and each household generates one observation in one wave, amounting to 27,556 (111,158) observations in Italy (Germany). Table I summarizes our sample and indicates the number of households that had to be excluded from the analysis and the corresponding reasons for the exclusion.

Insert Table I here

All monetary values are converted into year 2005 Euros with the consumer price index (CPI) provided by The World Bank for the Italian data and the Federal Statistical Office of Germany for the German data respectively. Pre 2002 monetary values denominated in Italian

[2] See Wagner et al. (2007) for a recent review and thorough description of the SOEP.

Lire or Deutschmarks (DM) are recalculated to Euros (EUR) using the irrevocable conversion rates of 1 EUR = 1,936.27 Lire = 1.95583 DM set by the European Central Bank on December 31st, 1998.

Our main dependent variable, consumption, is the sum of durables and non-durables consumption in the SHIW and does not include housing expenditure, i.e., rent or mortgage payments, utilities or maintenance costs.[3] The SHIW consumption data has recently been used by Bottazzi et al. (2013), Jappelli and Padula (2013), Krueger and Perri (2011) and Kaufmann and Pistaferri (2009). Jappelli and Pistaferri (2010a) validate the consumption data using national accounts data and find that the SHIW data provide a reasonable approximation of Italian households' consumption. We make use of the panel structure of the data by employing a fixed effects estimator to explain log consumption in the Italian data.[4]

Since the SOEP does not provide consumption data directly we infer it as the residual of income[5] and financial savings[6] as well as all payments to non-household-residents, rent or

[3] The consumption question explicitly rules out these items. While rent is asked for in a separate question, utilities are not collected in the SHIW questionnaire.

[4] By using a fixed effects estimator, we follow the recommendations of Gormley and Matsa (forthcoming) on how to control for unobserved heterogeneity.

[5] The corresponding SOEP question reads: "If you take a look at the total income from all members of the household: how high is the monthly household income today? Please state the net monthly income, which means after deductions for taxes and social security. Please include regular income such as pensions, housing allowance, child allowance, grants for higher education, support payments, etc. If you do not know the exact amount, please estimate the amount per month." (SOEP, 2007a, Household question form, question 51). Appendix B and Drechsel-Grau and Schmid (2013) clarify why this so-called "income screener" is preferable over more detailed yearly income measurements. We add reported income from assets, i.e. interest, dividends and rents, as these are asked separately and are not mentioned in the question.

mortgage payments and utilities.[7] By design the question for financial savings does not cover negative amounts, i.e. drawing down wealth or taking up debt to finance consumption levels larger than the household's income. This constitutes a left-censoring at zero of the financial savings variable. Consequently, consumption is right-censored at income less financial savings and the other deductions. As we want to conduct inference on the unobserved latent consumption variable with only its censored version being observed, we resort to a Tobit Type I model (Tobin, 1958). Since we deal with panel data, we employ a random effects estimator.[8]

Notice that both datasets have their advantages and disadvantages. The SOEP is a large representative panel with 14 time periods and, on average, 6.6 observations per household. The SHIW offers only eight periods and contains more than 75 % singletons that cannot be used in fixed effects analyses. On the other hand, the SOEP does not directly collect consumption, forcing us to use the approximation procedure described above and leaving us

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[6] The SOEP question about savings reads: "Do you usually have an amount of money left over at the end of the month that you can save for larger purchases, emergency expenses or to acquire wealth?" (SOEP, 2007a, Household question form, question 52)

[7] See, e.g., Drechsel-Grau and Schmid (2013) and Schwerdt (2005) for other SOEP papers, where consumption is constructed in a similar way.

[8] See, e.g., Corneo et al. (2010), Fuchs-Schündeln (2008) and Guariglia (2001) for examples of random effects Tobit models with panel savings data. Fixed effect approaches with censored data can suffer from incidental parameter problems (Neyman and Scott, 1948), inconsistent estimation of the disturbance variance (Greene, 2004), and are generally difficult to solve when the number of individuals is large and the number of time periods is limited.

with a right-censored measure.[9] The SHIW explicitly asks for consumption and even allows us to look at durables and non-durables separately.[10] Using both datasets gives us the opportunity to alleviate concerns about their respective weaknesses and provides replications for two different countries.[11]

In order to approximate per capita consumption, we divide household consumption by an equivalence scale. Similar to Citro and Michael (1995), we take the sum of the number of adults and children living in the household. Instead of multiplying the number of children with a fixed weight, we employ an age-factor that linearly grows from zero to one until the oldest child turns 18. This hinges on the assumption that the age gaps between children are narrow but it should nevertheless come as an improvement over simply giving children of all ages the same weight. We assume smaller economies of scale than Citro and Michael (1995),

[9] This constitutes a reasonable, albeit not perfect proxy for consumption. A comparison of the 2008 SOEP wave and the 2008 wave of the Einkommens- und Verbrauchsstichprobe (EVS) reveals a systematic downward bias of our measure. However, we do not find evidence of this bias interacting with our research question. See Appendix B for a detailed depiction of this comparison.

[10] See Appendix C.

[11] The importance of replications for scientific progress in empirical economics has been pointed out by many authors (see, e.g., Dewald et al., 1986, and Glandon, 2010). The topic has recently received increased interest in the social sciences as a whole (see, e.g., Maniadis et al., forthcoming, and the references therein). The journal "Perspectives on Psychological Science" has even introduced the "Registered Replication Report" as a new article type "which will consist of multi-lab, high-quality replications of important psychology experiments along with comments by the authors of the original studies" (quote from http://www.psychologicalscience.org/index.php/replication, last accessed on November 18, 2013). Although we are not providing "independent" replications (as we are replicating our own result), we still consider providing evidence from two household surveys as an additional advantage over and above the fact that each survey has its own pros and cons with respect to the research question.

who use 0.7, since we exclude housing costs, which constitute a major source of scale effects. Our scale coefficient amounts to 0.8 and the equivalence scale is shown below:[12]

$$EQS = (\#Adults + \frac{min(Age\ of\ oldest\ child; 18)}{18} \times \#Children)^{0.8} \quad (1)$$

Table II gives a brief overview of descriptive statistics of the different consumption measures. The measures are log transformed for the econometric analyses. The coefficients can therefore be interpreted as approximate percentage changes.

Insert Table II here

Our main explanatory variable is the event of children moving out, which we empirically identify in both datasets with different strategies. Italian respondents explicitly state the number of children living in and outside the household. Combined with answers from a question of children moving out, we can generate dummy variables taking the value of one whenever a move-out has occurred in the previous wave. This information is also available in the SOEP. For the analysis of the dynamics of move-outs, we simply lag this variable by various numbers of periods. For all other analyses, we are interested in the permanent effect of the move-out. Hence, we generate so-called state dummy variables that take on the value one and remain at one if a child has moved out one or more periods ago. For that, we do not actually need to observe the move-out, as we can infer it from the numbers of children living in- and outside the household.[13] To analyze the effect of the sequence of move-outs, these are

[12] As a robustness check we also use the original Citro and Michael (1995) equivalence scale and a simple sum of all household members. Both alternatives change the magnitudes of the coefficients, but conclusions are unaffected. Results can be found in Appendix D.

[13] In the SOEP, this information is not directly observable. Instead, we use data from eleven waves before our starting wave (1984 - 1994) and biography data of the household head to infer any move-outs that have occurred in the past.

differentiated by the total number of children a household has and the order of move-outs, e.g., the first of two and the second of two children.

Table III summarizes number of move-outs and observations after a move-out in the final samples, dissected by number of children and order of move-outs. Additionally, descriptive statistics for the state dummies, i.e., variables that switch to one after a child has moved out are presented (# Obs after).

Insert Table III here

Four dummy variables indicate the total number of children a family has, i.e. one, two, three or four or more. A household is not downgraded after children move out, as the corresponding effect is already captured by the aforementioned move-out variables.

The age of children has been shown to be positively related to their consumption needs and ultimately household consumption (see, e.g., Espenshade, 1974 or Browning and Ejrnæs, 2009). Therefore, the age of the oldest child living in the household is included by means of a dummy variable for children aged zero to twelve. Children older than twelve make up the base case where the dummy takes the value zero.

Alongside the number of children, the number of adults living in the household is controlled for as well, with couples marking the base case, singles receiving a separate constant and gender of single household heads being controlled for via a constant for female singles. Adult inhabitants in excess of two, i.e. excluding adult children, enter the regression linearly in a count variable.

Additional control variables[14] include whether or not the household head is widowed, married, separated or divorced, has a college education, is unemployed, self-employed or retired. A dummy for homeownership is included as well. Income and wealth are log transformed so that their coefficients can be interpreted as elasticities. Since wealth is not observed in the SOEP, we use log transformed income from assets as a proxy.[15]

Furthermore, observations are divided into twelve age groups, with each group comprising five years and the bottom and top group consisting of household heads younger than 26 and older than 75 respectively. We also use year dummies. For random effects models we include 20-year cohort dummies with cohorts ranging from born between 1900 and 1919 to born in 1980 or later.

Descriptive evidence on household level consumption for median households by the number of children is presented in Figure 1, Panels A and B. The well-known "hump-shape" pattern is clearly visible and significantly more pronounced for households with children and for the German data (Panel B). Income is plotted as the dotted grey line in order to assess the degree of income tracking.

Median per capita consumption, calculated by dividing by the linearly age adjusted equivalence scale, is illustrated in Panels C and D. The "hump" in consumption is again

[14] The Italian data also contains information about credit constraints (see, e.g., Jappelli, 1990). Including those neither produces a significant coefficient for credit constraints, nor does it significantly affect the other coefficients. Hence, we refrain from reporting the results in order to sustain a higher level of comparability between results of the two datasets.

[15] See, e.g., Kennickell and McManus (1993) who also use information from asset income to proxy wealth for the sampling design of the Survey of Consumer Finances and Avery et al. (1988) who resort to asset income for imputing missing asset values in the Survey of Consumer Finances. We add one before we log transform to be able to include households with zero wealth or zero income from assets.

clearly visible in the German data (Panel D), this time for the childless household, and less distinctly in the Italian data (Panel C). Households with children do not exhibit this pattern in their per capita consumption.[16]

Insert Figure 1 here

4. Results

The two box plots in Figure 2 give a first descriptive view on what happens around the time when the household experiences a move-out. Household consumption is plotted by year relative to a move-out, i.e. one year before a move-out (t-1), the year of the move-out (t), one year after a move-out (t+1) and so on.[17] If the notches of two adjacent boxes do not overlap, it can be interpreted as evidence that their respective medians differ significantly (see, e.g., Chambers, 1983). This is evidently the case when comparing consumption of the two preceding years to consumption in the year of and the year after a move-out in the Italian data (Panel A). Similarly, a drop can be observed between the year of a move-out and the directly following year in the German data (Panel B). Overall this can be viewed as a substantial indication in favor of households adjusting consumption downwards following a child's departure. Less pronounced but still visible is a downwards sloping trend in the following years in the German data. In the Italian data, we observe a second permanent drop in years four and five post move-out.

[16] Attanasio and Weber (2010) present similar profiles derived from the U.K. Family Expenditure Survey. They extend their presentation by distinguishing different cohorts. We also did this, but refrain from presenting the results here in favor of a simpler and cleaner picture, since we gain no additional insights for our research question.

[17] This example refers to the SOEP data in Panel B. For the SHIW data in Panel A, we have to use two-year periods, since we deal with a biennial panel.

Insert Figure 2 here

Table IV contains regression results for both surveys with household level and per capita consumption as dependent variables. Columns (1) and (2) deal with household level consumption for Italy and Germany respectively. For Italy, we report fixed effects results, since a Hausman test significantly rejects the null that the unobserved individual household effect is uncorrelated with the explanatory variables ($p<0.0001$). As discussed above, we resort to a random effects Tobit estimator to deal with the censoring of consumption in the German data.[18] The latter permits the inclusion of time-invariant cohort dummies, all of which are insignificantly different from zero, though. In both regressions we observe significantly negative coefficients for all but the first of three children, indicating a drop in household level consumption. The last child leaving typically yields the largest effect, with the third of three in Italy marking an exception. Also, if we disregard the households with four or more children (since we do not control for any but the last child moving out) the effect monotonically increases with family size in the Italian data. All in all, the evidence above clearly speaks in favor of households decreasing consumption after their children move out.[19]

Insert Table IV here

A simple example should further improve the understanding of these results. Assuming a single-child household earns 2,000 €, spends 900 € on housing and saves 100 € each month, the Italian results suggest a decrease in consumption of around 8 % after the move-out of their daughter or son. Hence, 920 € are being consumed ex-post, which essentially amounts to 80 € less. It is not too far-fetched to assume that the child had caused expenditures in excess of

[18] Alternative models are presented in Appendix A.

[19] As an additional robustness check we introduce a number of interaction terms to the move-out dummies. Our coefficients remain significant and even increase in magnitude and we get some additional plausible results for the interactions. Results can be found in Appendix E.

80 € each month, so most likely, parents also use some of that unknown amount for personal consumption or for supporting their offspring after they are gone.

The same example would lead to an extra saving of 44 € in the German data. Here, we can also look at between effects, since we employ a random effects model. The one-child dummy of 3.52 % leads to an increased consumption of 35 € in our example that the household with a child spends compared to a similar childless household. Adding them up gives us a total of 9 € that a household with one child consumes less than a comparable childless household after their child has moved out. This difference changes to 42 € and 2 € for two- and three-child households respectively. It essentially means that households who had children consume just slightly less than comparable childless households post move-out. The coefficient sum of the dummies for move-outs and the number of children is not significantly different from zero for one ($p=0.2085$), three ($p=0.8724$) and four ($p=0.2519$) children. Only households with two children consume significantly (but economically little) less ($p<0.0001$) than childless peers. These mixed results indicate that the hypothesis of parents remaining frugal after their children leave is unlikely to be true.

The coefficient sum of zero of the dummies for move-outs and the number of children in the random effects model should not be confused with households saving all funds that are now being available. Instead, it only means, that households now consume in a similar order of magnitude as comparable childless ones. In order to genuinely assess the share of savings of what had formerly been spent on children, specific data on the composition of household consumption would be needed. Consequently, all that can be inferred is that the hypothesis of continuation of the same household consumption level can be rejected.

To approximate per capita consumption, we next shift our focus to equivalence scale adjusted consumption regressions in columns (3) and (4). It becomes apparent that all coefficients in

both datasets are significantly positive and economically large, with magnitudes ranging from 7.63 % to as much as 40.34 % for the last child leaving a German household with four or more children. We can consequently dismiss the idea of no change in per capita consumption.

Also, parents do lead a more spartan life than childless peers in terms of personal consumption while children are still residents, as random effects coefficients (column 4) for any number of children are negative. Summing up the coefficients of the respective move-out dummies by family size and comparing it to the estimated effect of the number of children, reveals that they approximately sum up to zero. The respective coefficient sums are 0.0166 (p=0.0194), -0.0181 (p=0.0108), 0.0162 (p=0.1215) and -0.0026 (p=0.8476). So they are insignificantly different from zero for households with one, three and four or more children. For households with two children, the coefficient sum is significantly negative at the 5 % level, but the magnitude is economically small compared to the absolute size of the coefficients: Just 1.81 percentage points of the original 26.90 % gap between childless households and families with two children are not recovered post move-out.

So German parents consume less personally in the presence of children but they catch up once children are gone and consequently consume about the same as an otherwise comparable household in terms of the other control variables.[20] The move-out coefficients from the Italian data (column 3) are of similar magnitude and thereby support at least the idea of a significant upturn in personal lifestyle.[21]

[20] The effect can still be observed when we divide consumption by the number of inhabitants or the Citro and Michael (1995) equivalence scale. The scale coefficient would have to be as low as 0.3 in order to get continuation of per capita consumption for all family sizes. Results are documented in Appendix D.

[21] In a random effects model for the Italian data, found in Appendix A, these results can be confirmed, indicating that Italian parents also consume in similar orders of magnitude as childless peers post move-out.

Finally, we turn to the dynamics of the consumption reaction to a move-out (Table V). In the Italian data, we always look at two-year periods due to the biennial nature of the panel. University graduates and non-graduates receive separate interacted coefficients to compare their reactions. Differences in their saving behavior post move-out seem plausible, based on the assumption of a positive correlation of parental education with children's tertiary education costs. Italian non-graduates (column 1) do not exhibit major fluctuations in their reaction – at most a small increase in the reaction starting in the second year after the last child has left. University graduates, however, consume much less four years after their children are gone.

Insert Table V here

In the German data, we also found different consumption reactions for households with and without university degree. While the consumption reaction (column 2) for non-graduates is also rather immediate and stable, that for university graduates oscillates more and the average accumulated effect over several years is also larger.

The German data allow us to additionally measure payments to non-resident children. A corresponding question was explicitly asked in the survey. If we add the payments to non-resident children to households' consumption (column 3), the non-graduate consumption reaction is considerably smaller but still rather stable. In contrast, the graduates' reaction is now much lower in most years and even insignificantly positive in the third year. Even the permanent effect (t-5+) with -0.0147 is much smaller than with payments to children outside the household excluded (-0.0675). Figure 3 illustrates the differences in reactions depending on the exclusion (Panel A) or inclusion (Panel B) of payments to non-resident children. These results lead to the conclusion that households whose head has a university degree apparently

support their children more extensively than others – particularly in the first four years.[22] Furthermore, results from column (2) suggest this generosity is partly financed at the expense of their own consumption, since their cumulated abstention from consumption, particularly in the first four years, is larger.

Insert Figure 3 here

5. Discussion

The goal of this paper is to improve the understanding of households' saving and consumption behavior around the time when children move out. We show that households' consumption drops significantly and permanently one year after the occurrence of the event. The effect is most pronounced for the last child, but even the first of two and the second of three children exiting involve a significant decrease in consumption. On the per capita level, parents were shown to consume less personally during the period when children live with them than childless households. After each exiting child, they increase their personal consumption significantly. After all children are gone, their personal consumption is approximately leveled with that of their childless peer group in random effects models, where we can draw between subject inference. In essence, households were shown to use some of the newly available funds for an increase in savings and at the same time for a significant upgrade of their own personal lifestyle. The effect is rather immediate for households with no university degree. German university graduates are shown to support their children more

[22] This is clearly supported with data from a fixed effects regression of lagged move-out dummies on log payments to non-resident children, reported in Appendix F. There, we also show that parents supporting children is not nearly offset by the opposite channel, i.e. children supporting their parents. The latter is rare and much smaller in average value than the former. Furthermore, in Appendix C, we show that households do use some of the freed-up resources for increases in saving.

extensively at the expense of their personal consumption. This result represents evidence against parents targeting per capita consumption when determining retirement saving wealth.

The results entail a number of implications. First of all, parents do react to children moving out in a non-negligible manner. Consequently, the event of children moving out should be incorporated when attempting to assess the adequacy of saving rates or when planning the individual retirement savings.

Second and most important, parents significantly increase their per capita consumption on average, approximately up to that of childless peers, who have been able to save more money earlier in their lives. Late in life, their resources will be more limited and they will not be able to continue with their accustomed lifestyle in general. Hence, even though there is a small savings boost after children move out, it may not be enough. Affected households will likely need to save more to make up for the smaller efforts earlier in life, if they want to continue to experience the lifestyle that they exhibit in this study. If they do have stronger bequest motives, which are reasonable to assume as they – as opposed to childless households – have natural candidates to bequeath to, the problem will be even more severe.

Finally, these results also have practical implications for financial advice on retirement planning. Parents behave as if they plan to increase their personal consumption after children

move out. Smart financial advisors should take this into account while recommending a specific retirement saving plan.[23]

[23] To the best of our knowledge, there is currently only limited evidence on how the financial service industry does exactly threat children (or the number of household members in general) when making retirement savings suggestions. Turner and Witte (2009) document a huge amount of heterogeneity in the treatment of children among twelve free and professional retirement planning software programs. Only one of the professional program scales consumption needs by the number and age of children in the household. None of the free planning software programs assess the number of dependent children (see Turner and Witte, 2009, page 83).We hope to see more research on this issue in the near future.

Tables

Table I. Composition of different samples

The table documents the derivation of the different samples used for the analyses starting from the original SHIW sample. It furthermore indicates the number of households and observations dropped in each step and those remaining in each sample.

Panel A: Italy (SHIW 1995 - 2010)		
	# HHs	**# Obs**
Original SHIW sample (1995 - 2010)	**36,328**	**63,002**
– HHs with moving head of HH[24] or changing single	-2,186	-9,215
– Obs with invalid consumption data[26]	-464	-738
Final sample for RE analysis	**33,678**	**53,049**
– HHs with only one observation	-25,493	-25,493
Final sample for FE analysis	**8,185**	**27,556**
– Obs from 1995[28] and where year of past move-out is indeterminable	-2,220	-7,890
Final sample for dynamics analysis	**5,806**	**19,095**

Panel B: Germany (SOEP 1995 - 2008)		
	# HHs	**# Obs**
Original SOEP sample (1995 - 2008)	**20,610**	**144,159**
– Obs with missing or invalid financial data[25]	-3,514	-30,373
– Obs with missing values in independent variables	-200	-2,628
Final sample for RE analysis	**16,896**	**111,158**
– *(HHs with only one observation)*	*(-1,920)*	*(-1,920)*
(Final sample for FE analysis)[27]	***(14,976)***	***(109,238)***
– Obs with indeterminable lagged move-out variables	-1,247	-9,434
Final sample for dynamics analysis	**15,649**	**101,724**

[24] The exclusion of households with a moving head of household follows Jappelli and Pistaferri (2010b).

[25] Observations where consumption of 1 Euro per day per person or less is declared are dropped.

[26] Invalid financial data refers to consumption or income being smaller or equal to 1 Euro per day per person.

[27] Since there is no fixed effects Tobit estimator, this is only used as a robustness check with the censoring ignored (see Appendix A). The final sample for dynamics analysis includes households with only one observation again.

[28] The next wave was conducted in 1998 and the panel was carried out biennially from then on. Since we need an equal distance between observations to consistently analyze dynamics, the year 1995 has to be dropped.

Table II. Descriptive statistics of consumption

Monthly household and per capita consumption (all in year 2005 EUR, differentiated by durables and non-durables for the SHIW data) are log-transformed in the analyses but their descriptive statistics are presented here before transformation for the purpose of convenient interpretation.

	Mean	**Std. Dev.**	**Q10**	**Median**	**Q90**
Panel A: Italy (SHIW 1995 - 2010) [27,556 Obs]					
Household Consumption	1,354	907	535	1,165	2,411
- Non-durables	1,201	683	519	1,070	2,038
- Durables	153	465	0	0	492
Per Capita Consumption	698	430	321	604	1,165
Panel B: Germany (SOEP 1995 - 2008) [111,158 Obs]					
Household Consumption (right-censored)	1,578	2,804	495	1,321	2,776
Per Capita Consumption (right-censored)	863	2,536	337	729	1,407

Table III. Number of affected observations for move-outs

The table displays the number of move-outs and observations after a move-out in the final samples for baseline analysis by chronological order of move-outs and total number of the household's children. The last column ("Last") summarizes all move-outs of the households' last child.

Move-out	1 of 1	1 of 2	2 of 2	1 of 3	2 of 3	3 of 3	Last of 4+	Last
Panel A: Italy (SHIW 1995 - 2010) [27,556 Obs]								
# Move-outs	198	397	336	153	140	109	72	748
# Obs after	2,737	5,931	3,942	2,700	2,181	1,471	901	9,042
Panel B: Germany (SOEP 1995 - 2008) [111,158 Obs]								
# Move-outs	631	725	747	227	236	228	98	1,683
# Obs after	11,820	17,295	12,138	7,587	5,998	4,180	2,309	30,447

Table IV. Regression results for Italian and German household level and per capita consumption

Results of regressions on (non-housing) consumption are presented in this table. The first two columns display results on the household level and columns (3) and (4) show results on per capita consumption. The table further documents coefficients for the control variables and the constant coefficient. Cohort dummies are time-invariant and hence omitted in the fixed effects regression. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)		(4)	
Dataset	Italy (SHIW)		Germany (SOEP)		Italy (SHIW)		Germany (SOEP)	
Model Type	Fixed Effects		Random Effects Tobit		Fixed Effects		Random Effects Tobit	
Dependent variable	Log(HH consumption)		Log(HH consumption)		Log(pc consumption)		Log(pc consumption)	
Move-out 1 of 1	-0.0797	(0.0323)**	-0.0440	(0.0075)***	0.1231	(0.0326)***	0.1051	(0.0077)***
Move-out 1 of 2	-0.0434	(0.0225)*	-0.0390	(0.0073)***	0.1689	(0.0225)***	0.1496	(0.0075)***
Move-out 2 of 2	-0.0855	(0.0278)***	-0.0508	(0.0088)***	0.0922	(0.0282)***	0.1037	(0.0090)***
Move-out 1 of 3	-0.0121	(0.0342)	-0.0089	(0.0127)	0.1267	(0.0341)***	0.1174	(0.0130)***
Move-out 2 of 3	-0.1326	(0.0343)***	-0.0302	(0.0143)**	0.0763	(0.0347)**	0.1866	(0.0146)***
Move-out 3 of 3	-0.0851	(0.0411)**	-0.0442	(0.0140)***	0.1056	(0.0428)**	0.1104	(0.0143)***
Move-out last of 4+	-0.1801	(0.0532)***	-0.0612	(0.0160)***	0.1517	(0.0555)***	0.4034	(0.0164)***
1 child	0.1049	(0.0355)***	0.0352	(0.0057)***	0.0790	(0.0362)**	-0.0868	(0.0059)***
2 children	0.1632	(0.0442)***	0.0476	(0.0065)***	-0.0329	(0.0452)	-0.2690	(0.0066)***
3 children	0.2473	(0.0637)***	0.0816	(0.0097)***	-0.1476	(0.0662)**	-0.4039	(0.0099)***
4+ children	0.2194	(0.0914)**	0.0767	(0.0116)***	-0.1693	(0.0920)*	-0.3907	(0.0119)***
Oldest child <13	-0.0253	(0.0161)	-0.0336	(0.0049)***	0.1387	(0.0166)***	0.1531	(0.0051)***
Widowed	-0.0459	(0.0391)	-0.0414	(0.0080)***	-0.0471	(0.0390)	-0.0119	(0.0082)
Separated/divorced	-0.0230	(0.0383)	-0.0247	(0.0055)***	-0.0394	(0.0385)	-0.0462	(0.0057)***
Married	0.0247	(0.0343)	-0.0298	(0.0046)***	0.0220	(0.0345)	-0.0285	(0.0048)***
Single	-0.1181	(0.0326)***	-0.0552	(0.0061)***	0.3823	(0.0343)***	0.4489	(0.0063)***
Female single	-0.0314	(0.0379)	-0.0110	(0.0063)*	-0.0730	(0.0378)*	-0.0620	(0.0064)***
# add. adults	0.0772	(0.0147)***	0.0100	(0.0064)	-0.1324	(0.0153)***	-0.1884	(0.0065)***
University degree	0.0243	(0.0447)	-0.1012	(0.0048)***	0.0228	(0.0454)	-0.0953	(0.0049)***
Unemployed	-0.0135	(0.0229)	0.0245	(0.0051)***	-0.0196	(0.0230)	0.0138	(0.0052)***
Self-employed	0.0009	(0.0202)	-0.0001	(0.0068)	0.0014	(0.0203)	-0.0020	(0.0070)
Retired	-0.0310	(0.0135)**	0.0411	(0.0059)***	-0.0306	(0.0136)**	0.0391	(0.0060)***
Home owner	-0.0278	(0.0134)**	-0.1271	(0.0037)***	-0.0316	(0.0135)**	-0.1316	(0.0038)***
Log(income)	0.2807	(0.0101)***	1.0933	(0.0038)***	0.2628	(0.0101)***	1.0591	(0.0039)***
Log(wealth or assetinc.)	0.0130	(0.0024)***	-0.0004	(0.0008)	0.0128	(0.0024)***	0.0037	(0.0007)***
Age dummies	yes		yes		yes		yes	
Year dummies	yes		yes		yes		yes	
Cohort dummies	no		yes		no		yes	
Constant	4.8931	(0.1127)***	-1.0512	(0.0361)***	4.2731	(0.1122)***	-1.5806	(0.0365)***
Observations	27,556		111,158		27,556		111,989	
Censored			20,426				20,430	
R^2 (within)	0.1217				0.1009			
R^2 (between)	0.6639				0.5115			
R^2 (overall)	0.5342				0.3789			
Log-Likelihood			-45,256				-48,000	

Table V. Regression results for Italian and German household level consumption

This table shows lagged reactions to the move-out of the last child of a household. Lags in column (1) comprise two-year bands, whereas the German data (columns 2 and 3) permits to use yearly lags relative to the move-out year t. Coefficients are furthermore separated by those household heads with and those with no university degree. Control variables are not presented for brevity. Cohort dummies are time-invariant and hence omitted in the fixed effects regression. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)			(2)		(3)	
Dataset	Italy (SHIW)			Germany (SOEP)		Germany (SOEP)	
Model Type	Fixed Effects			Random Effects Tobit		Random Effects Tobit	
Dependent variable	Log(HH consumption)			Log(HH consumption)		Log(HH consumption + payments to non-resident children)	
Move-out last child	Year relative to move-out t			Year relative to move-out t			
Move-out × no uni	t - t-1	-0.0870	(0.0272)***	t	-0.0138	(0.0096)	0.0044 (0.0090)
Move-out × no uni	t-2 - t-3	-0.1055	(0.0313)***	t-1	-0.0752	(0.0107)***	-0.0425 (0.0100)***
Move-out × no uni	t-4 - t-5	-0.1335	(0.0344)***	t-2	-0.0673	(0.0111)***	-0.0433 (0.0103)***
Move-out × no uni	t-6+	-0.1166	(0.0382)***	t-3	-0.0508	(0.0114)***	-0.0273 (0.0107)**
Move-out × no uni				t-4	-0.0441	(0.0117)***	-0.0309 (0.0109)***
Move-out × no uni				t-5+	-0.0554	(0.0071)***	-0.0380 (0.0066)***
Move-out × uni	t - t-1	-0.1489	(0.0674)**	t	-0.0589	(0.0168)***	-0.0155 (0.0156)
Move-out × uni	t-2 - t-3	-0.1049	(0.0672)	t-1	-0.1103	(0.0181)***	-0.0295 (0.0170)*
Move-out × uni	t-4 - t-5	-0.2553	(0.0788)***	t-2	-0.1007	(0.0193)***	-0.0374 (0.0182)**
Move-out × uni	t-6+	-0.2607	(0.1217)**	t-3	-0.0394	(0.0199)**	0.0128 (0.0187)
Move-out × uni				t-4	-0.0772	(0.0203)***	-0.0030 (0.0191)
Move-out × uni				t-5+	-0.0675	(0.0112)***	-0.0147 (0.0105)
Other controls		yes			yes		yes
Age dummies		yes			yes		yes
Year dummies		yes			yes		yes
Cohort dummies		no			yes		yes
Observations		19,095			101,724		101,724
Censored					18,749		18,848
R^2 (within)		0.1139					
R^2 (between)		0.5966					
R^2 (overall)		0.4726					
Log-Likelihood					-40,222		-34,943

Figures

Figure 1. Median life-cycle consumption by number of children

Median consumption is presented by number of children for different age-groups. The first row shows household level consumption whereas the second row displays per capita consumption calculated by an age-adjusted equivalence scale. The left column represents Italian data from the SHIW and the right column German data from the SOEP. Age groups on the x-axes comprise five years of age (except for the first and last one) and permit a noise-reduced view of life-cycle consumption. Median income of all households is additionally presented in Panels A and B as the dashed grey line in order to assess the role of income tracking.

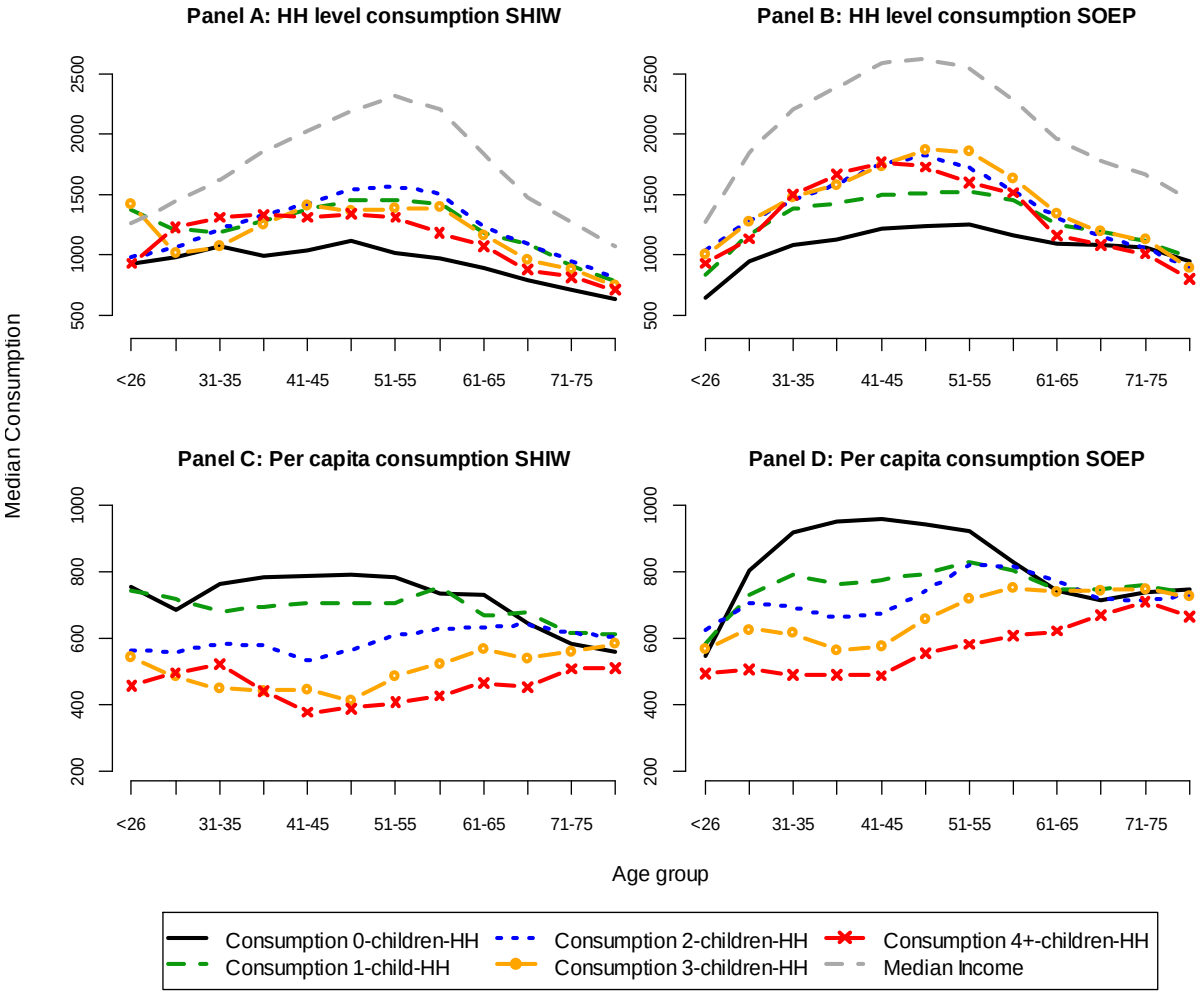


Figure 2. Boxplots of consumption around the time of a child moving out

The boxplot displays consumption for the year(s) before, the year of and years subsequent to a move-out of a child as well as for all observations where a move-out has occurred eight or more years ago. The lines in the middle of the boxes refer to the medians, the boxes represent the interquartile range and the whiskers indicate the extremes of the distribution, as long as their distances to the median do not exceed 1.5 times the interquartile range.

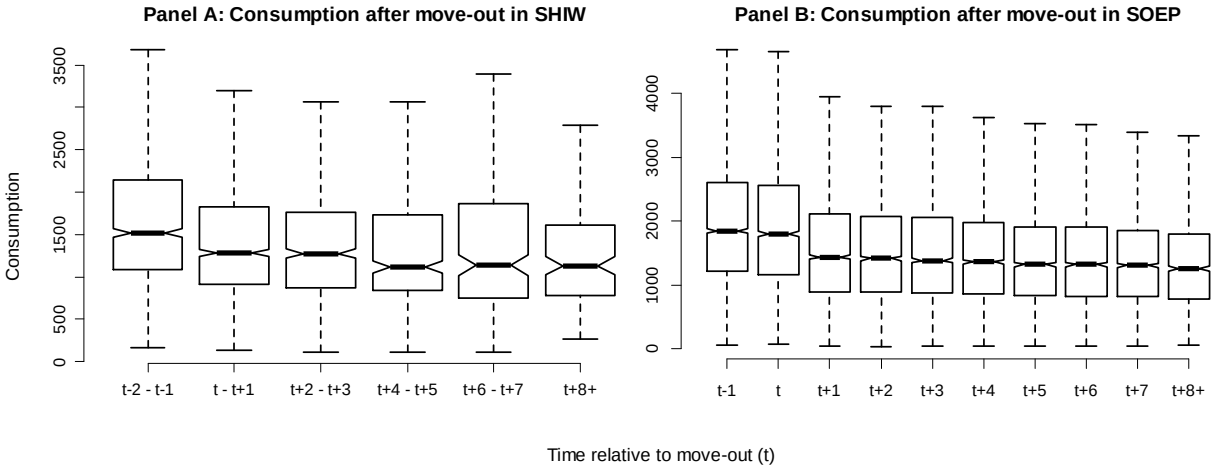
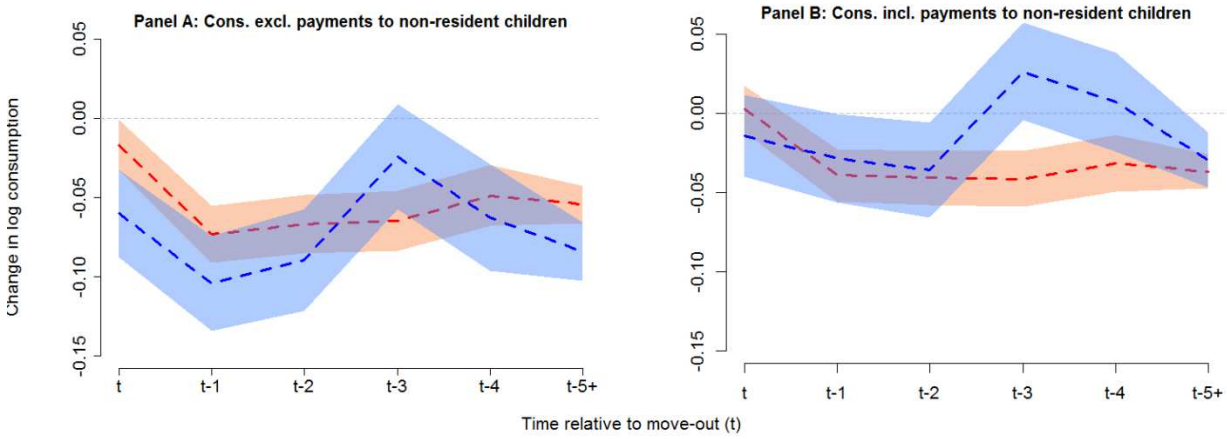


Figure 3. Coefficients of lagged move-outs including and excluding payments to non-resident children

This figure draws the lagged move-out coefficients derived from random effects Tobit regressions on log consumption (see Table 5 columns 2 and 3) and their 90 % confidence intervals. The coefficients are separately derived for university graduates (blue) and non-graduates (red).



Appendix

A Alternative model types for household level and per capita consumption

In this section, we use alternative models to estimate the coefficients. By doing so, we want to assess the robustness of our estimates and furthermore gain additional insights that come with different model types.

Table A.I. Different model types for Italian household level consumption

This table shows regressions on Italian household level non-housing consumption data with different model types. Consumption is artificially censored in column (1) to be able to run a Tobit regression. Column (2) presents results of a random effects estimator. The results of a first difference approach are presented in column (3). Column (4) displays the results of a fixed effects estimator as used in the main analysis for reference purposes. Age dummies and the age of the oldest child being younger than 13 dummy are omitted in the first difference approach. Cohort dummies are time-invariant and hence omitted in the fixed effects and first difference regressions. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)		(4)	
Dataset	Italy (SHIW)		Italy (SHIW)		Italy (SHIW)		Italy (SHIW)	
Model Type	Random Effects Tobit		Random Effects		First Differences		Fixed Effects	
Dependent variable	Log(consumption) [censored]		Log(consumption)		ΔLog(consumption$_t$) - Log(consumption$_{t-1}$)		Log(consumption)	
Move-out 1 of 1	-0.0699	(0.0098)***	-0.0672	(0.0103)***	-0.0651	(0.0386)*	-0.0797	(0.0323)**
Move-out 1 of 2	-0.0542	(0.0086)***	-0.0472	(0.0090)***	-0.0407	(0.0295)	-0.0434	(0.0225)*
Move-out 2 of 2	-0.0487	(0.0111)***	-0.0523	(0.0115)***	-0.1108	(0.0283)***	-0.0855	(0.0278)***
Move-out 1 of 3	-0.0614	(0.0161)***	-0.0529	(0.0173)***	-0.0439	(0.0394)	-0.0121	(0.0342)
Move-out 2 of 3	-0.0485	(0.0175)***	-0.0455	(0.0187)**	-0.1695	(0.0425)***	-0.1326	(0.0343)***
Move-out 3 of 3	-0.0186	(0.0156)	-0.0299	(0.0160)*	-0.1065	(0.0464)**	-0.0851	(0.0411)**
Move-out last of 4+	-0.1051	(0.0154)***	-0.1105	(0.0154)***	-0.1572	(0.0637)**	-0.1801	(0.0532)***
1 child	0.1012	(0.0085)***	0.0960	(0.0094)***	0.0980	(0.0415)**	0.1049	(0.0355)***
2 children	0.1398	(0.0089)***	0.1313	(0.0098)***	0.1391	(0.0522)***	0.1632	(0.0442)***
3 children	0.1575	(0.0121)***	0.1478	(0.0128)***	0.2616	(0.0848)***	0.2473	(0.0637)***
4+ children	0.1027	(0.0121)***	0.0951	(0.0128)***	0.1359	(0.1103)	0.2194	(0.0914)**
Oldest child <13	-0.0357	(0.0071)***	-0.0481	(0.0076)***			-0.0253	(0.0161)
Widowed	-0.0108	(0.0093)	-0.0091	(0.0098)	-0.1304	(0.0369)***	-0.0459	(0.0391)
Separated/divorced	0.0252	(0.0102)**	0.0325	(0.0113)***	-0.0564	(0.0469)	-0.0230	(0.0383)
Married	0.0396	(0.0095)***	0.0473	(0.0103)***	0.0953	(0.0494)*	0.0247	(0.0343)
Single	-0.1012	(0.0096)***	-0.1005	(0.0106)***	-0.0605	(0.0416)	-0.1181	(0.0326)***
Female single	-0.0229	(0.0076)***	-0.0355	(0.0081)***	-0.0729	(0.0492)	-0.0314	(0.0379)
# add. adults	0.0213	(0.0056)***	0.0248	(0.0059)***	0.0647	(0.0211)***	0.0772	(0.0147)***
University degree	0.0856	(0.0068)***	0.1078	(0.0080)***	-0.0089	(0.0584)	0.0243	(0.0447)
Unemployed	-0.0422	(0.0123)***	-0.0285	(0.0130)**	-0.0416	(0.0313)	-0.0135	(0.0229)
Self-employed	0.0059	(0.0061)	0.0288	(0.0071)***	-0.0092	(0.0343)	0.0009	(0.0202)
Retired	-0.0042	(0.0065)	-0.0067	(0.0068)	-0.0253	(0.0166)	-0.0310	(0.0135)**
Home owner	-0.0265	(0.0055)***	-0.0411	(0.0058)***	-0.0410	(0.0181)**	-0.0278	(0.0134)**
Log(income)	0.4868	(0.0038)***	0.4373	(0.0049)***	0.2645	(0.0100)***	0.2807	(0.0101)***
Log(wealth)	0.0196	(0.0011)***	0.0268	(0.0012)***	0.0100	(0.0023)***	0.0130	(0.0024)***
Age dummies	yes		yes		no		yes	
Year dummies	yes		yes		yes		yes	
Cohort dummies	yes		yes		no		no	
Constant	3.2879	(0.0402)***	3.6023	(0.0469)***	-0.0557	(0.0122)***	4.8931	(0.1127)***
Observations	53,049		53,049		19,215		27,556	
Censored	7,666							
R^2 (within)			0.1165				0.1217	
R^2 (between)			0.5781				0.6639	
R^2 (overall)			0.5559		0.0856		0.5342	
Log-Likelihood	-26,174				-12,822			

For the Italian data, we chose the fixed effects model, since the Hausman test significantly rejected the null hypothesis ($p<0.0001$). In Table A.I the results are redisplayed for comparison in column (4). The corresponding random effects estimates are presented in column (2). It becomes apparent, that the random effects estimates for our move-out dummies are considerably smaller, on average, than the fixed effects estimates. We can conclude that using random effects introduces a downward bias. Artificially censoring Italian consumption at income and using a Tobit random effects estimator (1) does not alter the results by and large. Hence, we have reason to assume that the Tobit model does a good job in coping with the censoring problem in the German data. Finally, we present results of a first differences regression in column (3). We explain a lot less of the variation here, with an R^2 of only 0.0856. Nevertheless, the coefficients do not deviate substantially from our fixed effects estimator. Standard errors slightly increase, resulting in a loss of significance for the move-out of the first of two children. Overall, the results can be interpreted as strong evidence in favor of the robustness of our results.

Continuing with the German data, we present the same model types as above in Table A.II. Column (1) represents the model that we presented in our main results and serves as a reference. In columns (2) to (4) we simply ignore the censoring and use the same models as above with the Italian data. The random effects estimator with ignored censoring illustrates the fact that coefficients are now too small in absolute value compared to the Tobit estimator. This bias carries over to the first differences (3) and fixed effects (4) estimators. With the results from the Italian data in mind, we expect pure within-coefficients obtained from a fixed effects model to be larger in absolute values.

Table A.II. Different model types for German household level consumption

This table shows regressions on German household level non-housing consumption data with different model types. Censoring of consumption data is ignored in columns (2) – (4). Column (2) presents results of a random effects estimator. The results of a first difference approach are presented in column (3). Column (4) displays the results of a fixed effects estimator as used in the main analysis for reference purposes. Age dummies and the age of the oldest child being younger than 13 dummy are omitted in the first difference approach. Cohort dummies are time-invariant and hence omitted in the fixed effects and first difference regressions. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)		(4)	
Dataset	Germany (SOEP)		Germany (SOEP)		Germany (SOEP)		Germany (SOEP)	
Model Type	Random Effects Tobit		Random Effects		First Differences		Fixed Effects	
Dependent variable	Log(consumption)		Log(consumption) [censoring ignored]		ΔLog(consumption$_t$) - ΔLog(consumption$_{t-1}$) [censoring ignored]		Log(consumption) [censoring ignored]	
Move-out 1 of 1	-0.0440	(0.0075)***	-0.0364	(0.0085)***	-0.0219	(0.0171)	-0.0558	(0.0136)***
Move-out 1 of 2	-0.0390	(0.0073)***	-0.0315	(0.0079)***	0.0018	(0.0160)	-0.0369	(0.0098)***
Move-out 2 of 2	-0.0508	(0.0088)***	-0.0417	(0.0104)***	-0.0346	(0.0192)*	-0.0480	(0.0141)***
Move-out 1 of 3	-0.0089	(0.0127)	-0.0089	(0.0112)	-0.0048	(0.0233)	-0.0188	(0.0133)
Move-out 2 of 3	-0.0302	(0.0143)**	-0.0205	(0.0142)	-0.0235	(0.0198)	-0.0110	(0.0169)
Move-out 3 of 3	-0.0442	(0.0140)***	-0.0300	(0.0153)*	-0.0439	(0.0313)	-0.0364	(0.0221)*
Move-out last of 4+	-0.0612	(0.0160)***	-0.0259	(0.0190)	0.0558	(0.0451)	0.0006	(0.0341)
1 child	0.0352	(0.0057)***	0.0210	(0.0059)***	0.0052	(0.0118)	0.0034	(0.0096)
2 children	0.0476	(0.0065)***	0.0243	(0.0066)***	0.0004	(0.0163)	0.0031	(0.0116)
3 children	0.0816	(0.0097)***	0.0425	(0.0092)***	0.0280	(0.0252)	0.0150	(0.0174)
4+ children	0.0767	(0.0116)***	0.0234	(0.0111)**	0.0213	(0.0414)	0.0222	(0.0273)
Oldest child <13	-0.0336	(0.0049)***	-0.0294	(0.0050)***			-0.0028	(0.0064)
Widowed	-0.0414	(0.0080)***	-0.0367	(0.0107)***	-0.0113	(0.0211)	-0.0686	(0.0157)***
Separated/divorced	-0.0247	(0.0055)***	-0.0345	(0.0060)***	0.0021	(0.0132)	-0.0404	(0.0099)***
Married	-0.0298	(0.0046)***	-0.0295	(0.0050)***	-0.0358	(0.0110)***	-0.0217	(0.0071)***
Single	-0.0552	(0.0061)***	-0.0465	(0.0072)***	-0.0668	(0.0179)***	-0.0092	(0.0104)
Female single	-0.0110	(0.0063)*	-0.0058	(0.0075)	0.0657	(0.0216)***	0.0096	(0.0123)
# add. adults	0.0100	(0.0064)	0.0022	(0.0074)	-0.0092	(0.0088)	-0.0136	(0.0090)
University degree	-0.1012	(0.0048)***	-0.1030	(0.0053)***	-0.0682	(0.0202)***	-0.0547	(0.0130)***
Unemployed	0.0245	(0.0051)***	-0.0040	(0.0051)	0.0100	(0.0072)	0.0023	(0.0055)
Self-employed	-0.0001	(0.0068)	-0.0181	(0.0079)**	0.0126	(0.0144)	-0.0067	(0.0102)
Retired	0.0411	(0.0059)***	0.0372	(0.0067)***	0.0095	(0.0105)	0.0307	(0.0077)***
Home owner	-0.1271	(0.0037)***	-0.1412	(0.0047)***	-0.2190	(0.0109)***	-0.1939	(0.0079)***
Log(income)	1.0933	(0.0038)***	1.1738	(0.0052)***	1.3738	(0.0062)***	1.2895	(0.0069)***
Log(inc. fr. assets)	-0.0004	(0.0008)	0.0029	(0.0010)***	0.0045	(0.0010)***	0.0045	(0.0011)***
Age dummies	yes		yes		no		yes	
Year dummies	yes		yes		yes		yes	
Cohort dummies	yes		yes		no		no	
Constant	-1.0512	(0.0361)***	-1.6905	(0.0448)***	-0.0068	(0.0050)	-2.5712	(0.0549)***
Observations	111,158		111,158		94,261		111,158	
Censored	20,426							
R^2 (within)			0.5784				0.5799	
R^2 (between)			0.8335				0.8226	
R^2 (overall)			0.7548		0.5194		0.7469	
Log-Likelihood	-45,256				-41,184			

Next, we turn to the results on per capita consumption in Italy (Table A.III). Starting with a comparison of the fixed effects model (4) and the first differences approach (3), we can see that the coefficients for each last child moving out are substantially larger in the latter, while all other children are in rather close range. Furthermore, explanatory power is even lower this time, with an R^2 of 0.0733. The random effects estimates deviate with no particular direction

of bias. The Hausman test again points to using fixed effects results, though, reinforcing our confidence in the pure within-coefficients from column (4). Artificial censoring in combination with a Tobit estimator (1) again gives us similar results as the random effects estimator (2), apart from some larger deviations for each last child moving out.

Table A.III. Different model types for Italian per capita consumption

This table shows regressions on Italian per capita non-housing consumption data with different model types. Consumption is artificially censored in column (1) to be able to run a Tobit regression. Column (2) presents results of a random effects estimator. The results of a first difference approach are presented in column (3). Column (4) displays the results of a fixed effects estimator as used in the main analysis for reference purposes. Age dummies and the age of the oldest child being younger than 13 dummy are omitted in the first difference approach. Cohort dummies are time-invariant and hence omitted in the fixed effects and first difference regressions. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)		(4)	
Dataset	Italy (SHIW)		Italy (SHIW)		Italy (SHIW)		Italy (SHIW)	
Model Type	Random Effects Tobit		Random Effects		First Differences		Fixed Effects	
Dependent variable	Log(p.c. consumption) [censored]		Log(p.c. consumption)		Log(p.c. consumption$_t$) - Log(p.c. consumption$_{t-1}$)		Log(p.c. consumption)	
Equivalence Scale	(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * min(age oldest child;18)/18)^0.8	
Move-out 1 of 1	0.0730	(0.0091)***	0.0568	(0.0105)***	0.3010	(0.0383)***	0.1231	(0.0326)***
Move-out 1 of 2	0.1395	(0.0080)***	0.1449	(0.0092)***	0.1948	(0.0295)***	0.1689	(0.0225)***
Move-out 2 of 2	0.0968	(0.0102)***	0.0698	(0.0117)***	0.2290	(0.0285)***	0.0922	(0.0282)***
Move-out 1 of 3	0.0780	(0.0148)***	0.0835	(0.0175)***	0.1125	(0.0395)***	0.1267	(0.0341)***
Move-out 2 of 3	0.1682	(0.0162)***	0.1617	(0.0190)***	0.0574	(0.0430)	0.0763	(0.0347)**
Move-out 3 of 3	0.1380	(0.0145)***	0.1060	(0.0164)***	0.2562	(0.0451)***	0.1056	(0.0428)**
Move-out last of 4+	0.3269	(0.0143)***	0.2836	(0.0166)***	0.2964	(0.0684)***	0.1517	(0.0555)***
1 child	-0.0363	(0.0078)***	-0.0200	(0.0096)**	0.0592	(0.0415)	0.0790	(0.0362)**
2 children	-0.1998	(0.0082)***	-0.1822	(0.0101)***	-0.0573	(0.0529)	-0.0329	(0.0452)
3 children	-0.3571	(0.0111)***	-0.3361	(0.0132)***	-0.1651	(0.0890)*	-0.1476	(0.0662)**
4+ children	-0.3264	(0.0111)***	-0.3054	(0.0139)***	-0.3535	(0.1140)***	-0.1693	(0.0920)*
Oldest child <13	0.2192	(0.0065)***	0.1908	(0.0078)***			0.1387	(0.0166)***
Widowed	-0.0390	(0.0087)***	-0.0281	(0.0099)***	-0.1159	(0.0371)***	-0.0471	(0.0390)
Separated/divorced	-0.0410	(0.0095)***	-0.0118	(0.0115)	-0.0884	(0.0471)*	-0.0394	(0.0385)
Married	0.0424	(0.0087)***	0.0582	(0.0105)***	-0.0767	(0.0476)	0.0220	(0.0345)
Single	0.4761	(0.0089)***	0.4269	(0.0108)***	0.4283	(0.0427)***	0.3823	(0.0343)***
Female single	-0.0504	(0.0071)***	-0.0681	(0.0083)***	-0.0976	(0.0500)*	-0.0730	(0.0378)*
# add. adults	-0.1995	(0.0052)***	-0.1919	(0.0066)***	-0.1655	(0.0229)***	-0.1324	(0.0153)***
University degree	0.0668	(0.0063)***	0.1188	(0.0080)***	-0.0129	(0.0619)	0.0228	(0.0454)
Unemployed	-0.1019	(0.0106)***	-0.0459	(0.0131)***	-0.0582	(0.0314)*	-0.0196	(0.0230)
Self-employed	-0.0182	(0.0056)***	0.0331	(0.0072)***	-0.0131	(0.0346)	0.0014	(0.0203)
Retired	-0.0033	(0.0060)	-0.0115	(0.0069)*	-0.0167	(0.0168)	-0.0306	(0.0136)**
Home owner	-0.0175	(0.0050)***	-0.0442	(0.0059)***	-0.0503	(0.0182)***	-0.0316	(0.0135)**
Log(income)	0.5632	(0.0033)***	0.4192	(0.0049)***	0.2469	(0.0100)***	0.2628	(0.0101)***
Log(wealth)	0.0136	(0.0010)***	0.0273	(0.0012)***	0.0100	(0.0023)***	0.0128	(0.0024)***
Age dummies	yes		yes		no		yes	
Year dummies	yes		yes		yes		yes	
Cohort dummies	yes		yes		no		no	
Constant	1.9283	(0.0357)***	2.9550	(0.0473)***	-0.0707	(0.0123)***	4.2731	(0.1122)***
Observations	53,049		53,049		19,215		27,556	
Censored share	1,534							
R^2 (within)			0.0941				0.1009	
R^2 (between)			0.4675				0.5115	
R^2 (overall)			0.4365		0.0733		0.3789	
Log-Likelihood	-20,533				-12,896			

With the random effects estimator at hand, we have the opportunity to conduct some between comparisons, the same way as we did with the German data in the main analysis. Summing up respective move-out coefficients with the number of children in a family, we actually get significantly positive coefficient sums for one- and two-children families ($p<0.0001$ and $p=0.0001$), zeroing out for three-children families ($p=0.1403$) and a slightly negative coefficient sum of -0.0218 ($p=0.0701$). This reinforces our conclusion from the main analysis of households approximately leveling up their per capita consumption to a comparable level as childless peers.

Repeating above exercise with the German data on per capita consumption (Table A.IV), we see in columns (1) and (2) that ignoring the censoring has a much smaller effect here than with household level consumption, as coefficients are rather close together. Similar as with the Italian data, each last child's move-out has a much stronger effect in the first differences estimator (3) than in the fixed effects model (4). Comparing fixed effects (4) with random effects (3) leads to the same conclusion as with the Italian data, i.e. slightly larger effects in the latter case.

Overall, we conclude our results to be robust to our model choice, particularly in the Italian data. Most importantly, our results are qualitatively robust and we only observe deviations in magnitudes in some cases. Furthermore we were able to replicate our qualitative conclusion of upgrading per capita consumption to the level of childless peers for the Italian data. For the German data, we emphasize the necessity to cope with the data censoring, which results in the random effects Tobit model representing our only suitable option.

Table A.IV. Different model types for German per capita consumption

This table shows regressions on German per capita non-housing consumption data with different model types. Censoring of consumption data is ignored in columns (2) – (4). Column (2) presents results of a random effects estimator. The results of a first difference approach are presented in column (3). Column (4) displays the results of a fixed effects estimator as used in the main analysis for reference purposes. Age dummies and the age of the oldest child being younger than 13 dummy are omitted in the first difference approach. Cohort dummies are time-invariant and hence omitted in the fixed effects and first difference regressions. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)		(4)	
Dataset	Germany (SOEP)		Germany (SOEP)		Germany (SOEP)		Germany (SOEP)	
Model Type	Random Effects Tobit		Random Effects		First Differences		Fixed Effects	
Dependent variable	Log(p.c. consumption)		Log(p.c. consumption [censoring ignored])		Log(p.c. consumption [censoring ignored])		Log(p.c. consumption [censoring ignored])	
Equivalence Scale	(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * min(age oldest child;18)/18)^0.8	
Move-out 1 of 1	0.1043	(0.0077)***	0.1134	(0.0087)***	0.2673	(0.0186)***	0.1579	(0.0144)***
Move-out 1 of 2	0.1516	(0.0074)***	0.1593	(0.0081)***	0.2073	(0.0165)***	0.1822	(0.0102)***
Move-out 2 of 2	0.1068	(0.0089)***	0.1153	(0.0107)***	0.3113	(0.0198)***	0.1666	(0.0147)***
Move-out 1 of 3	0.0991	(0.0129)***	0.1045	(0.0122)***	0.1320	(0.0251)***	0.1173	(0.0147)***
Move-out 2 of 3	0.1995	(0.0145)***	0.2078	(0.0149)***	0.2188	(0.0214)***	0.2288	(0.0177)***
Move-out 3 of 3	0.1196	(0.0142)***	0.1336	(0.0159)***	0.2760	(0.0329)***	0.1771	(0.0232)***
Move-out last of 4+	0.3955	(0.0162)***	0.4179	(0.0213)***	0.4289	(0.0484)***	0.3623	(0.0364)***
1 child	-0.0877	(0.0058)***	-0.0966	(0.0061)***	-0.1132	(0.0139)***	-0.0596	(0.0099)***
2 children	-0.2765	(0.0066)***	-0.2938	(0.0069)***	-0.2588	(0.0195)***	-0.2374	(0.0124)***
3 children	-0.4021	(0.0098)***	-0.4385	(0.0098)***	-0.3769	(0.0294)***	-0.3991	(0.0182)***
4+ children	-0.3981	(0.0118)***	-0.4432	(0.0138)***	-0.5009	(0.0466)***	-0.4737	(0.0309)***
Oldest child <13	0.1534	(0.0050)***	0.1593	(0.0053)***			0.1336	(0.0068)***
Widowed	-0.0204	(0.0081)**	-0.0178	(0.0110)	0.0089	(0.0216)	-0.0217	(0.0163)
Separated/divorced	-0.0444	(0.0056)***	-0.0515	(0.0062)***	-0.0243	(0.0141)*	-0.0568	(0.0104)***
Married	-0.0246	(0.0047)***	-0.0258	(0.0052)***	-0.1147	(0.0123)***	-0.0083	(0.0073)
Single	0.4586	(0.0062)***	0.4669	(0.0074)***	0.4586	(0.0185)***	0.4970	(0.0108)***
Female single	-0.0613	(0.0064)***	-0.0556	(0.0078)***	-0.0268	(0.0224)	-0.0530	(0.0130)***
# add. adults	-0.1863	(0.0065)***	-0.1965	(0.0094)***	-0.1824	(0.0119)***	-0.2115	(0.0115)***
University degree	-0.0949	(0.0048)***	-0.0955	(0.0054)***	-0.0739	(0.0214)***	-0.0482	(0.0133)***
Unemployed	0.0127	(0.0052)**	-0.0114	(0.0052)**	-0.0095	(0.0075)	-0.0029	(0.0057)
Self-employed	0.0020	(0.0069)	-0.0168	(0.0080)**	0.0042	(0.0151)	-0.0046	(0.0103)
Retired	0.0433	(0.0060)***	0.0370	(0.0068)***	0.0151	(0.0106)	0.0304	(0.0077)***
Home owner	-0.1320	(0.0038)***	-0.1428	(0.0048)***	-0.2358	(0.0112)***	-0.1948	(0.0081)***
Log(income)	1.0706	(0.0039)***	1.1527	(0.0053)***	1.2931	(0.0065)***	1.2643	(0.0070)***
Log(inc. fr. assets)	0.0016	(0.0008)**	0.0042	(0.0010)***	0.0061	(0.0010)***	0.0052	(0.0011)***
Age dummies	yes		yes		no		yes	
Year dummies	yes		yes		yes		yes	
Cohort dummies	yes		yes		no		no	
Constant	-1.5806	(0.0365)***	-2.2269	(0.0455)***	-0.0181	(0.0052)***	-3.1487	(0.0941)***
Observations	111,158		111,158		94,261		111,158	
Censored share	20,430							
R^2 (within)			0.5048				0.5069	
R^2 (between)			0.7568				0.7370	
R^2 (overall)			0.6623		0.4614		0.6471	
Log-Likelihood	-46,589				-43,692			

B Comparison of SOEP data with EVS data

To validate the inferred consumption data from the German SOEP, we compare its 2008 wave with data from the 2008 Einkommens- und Verbrauchsstichprobe (EVS) by the Federal Statistical Office of Germany.

Table B.I. Income and consumption in 2008 SOEP and EVS waves

	Mean	**Q10**	**Q25**	**Median**	**Q75**	**Q90**
Panel A: SOEP (2008) [8,508 Obs]						
Screened monthly net income	2,477	944	1,366	2,064	3,007	4,372
Adjusted monthly net income	2,651	991	1,446	2,210	3,252	4,696
Income from assets	107	0	6	6	39	121
Non-housing consumption	1,561	478	786	1,285	1,978	2,888
Tobit predicted non-housing consumption	1,613	570	846	1,319	1,991	2,886
Panel B: EVS (2008) [53,932 Obs]						
Monthly net income (excl. imputed rent)	2,925	1,079	1,648	2,554	3,760	5,175
Income from assets (excl. imputed rent)	127	0	0	0	57	375
Borrowing (n=2,025; 4%)	188	0	0	0	0	0
Asset sales (n=23,854; 44%)	919	0	0	0	389	2,021
Non-housing consumption	1,842	632	984	1,539	2,295	3,261

Table B.I shows key monthly income and consumption figures to be compared across SOEP and EVS. The income measure we use in this study is based on the so-called “screener”, where the head of household is asked to estimate the household’s current total monthly net income (first row). We manually add reported income from assets, which is included in the measures presented in the first two rows of Panel A. The SOEP provides more detailed information about different income components of all household members. Based on this, an adjusted income measure is provided, which is, on average, 174 € larger. Hence, the “screener” contains a significant underreporting bias. However, we refrain from using the more detailed measure, as not all income components are asked in each year of the survey and hence, we would introduce a bias in those years with deviating level of detail in income measurement. Nonetheless, even the adjusted measure from 2008 is, on average, 274 €

smaller than the value we get from the EVS.[29] Hence the average income gap between SOEP as we use it and EVS amounts to 448 € per month in the year 2008.

Becker et al. (2002) also find significant differences in income between SOEP and EVS. They attribute it to methodological differences. The EVS uses a bookkeeping approach, whereas SOEP relies on retrospective questions, which apparently leads to underreporting. We assume the underreporting bias to be unrelated to children moving out. Furthermore, taxation routines applied in the SOEP apparently overestimate tax burdens. The latter effect alone more than doubles the gap between mean incomes of the two surveys in the analysis by Becker et al. (2002). Tax benefits in Germany are granted on the basis of the number of children a household has, generally regardless of their residence status and instead conditional on their age. Hence, this part of the bias should not interact with our research question. Income from assets in the SOEP is smaller compared to the EVS by roughly 20 €, so this only marginally contributes to the gap, especially for the majority of households who barely earn any asset income.

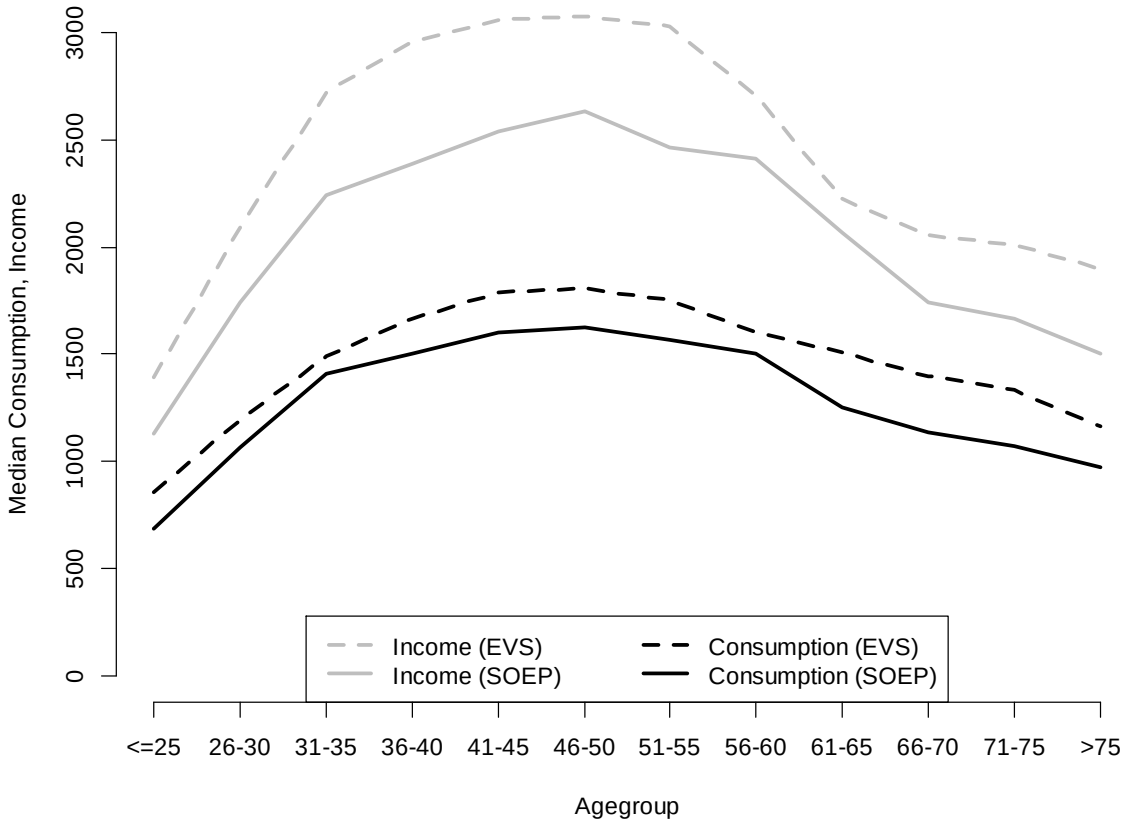
The differences in income obviously carry over to non-housing consumption, as our SOEP consumption measure is simply the residual of income, saving and housing costs. On top of that, consumption is underestimated due to the left-censoring of saving in the SOEP. In the EVS, we do observe negative saving. Borrowing and asset sales are presented in Panel B of Table B.I. Both distributions are extremely right-skewed. Hence, borrowing plays a significant role only in very few cases. Asset sales are more prevalent and significant in magnitude, albeit irrelevant for more than half of the population. The general life-cycle pattern, however, is rather consistent, as can be seen in Figure B.1. The original gap in income seems to explain the gap in consumption to a large part.

[29] We subtract imputed rent, which is not included in our SOEP income measures.

In the last row of Panel A we also report descriptive statistics of the consumption distribution predicted by our Tobit model. The mean is 52 € larger, which mostly translates into increases in the lower quantiles, i.e., generally poorer households. Typically, a larger share of these households report zero savings. Hence, the Tobit model assumes the latent consumption variable to be larger than income for some of these households. Consequently, it closes some of the gap between reported and latent actual consumption.

Figure B.1. Income and consumption in 2008 SOEP and EVS waves over the life-cycle

Income and consumption for the 2008 SOEP and EVS waves are presented in this figure. Age groups on the x-axes comprise five years of age (except for the first and last one) and permit a noise-reduced view of life-cycle consumption.



To conclude, we acknowledge our German consumption data to be biased downward but we do not find evidence of this bias significantly interacting with our research question. This reasoning should be reinforced when we consider that the main findings of our analyses are quite similar in the Italian data, where we can rely on actual consumption data.

C Alternative dependent variables

In this appendix, we exchange the dependent variables in our regressions. First, we look at the converse of consumption, i.e. savings. The Italian data does provide savings variables, but they are only calculated as residuals of income and consumption. In 2010 saving was explicitly asked for, allowing for a comparison of the measures in that year. Looking at a number of quantiles in Table C.I illustrates that the residual savings measure misses actual reported savings completely. This can likely be explained by the fact that a number of larger expenditure items, such as utilities for dwellings or payments to persons outside the household, are not collected.

Table C.I. Computed residual savings vs. reported savings in the 2010 SHIW wave

This table shows descriptive statistics of the provided computed savings measure and reported savings in the SHIW wave of 2010.

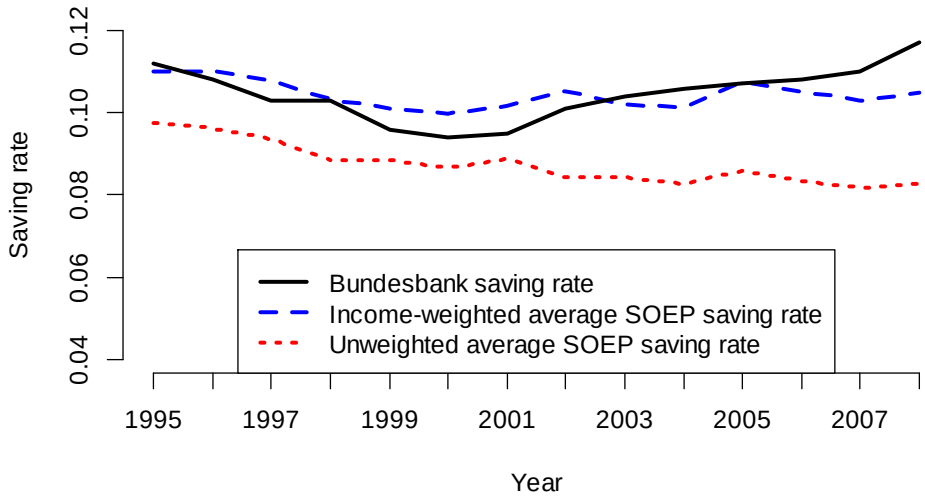
Statistic	Computed (residual) savings	Reported savings
Mean	628	114
Min	-3,965	-9,098
P1	-1,202	-1,137
P5	-468	-227
P10	-222	0
P25	64	0
P50	372	0
P75	924	152
P90	1,747	379
P95	2,361	758
P99	4,787	1,516
Max	39,668	37,910
Std.-dev.	1,198	699

Hence, we can only rely on the German data for this analysis. We use financial savings, i.e. the measure that we actually observe in the data. Figure C.1 compares the aggregated financial savings rate calculated from SOEP with the average savings rate provided by the German Bundesbank, which is calculated from the national account system and therefore inherently weighted by income. Hence, the comparison should be focused on the dashed income-weighted average SOEP savings rate, which comes quite close to the black

Bundesbank profile and moreover exhibits no systematic over- or underreporting. We can conclude that our variable seems to be a reasonable proxy for financial savings.

Figure C.1. SOEP vs. Bundesbank financial savings rate

This figure compares the savings rate provided by the Deutsche Bundesbank calculated from the national account system with a weighted and unweighted average SOEP saving rate.



As stated in the main text, this variable is left-censored at zero, forcing us to econometrically cope with this problem again. We use two different measures, i.e. log transformed savings (with one added to be able to include zero savers) and the savings rate. The results of random effects Tobit regressions can be found in columns (1) and (3) of Table C.II respectively. In the log-savings regression we can see that savings strongly increase for all family sizes. This translates into savings rate increases of more than three percentage points for all families after all children are gone.

Additionally, we employ a trimmed least-squares estimator of Honoré (1992), that can non-parametrically estimate censored fixed effects models with left-censoring at zero. Results are presented in columns (2) and (4). Even though the estimator is only shown to perform well in smaller samples, the general picture is still confirmed, despite smaller magnitudes of the coefficients and larger standard errors.

Table C.II. Regressions on measures of savings for the German data

This table shows regressions on German savings measures. In the first two columns log financial savings is the dependent variable, whereas the financial savings rate is the dependent variable in the last two columns. Columns (1) and (3) present results of random effects Tobit regressions, while columns (2) and (4) are derived using a trimmed least squares fixed effects estimator. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)		(4)	
Dataset	Germany (SOEP)		Germany (SOEP)		Germany (SOEP)		Germany (SOEP)	
Model Type	Random Effects Tobit		Trimmed Least Squares Fixed Effects		Random Effects Tobit		Trimmed Least Squares Fixed Effects	
Dependent variable	Log(Financial Savings)		Log(Financial Savings)		Financial Savings Rate		Financial Savings Rate	
Move-out 1 of 1	0.4717	(0.0715)***	0.2473	(0.1133)**	0.0310	(0.0027)***	0.0283	(0.0053)***
Move-out 1 of 2	0.1524	(0.0658)**	0.0445	(0.0905)	0.0107	(0.0025)***	0.0090	(0.0037)**
Move-out 2 of 2	0.5954	(0.0796)***	0.4061	(0.1122)***	0.0311	(0.0030)***	0.0261	(0.0049)***
Move-out 1 of 3	0.0024	(0.1179)	0.0066	(0.1643)	0.0020	(0.0045)	0.0049	(0.0054)
Move-out 2 of 3	0.2963	(0.1313)**	0.1321	(0.1733)	0.0141	(0.0050)***	0.0111	(0.0062)*
Move-out 3 of 3	0.9287	(0.1308)***	0.5635	(0.1890)***	0.0383	(0.0050)***	0.0283	(0.0071)***
Move-out last of 4+	1.3856	(0.1603)***	0.2921	(0.3035)	0.0598	(0.0062)***	0.0324	(0.0123)***
1 child	-0.6431	(0.0534)***	-0.4970	(0.0813)***	-0.0356	(0.0020)***	-0.0346	(0.0041)***
2 children	-1.1057	(0.0613)***	-0.8124	(0.1052)***	-0.0547	(0.0023)***	-0.0502	(0.0053)***
3 children	-1.8833	(0.0931)***	-1.1562	(0.1850)***	-0.0798	(0.0036)***	-0.0578	(0.0082)***
4+ children	-2.5301	(0.1194)***	-1.0442	(0.3198)***	-0.0981	(0.0046)***	-0.0505	(0.0132)***
Oldest child <13	0.1221	(0.0449)***	0.1911	(0.0646)***	0.0035	(0.0017)**	0.0039	(0.0026)
Widowed	0.1262	(0.0762)*	0.0247	(0.1226)	0.0113	(0.0029)***	0.0100	(0.0058)*
Separated/divorced	-0.3988	(0.0547)***	-0.1040	(0.0958)	-0.0160	(0.0021)***	-0.0019	(0.0045)
Married	-0.1109	(0.0434)**	-0.1334	(0.0628)**	-0.0012	(0.0017)	0.0010	(0.0030)
Single	0.3036	(0.0572)***	0.3247	(0.0879)***	0.0220	(0.0022)***	0.0266	(0.0044)***
Female single	0.0112	(0.0611)	-0.0543	(0.1032)	-0.0070	(0.0023)***	-0.0147	(0.0052)***
# add. adults	-0.2673	(0.0578)***	-0.2066	(0.0884)**	-0.0120	(0.0022)***	-0.0098	(0.0040)**
University degree	0.3582	(0.0483)***	0.3179	(0.1060)***	0.0214	(0.0018)***	0.0194	(0.0054)***
Unemployed	-1.3027	(0.0495)***	-1.0150	(0.0607)***	-0.0440	(0.0019)***	-0.0324	(0.0027)***
Self-employed	-0.5315	(0.0641)***	-0.0708	(0.0942)	-0.0168	(0.0024)***	-0.0036	(0.0044)
Retired	-0.3190	(0.0527)***	-0.3495	(0.0616)***	-0.0128	(0.0020)***	-0.0141	(0.0027)***
Home owner	-0.0802	(0.0355)**	-0.5816	(0.0545)***	-0.0032	(0.0014)**	-0.0272	(0.0027)***
Log(income)	3.3129	(0.0357)***	3.1231	(0.0518)***	0.0948	(0.0014)***	0.0750	(0.0030)***
Log(inc. fr. assets)	0.1219	(0.0071)***	0.0141	(0.0079)*	0.0037	(0.0003)***	-0.0010	(0.0004)***
Age dummies	yes		yes		yes		yes	
Year dummies	yes		yes		yes		yes	
Cohort dummies	yes		no		yes		no	
Constant	-21.7921	(0.3475)***			-0.6213	(0.0132)***		
Observations	111,158		109,238		111,158		109,238	
Censored								
Log-Likelihood	-45,256				-41,184			
Squared Loss			284,949				442	

The Italian SHIW data permits to distinguish between non-durables and durables consumption. Table C.III illustrates the results. Column (1) presents the results from the main text for reference purposes. In column (2) results on non-durables are displayed. Coefficients for move-outs are within close range of those in column (1) indicating that the results are likely to primarily be driven by consumption on non-durables. This finding is supported by an increase in the within-R^2 by 20 %. By contrast, only two move-out coefficients are statistically significant in regressions on durables consumption. Nonetheless, all signs are

negative as expected. A much lower R^2 as compared to non-durables reinforces the earlier conclusion of non-durables being the main driver.

Table C.III. Durables vs. Non-Durables Consumption in Italy

This table shows regressions on overall consumption (1), non-durables (2) and durables (3) consumption. Cohort dummies are time-invariant and hence omitted in all fixed effects regressions. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)	
Dataset	Italy (SHIW)		Italy (SHIW)		Italy (SHIW)	
Model Type	Fixed Effects		Fixed Effects		Fixed Effects	
Dependent variable	Log(consumption)		Log(non-durables consumption)		Log(durables consumption)	
Move-out 1 of 1	-0.0797	(0.0323)**	-0.0838	(0.0307)***	-0.3113	(0.2173)
Move-out 1 of 2	-0.0434	(0.0225)*	-0.0653	(0.0196)***	-0.1470	(0.1602)
Move-out 2 of 2	-0.0855	(0.0278)***	-0.0719	(0.0248)***	-0.1694	(0.1917)
Move-out 1 of 3	-0.0121	(0.0342)	0.0009	(0.0313)	-0.1384	(0.2615)
Move-out 2 of 3	-0.1326	(0.0343)***	-0.1107	(0.0310)***	-0.5358	(0.2366)**
Move-out 3 of 3	-0.0851	(0.0411)**	-0.0806	(0.0370)**	-0.0171	(0.2699)
Move-out last of 4+	-0.1801	(0.0532)***	-0.1470	(0.0472)***	-0.6385	(0.2830)**
1 child	0.1049	(0.0355)***	0.1549	(0.0265)***	-0.3337	(0.2549)
2 children	0.1632	(0.0442)***	0.2266	(0.0354)***	-0.7344	(0.3263)**
3 children	0.2473	(0.0637)***	0.2708	(0.0529)***	-0.3550	(0.4465)
4+ children	0.2194	(0.0914)**	0.2820	(0.0764)***	-0.6083	(0.6657)
Oldest child <13	-0.0253	(0.0161)	-0.0263	(0.0141)*	0.0116	(0.1136)
Widowed	-0.0459	(0.0391)	-0.0584	(0.0340)*	-0.0373	(0.2324)
Separated/divorced	-0.0230	(0.0383)	-0.0390	(0.0324)	0.0835	(0.2447)
Married	0.0247	(0.0343)	0.0120	(0.0293)	0.0098	(0.2175)
Single	-0.1181	(0.0326)***	-0.1390	(0.0289)***	-0.0049	(0.1931)
Female single	-0.0314	(0.0379)	-0.0255	(0.0342)	0.0944	(0.2355)
# add. adults	0.0772	(0.0147)***	0.0690	(0.0148)***	0.2559	(0.1171)**
University degree	0.0243	(0.0447)	-0.0083	(0.0407)	0.1889	(0.3148)
Unemployed	-0.0135	(0.0229)	-0.0205	(0.0206)	0.2353	(0.1349)*
Self-employed	0.0009	(0.0202)	0.0150	(0.0175)	-0.1156	(0.1296)
Retired	-0.0310	(0.0135)**	-0.0237	(0.0120)**	-0.1197	(0.0879)
Home owner	-0.0278	(0.0134)**	-0.0242	(0.0121)**	-0.1628	(0.0850)*
Log(income)	0.2807	(0.0101)***	0.2558	(0.0094)***	0.4011	(0.0514)***
Log(wealth)	0.0130	(0.0024)***	0.0103	(0.0023)***	0.0760	(0.0122)***
Age dummies	yes		yes		yes	
Year dummies	yes		yes		yes	
Cohort dummies	no		no		no	
Constant	4.8931	(0.1127)***	4.8493	(0.0949)***	-0.1368	(0.6669)
Observations	27,556		27,556		27,451	
R^2 (within)	0.1217		0.1463		0.0142	
R^2 (between)	0.6639		0.6483		0.1524	
R^2 (overall)	0.5342		0.5367		0.0805	

D Alternative equivalence scales for per capita consumption

To test the robustness of the choice of our equivalence scale, we subsequently present results acquired with two alternative equivalence scales in Tables D.I and D.II. Our measure is based on the equivalence scale of Citro and Michael (1995). We simply additionally account for the age of children and assume smaller economies of scale, since we exclude housing

consumption. In column (1) we display results acquired using our own equivalence scale (see formula 1) again, for reference purposes.

Column (2) presents results of using the original version of Citro and Michael (1995), i.e.:

$$EQS_{(2)} = (\#Adults + 0.7 \times \#Children)^{0.7} \quad (2)$$

Column (3) displays results of regressions run on consumption divided by the simple sum of household residents as equivalence scale:

$$EQS_{(3)} = \#Adults + \#Children \quad (3)$$

We start with the Italian data in Table D.I. Magnitudes of the coefficients vary substantially with the choice of model. Coefficients from the Citro and Michael (1995) equivalence scale (2) are slightly smaller, whereas simply dividing by the number of household inhabitants results in much larger coefficients. Nonetheless, regardless of the choice of model, we get highly significant increases in per capita consumption, for almost any child moving out. However, the second of three and the last of four children do not yield a significant effect in column (2) anymore. Obviously, the larger the economies of scale are assumed to be, the smaller the effect. Simply decreasing the scale coefficient by a tenth at a time does not result in a significant increase in per capita consumption for any child moving out, once the scale economies coefficient is down to 0.3.

Table D.I. Different equivalence scales for Italian per capita consumption

This table shows regressions on Italian per capita consumption with different equivalence scales. Cohort dummies are time-invariant and hence omitted in all fixed effects regressions. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)	
Dataset	Italy (SHIW)		Italy (SHIW)		Italy (SHIW)	
Model Type	Fixed Effects		Fixed Effects		Fixed Effects	
Dependent variable	Log(p.c. consumption)		Log(p.c. consumption)		Log(p.c. consumption)	
Equivalence Scale	(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * 0.7)^0.7		(#adults + #children)	
Move-out 1 of 1	0.1231	(0.0326)***	0.0975	(0.0321)***	0.2617	(0.0335)***
Move-out 1 of 2	0.1689	(0.0225)***	0.1036	(0.0224)***	0.2168	(0.0228)***
Move-out 2 of 2	0.0922	(0.0282)***	0.0727	(0.0279)***	0.2227	(0.0292)***
Move-out 1 of 3	0.1267	(0.0341)***	0.0841	(0.0339)**	0.1483	(0.0345)***
Move-out 2 of 3	0.0763	(0.0347)**	0.0098	(0.0343)	0.1175	(0.0352)***
Move-out 3 of 3	0.1056	(0.0428)**	0.0821	(0.0420)*	0.2392	(0.0444)***
Move-out last of 4+	0.1517	(0.0555)***	0.0877	(0.0539)	0.3200	(0.0576)***
1 child	0.0790	(0.0362)**	-0.1121	(0.0357)***	-0.3127	(0.0360)***
2 children	-0.0329	(0.0452)	-0.2154	(0.0445)***	-0.5422	(0.0453)***
3 children	-0.1476	(0.0662)**	-0.2690	(0.0642)***	-0.6949	(0.0680)***
4+ children	-0.1693	(0.0920)*	-0.3007	(0.0898)***	-0.7292	(0.0939)***
Oldest child <13	0.1387	(0.0166)***	0.0360	(0.0162)**	0.0885	(0.0178)***
Widowed	-0.0471	(0.0390)	-0.0566	(0.0390)	-0.0652	(0.0394)*
Separated/divorced	-0.0394	(0.0385)	-0.0371	(0.0383)	-0.0473	(0.0388)
Married	0.0220	(0.0345)	0.0140	(0.0345)	0.0047	(0.0350)
Single	0.3823	(0.0343)***	0.3305	(0.0336)***	0.5112	(0.0352)***
Female single	-0.0730	(0.0378)*	-0.0714	(0.0375)*	-0.1010	(0.0386)***
# add. adults	-0.1324	(0.0153)***	-0.1162	(0.0147)***	-0.1822	(0.0159)***
University degree	0.0228	(0.0454)	0.0249	(0.0442)	0.0232	(0.0448)
Unemployed	-0.0196	(0.0230)	-0.0180	(0.0228)	-0.0210	(0.0230)
Self-employed	0.0014	(0.0203)	0.0007	(0.0202)	0.0010	(0.0204)
Retired	-0.0306	(0.0136)**	-0.0324	(0.0135)**	-0.0330	(0.0137)**
Home owner	-0.0316	(0.0135)**	-0.0296	(0.0134)**	-0.0309	(0.0135)**
Log(income)	0.2628	(0.0101)***	0.2678	(0.0100)***	0.2580	(0.0101)***
Log(wealth)	0.0128	(0.0024)***	0.0131	(0.0024)***	0.0131	(0.0024)***
Age dummies	yes		yes		yes	
Year dummies	yes		yes		yes	
Cohort dummies	no		no		no	
Constant	4.2731	(0.1122)***	4.4874	(0.1126)***	4.3371	(0.1136)***
Observations	27,556		27,556		27,556	
R^2 (within)	0.1009		0.0888		0.1377	
R^2 (between)	0.5115		0.4990		0.5534	
R^2 (overall)	0.3789		0.3631		0.4310	

With the German data (Table D.II) we also get much larger coefficients for the simple sum of inhabitants equivalence scale (3). However, the Citro and Michael (1995) equivalence scale (2) yields larger coefficients on average. Nevertheless, our qualitative results can be confirmed with any scale. All coefficients are positive, economically large and highly statistically significant. Moreover, summing up move-out coefficients and children coefficients by family size leads to an approximate zeroing out in all specifications, i.e. parents by and large catch up with their childless peers in terms of per capita consumption

after all children are gone. Decreasing the scale coefficient by a tenth at a time again, we have to go down to an economies of scale coefficient as low as 0.2, in order to get no significant increase in per capita consumption for any child moving out.

Table D.II. Different equivalence scales for German per capita consumption

This table shows regressions on German per capita consumption with different equivalence scales. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)		(3)	
Dataset	Germany (SOEP)		Germany (SOEP)		Germany (SOEP)	
Model Type	Random Effects Tobit		Random Effects Tobit		Random Effects Tobit	
Dependent variable	Log(p.c. consumption)		Log(p.c. consumption)		Log(p.c. consumption)	
Equivalence Scale	(#adults + #children * min(age oldest child;18)/18)^0.8		(#adults + #children * 0.7)^0.7		(#adults + #children)	
Move-out 1 of 1	0.1043	(0.0077)***	0.1831	(0.0076)***	0.3922	(0.0077)***
Move-out 1 of 2	0.1516	(0.0074)***	0.1184	(0.0073)***	0.2370	(0.0074)***
Move-out 2 of 2	0.1068	(0.0089)***	0.1762	(0.0088)***	0.3827	(0.0089)***
Move-out 1 of 3	0.0991	(0.0129)***	0.0876	(0.0128)***	0.1589	(0.0129)***
Move-out 2 of 3	0.1995	(0.0145)***	0.1478	(0.0144)***	0.2612	(0.0145)***
Move-out 3 of 3	0.1196	(0.0142)***	0.1763	(0.0141)***	0.4032	(0.0142)***
Move-out last of 4+	0.3955	(0.0162)***	0.3854	(0.0161)***	0.7494	(0.0163)***
1 child	-0.0877	(0.0058)***	-0.1993	(0.0058)***	-0.4100	(0.0058)***
2 children	-0.2765	(0.0066)***	-0.3458	(0.0065)***	-0.6799	(0.0066)***
3 children	-0.4021	(0.0098)***	-0.4263	(0.0097)***	-0.8390	(0.0099)***
4+ children	-0.3981	(0.0118)***	-0.4079	(0.0117)***	-0.7957	(0.0119)***
Oldest child <13	0.1534	(0.0050)***	-0.0232	(0.0050)***	-0.0150	(0.0050)***
Widowed	-0.0204	(0.0081)**	-0.0295	(0.0080)***	-0.0261	(0.0081)***
Separated/divorced	-0.0444	(0.0056)***	-0.0406	(0.0055)***	-0.0509	(0.0056)***
Married	-0.0246	(0.0047)***	-0.0322	(0.0047)***	-0.0375	(0.0047)***
Single	0.4586	(0.0062)***	0.3995	(0.0061)***	0.5855	(0.0062)***
Female single	-0.0613	(0.0064)***	-0.0492	(0.0063)***	-0.0775	(0.0064)***
# add. adults	-0.1863	(0.0065)***	-0.1695	(0.0064)***	-0.2373	(0.0065)***
University degree	-0.0949	(0.0048)***	-0.0976	(0.0048)***	-0.1005	(0.0049)***
Unemployed	0.0127	(0.0052)**	0.0167	(0.0051)***	0.0120	(0.0052)**
Self-employed	0.0020	(0.0069)	0.0009	(0.0069)	0.0058	(0.0070)
Retired	0.0433	(0.0060)***	0.0380	(0.0059)***	0.0400	(0.0060)***
Home owner	-0.1320	(0.0038)***	-0.1273	(0.0038)***	-0.1278	(0.0038)***
Log(income)	1.0706	(0.0039)***	1.0815	(0.0038)***	1.0758	(0.0039)***
Log(inc. fr. assets)	0.0016	(0.0008)**	0.0008	(0.0008)	0.0009	(0.0008)
Age dummies	yes		yes		yes	
Year dummies	yes		yes		yes	
Cohort dummies	yes		yes		yes	
Constant	-1.5806	(0.0365)***	-1.4241	(0.0362)***	-1.5734	(0.0368)***
Observations	111,158		111,158		111,158	
Censored share	20,430		20,525		20,420	
Log-Likelihood	-46,589		-45,683		-46,620	

E Interaction Analysis

In an attempt to identify mediating factors as well as to further test the robustness of the model, a number of interaction variables are added to the right-hand side of the regression equation. These interactions concentrate on the last child exiting in order to keep the number of coefficients manageable. We confine the analysis to the German data.

Table E.I gives an overview of the number of affected observations for each interaction term. "×University degree" takes on the value one, if the last child of a family whose household head has a university degree has moved out one or more years ago. Similarly, "×Homeowner" means that a household is the owner of their dwelling and has all their children living outside the household. "×Rich" refers to the household belonging to the top quartile in terms of income from assets, "×Parents split" takes on the value one, when the move-out of the last child coincided with a separation of the parents. "×High income" ("×Low income") means that the household belongs to the top (bottom) quartile in terms of income for the respective age group. It is important to make the latter distinction, because we thereby separate the income effect from age effects, i.e. older households possibly being further along the career ladder. "×Young@move-out" ("×Old@move-out") accounts for whether the household head was younger (older) than 75 % of all household heads of the same family size at the time of the move-out of the last child. Again, the distinction by family size cannot be neglected, since single child families are naturally very likely to be younger when their last (and only) child leaves than four-children families. The sample size of the interaction analysis is reduced, because all observations where the move-out itself is not observed, need to be dropped, as it is not possible to determine characteristics like the age of the parents at the time of the move-out. For the sake of the number of affected interaction dummies to be sufficiently large for reliable inference, they are only interacted with one-year lagged state dummies for the last

child exiting the household. After reduction of the sample, there are 13,827 observations where the latter takes on the value one.

Table E.I. Number of affected observations for different interaction terms

The table displays the number of observations where the last child has moved out and the criterion for the respective interaction term (indicated with a leading ×) is met at the same time.

Variable	Last child has moved out	×University degree	×Homeowner	×Rich	×Parents split
# Obs.	13,827	2,620	6,656	2,849	618
Variable	×High income	×Low income	×Young@move-out	×Old@move-out	
# Obs.	1,347	2,926	3,247	3,313	

Table E.II presents the results. First and foremost, even with this large body of interactions, the move-out coefficients remain statistically significant and even increase in magnitude, which constitutes strong evidence in favor of the robustness of the results. Including the interaction terms is statistically significant, as indicated by the likelihood ratio test in the last row of the table.

Furthermore, we get four significant interaction terms. First, if the parents belong to the youngest quartile at move-out for their respective family size, their effect is diminished significantly. This would be in line with the reasoning in Coe and Webb (2010), hypothesizing that retirement is too far in the future to be relevant for these households.

Second, homeowners exhibit the largest decrease in the move-out effect accompanied by the smallest standard error. This can be viewed as reasonable, since they generally have accumulated a lot of wealth in their house and consequently worry less about adequate resources for retirement. Considering the increased magnitude of the move-out coefficients, we may conclude that the effect is much stronger for renters than it is displayed in the main results. The effect there is biased downward by the large number of homeowners.

Table E.II. Interaction analysis with German data

This table shows regressions on German log consumption. Column (2) includes a number of interaction terms, whereas column (1) represents the baseline specification with an adjusted number of observations to allow for a comparison between the two models. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)	
Dataset	Germany (SOEP)		Germany (SOEP)	
Model Type	Random Effects Tobit		Random Effects Tobit	
Dependent variable	Log(consumption)		Log(consumption)	
Move-out 1 of 1	-0.0455	(0.0086)***	-0.0754	(0.0117)***
Move-out 1 of 2	-0.0418	(0.0072)***	-0.0422	(0.0072)***
Move-out 2 of 2	-0.0514	(0.0096)***	-0.0837	(0.0126)***
Move-out 1 of 3	-0.0106	(0.0125)	-0.0111	(0.0125)
Move-out 2 of 3	-0.0310	(0.0140)**	-0.0319	(0.0140)**
Move-out 3 of 3	-0.0466	(0.0164)***	-0.0780	(0.0182)***
Move-out last of 4+	-0.0534	(0.0217)**	-0.0861	(0.0233)***
×old@move-out			0.0107	(0.0117)
×young@move-out			0.0396	(0.0119)***
×university degree			-0.0040	(0.0117)
×owner			0.0508	(0.0094)***
×high income			-0.0439	(0.0152)***
×low income			0.0141	(0.0117)
×rich			0.0004	(0.0090)
×parents split			-0.0757	(0.0220)***
1 child	0.0392	(0.0057)***	0.0397	(0.0057)***
2 children	0.0522	(0.0065)***	0.0535	(0.0065)***
3 children	0.0872	(0.0096)***	0.0885	(0.0096)***
4+ children	0.0824	(0.0115)***	0.0830	(0.0115)***
Oldest child <13	-0.0322	(0.0049)***	-0.0325	(0.0049)***
Widowed	-0.0463	(0.0089)***	-0.0473	(0.0089)***
Separated/divorced	-0.0280	(0.0056)***	-0.0255	(0.0057)***
Married	-0.0328	(0.0049)***	-0.0319	(0.0049)***
Single	-0.0492	(0.0064)***	-0.0466	(0.0065)***
Female single	-0.0063	(0.0067)	-0.0080	(0.0067)
# add. adults	0.0039	(0.0067)	0.0038	(0.0067)
University degree	-0.1008	(0.0050)***	-0.0997	(0.0052)***
Unemployed	0.0236	(0.0052)***	0.0237	(0.0052)***
Self-employed	-0.0009	(0.0070)	-0.0013	(0.0070)
Retired	0.0437	(0.0066)***	0.0429	(0.0066)***
Home owner	-0.1446	(0.0040)***	-0.1510	(0.0042)***
Log(income)	1.1036	(0.0041)***	1.1053	(0.0041)***
Log(inc. fr. assets)	-0.0013	(0.0008)	-0.0014	(0.0009)
Age dummies	yes		yes	
Year dummies	yes		yes	
Cohort dummies	yes		yes	
Constant	-1.1363	(0.0396)***	-1.1477	(0.0398)***
Observations	94,538		94,538	
Censored share	17,625		17,625	
Log-Likelihood	-36,863		-36,836	
LR-Test: X^2 (8 d.f.)			54.13	***

Third, high income households exhibit a stronger consumption drop after their children leave. A possible explanation may be that they have spent more of their income on children in the first place and are thus able to save more once they are gone.

Fourth, if the move-out of the last child coincides with a separation or divorce of the parents, the drop in consumption is amplified, i.e. over and above any income effect accompanied by this change that should already be captured by the log income variable.

F Support payments to vs. from children

In Table F.I we display some statistics of payments from parents to their non-resident children and the other way around, i.e. children supporting their parents. This information is available only in the German data. It becomes apparent that the former channel clearly dominates, with larger prevalence and larger average payments.

Table F.I. Support payments to and from non-resident children

This table shows statistics of payments to non-resident children and payments from children to their parents. We take into account that everyone has parents but not everyone has children. Hence, percentages in rows 2, 3, 5 and 6 in the first column are divided by number households or observations with children and in the second column by the number of all households or observations. "Consistent" in the fourth column means one change (initiation or termination) in support or two changes in support with the first being an initiation of payments. The measures in the last two rows are conditional on payments being greater than zero.

	Payments to children	Payments from children
# of Obs	11,674	2,785
% of Obs	12.53 %	2.51 %
% of HH	32.71 %	7.13 %
% of HH with consistent support	24.75 %	5.71 %
Mean	38.77 €	3.62 €
Median	0.00 €	0.00 €
Conditional mean	299.38 €	144.57 €
Conditional median	188.00 €	86.00 €

Furthermore, we regress lagged move-out dummies of the last child moving out and a number of control variables on log payments to non-resident children (Table F.II). Thereby, we can test our hypothesis, that university graduates support their children more extensively and longer, as their offspring has a higher likelihood of also going to university. The results clearly support this hypothesis. Move-out coefficients for university graduates are almost twice as large as those for non-graduates and there is a distinct drop after the fourth year to

their permanent reaction (t-5+). In contrast, non-graduates experience a gradual decrease from the beginning with the largest drop from the third to the fourth year post move-out.

Table F.II. Regression on log payments to non-resident children

This table shows regressions on log payments to non-resident children in the German data. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)	
Dataset	Germany (SOEP)	
Model Type	Fixed Effects	
Dependent variable	Log(payments to non-resident children)	
Last move-out(t) × no uni	0.4376	(0.0387)***
Last move-out(t-1) × no uni	0.3993	(0.0466)***
Last move-out(t-2) × no uni	0.3686	(0.0482)***
Last move-out(t-3) × no uni	0.3148	(0.0500)***
Last move-out(t-4) × no uni	0.1931	(0.0517)***
Last move-out(t-5+) × no uni	0.1345	(0.0445)***
Last move-out(t) × uni	1.1961	(0.0684)***
Last move-out(t-1) × uni	1.0349	(0.0763)***
Last move-out(t-2) × uni	0.8583	(0.0813)***
Last move-out(t-3) × uni	0.8324	(0.0844)***
Last move-out(t-4) × uni	0.8503	(0.0876)***
Last move-out(t-5+) × uni	0.4996	(0.0680)***
2 children	-0.0468	(0.0359)
3 children	-0.0941	(0.0584)
4+ children	-0.0157	(0.0943)
Oldest child <13	0.1181	(0.0234)***
Widowed	0.0621	(0.0621)
Separated/divorced	0.2776	(0.0448)***
Married	-0.1074	(0.0322)***
Single	0.3191	(0.0529)***
Female single	-0.3409	(0.0563)***
# add. adults	-0.0605	(0.0302)**
University degree	-0.1017	(0.0612)*
Unemployed	-0.0774	(0.0243)***
Self-employed	-0.0392	(0.0401)
Retired	-0.0713	(0.0322)**
Home owner	-0.0432	(0.0261)*
Log(income)	0.1642	(0.0239)***
Log(inc. fr. assets)	0.0138	(0.0044)***
Age dummies	yes	
Year dummies	yes	
Cohort dummies	no	
Constant	-0.5142	(0.3687)
Observations	68,433	
R^2 (within)	0.0304	
R^2 (between)	0.1343	
R^2 (overall)	0.0894	

G Explaining children moving out

We attempt to explain children's move-outs by employing fixed effects Logit models on a variable that takes on the variable one in the wave before the child moves out. Our control variables are similar to the ones used above but we add log savings and consumption as well

as linear and squared variables for the age of the oldest child in the household as a proxy for the age of the child that will eventually move out and the household head's age.

We exclude all move-outs that happen after the first child has moved out. That way, we observe zeroes in the dependent variable until the period before a move-out is going to take place, i.e., when the dependent variable takes on the value one. Table G.1 displays the results. Age of parents and children seem to be the main determinants of first children moving out. This result is intuitive. There are few other meaningful significant relations in the Italian data. Positive income and consumption shocks lead to a higher probability of a child moving out in the next period. In the German data, female household heads becoming single also raise the likelihood of the first child moving out.

Table G.I. Fixed effects Logit regressions on move-out of children

This table shows coefficient estimates of fixed effects Logit regressions on a dummy variable that takes on the value 1 if a child moves out in the following year. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

	(1)		(2)	
Dataset	Italy (SHIW)		Germany (SOEP)	
Model Type	Fixed Effects Logit		Fixed Effects Logit	
Dependent variable	Move-out in t+1		Move-out in t+1	
Age (oldest) child	2.2696	(0.2518)***	-0.5155	(0.1007)***
Age (oldest) child ^{2}	-0.0171	(0.0034)***	0.0217	(0.0030)***
Age household head	-1.2667	(0.3216)***	3.6622	(0.2960)***
Age household head ^{2}	0.0026	(0.0025)	-0.0237	(0.0028)***
Log(income)	1.1630	(0.4082)***	-0.0622	(0.4361)
Log(wealth)	-0.0417	(0.0645)	-0.0718	(0.0485)
Log(fin. saving)	0.0038	(0.1233)	0.0160	(0.0318)
Log(consumption)	0.4672	(0.2708)*	0.1257	(0.2286)
Single	-0.0070	(1.0691)	-0.7607	(0.9458)
Female single	0.3837	(1.2741)	4.0105	(1.0544)***
# add. Adults	-0.5236	(0.3499)	-0.6725	(0.4110)
1 child	-29.2938	(2245.3603)	-48.2439	(1904.2669)
2 children	-14.0991	(2010.9279)	-28.9541	(1493.8347)
3 children	-13.6953	(2010.9277)	-14.2717	(1142.3613)
Married	-0.4048	(1.5476)	-0.8382	(0.4921)*
University degree	-0.1244	(1.1151)	-1.4269	(1.0783)
Unemployed	-0.1240	(0.6832)	0.1906	(0.2916)
Self-employed	-0.4889	(0.4876)	0.1033	(0.5280)
Retired	-0.0596	(0.2952)	-0.1970	(0.4616)
Home owner	0.3627	(0.4514)	0.1039	(0.5257)
Separated/Divorced	0.0018	(1.5578)	-0.4423	(0.3774)
Widowed	-1.6757	(1.6269)	-0.5299	(0.8063)
Credit constrained	0.1052	(0.4793)		
Observations	3,125		8,380	
Households	809		1,460	
Log-Likelihood	-396		-712	

The absence of significance or meaningful relations in the financial variables suggests that a story of parents kicking their children out due to financial problems cannot be supported with this data. We neither find a negatively significant relationship for income or wealth, nor do the coefficients for unemployment or credit constraints exhibit statistical significance.

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