



Network for Studies on Pensions, Aging and Retirement

# Do Households Increase Their Savings When the Kids Leave Home?

Alicia H. Munnell, Irena Dushi, Geoffrey Sanzenbacher and Anthony Webb

**NETSPAR** ACADEMIC SERIES

DP 08/2015-084

## **Do Households Increase their Savings when the Kids Leave Home?**

Alicia H. Munnell, Irena Dushi, Geoffrey Sanzenbacher, Anthony Webb

Social Security Retirement Research Consortium Conference  
August 2015

Center for Retirement Research at Boston College  
Hovey House  
140 Commonwealth Ave  
Chestnut Hill, MA 02467  
Tel: 617-552-1762 Fax: 617-552-0191

Alicia H. Munnell, Geoffrey Sanzenbacher, and Anthony Webb are affiliated with the Center for Retirement Research at Boston College (CRR). Irena Dushi is an economist at the Office of Policy Evaluation and Modeling, the Social Security Administration. Alicia H. Munnell is the Peter F. Drucker Professor of Management Sciences at Boston College's Carroll School of Management and director of the CRR. Geoffrey Sanzenbacher is a research economist at the CRR. Anthony Webb is a senior research economist at the CRR. The authors would like to thank Anqi Chen for research assistance. All errors are their own.

The opinions and conclusions expressed are solely those of the authors and do not represent the opinions or policy of SSA, any agency of the federal government, or Boston College. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof.

## Abstract

Much of the disagreement as to whether households are adequately prepared for retirement reflects differences in assumptions regarding the extent to which consumption declines when the kids leave home. If consumption declines substantially when the kids leave home, as some life-cycle models of retirement saving assume, households need to achieve lower replacement rates in retirement and need to accumulate less wealth. Using data from the *Health and Retirement Study* (HRS) as well as the *Survey of Income and Program Participation* (SIPP), this paper investigates whether household consumption declines when kids leave the home and, if so, by how much. Because consumption data are noisy and savings is the flip side of consumption, this paper examines whether savings in 401(k) plans or total savings increase when the kids leave home.

This paper found that:

- Households increase contributions to 401(k) plans by 0.3 to 0.9 percentage points when the kids leave home.
- The finding holds across model specifications and for alternative definitions of the kids leaving home, but in some specifications is not statistically significant.
- The increase in 401(k) contributions, however, is only a fraction of that predicted by life-cycle models that assume consumption declines substantially when the kids leave.

The policy implications of this paper are:

- The findings confirm that most households will not be able to maintain their pre-retirement standard of living.
- Retirement saving needs to increase.

## Introduction

Academic opinion differs as to whether the United States faces a retirement savings crisis. Some researchers argue that only half of households will be able to maintain their customary spending level in retirement (Mitchell and Moore 1998, Munnell, Orlova, and Webb 2013). Others argue that this is an overly ambitious and indeed sub-optimal goal. Drawing on economic theory, they contend that households should set the goal, not of smoothing consumption, but of smoothing the marginal utility of consumption. If consumption needs, and thus the marginal utility of consumption, are higher while the kids are at home, then households should optimally plan for higher consumption while the kids are at home and lower consumption after the kids leave home and in retirement (Scholz and Seshadri, 2006, 2008). An important corollary of lower consumption when the kids leave home is that most retirement savings will take place just before retirement.

The two theories presented above have very different implications for whether or not we face a retirement savings crisis. If savings spike after the kids leave home, we likely do not face a widespread retirement saving crisis. But if households do not increase savings, many will arrive at retirement with insufficient resources to enjoy the per capita consumption they enjoyed while the kids were at home, let alone the higher per capita standard of living they became accustomed to subsequently. The question is which of these two possibilities best describes household behavior.

To answer this question, this paper uses data from the *Health and Retirement Study* (HRS) linked to W-2 tax records to examine whether 401(k) contributions spike when the kids leave home. We conduct the analysis both in the pooled-cross-section, i.e., comparing similar households that differ as to whether the kids have left, and using fixed effects, i.e., comparing 401(k) savings for the same household before and after the kids leave. Because some households will support kids that are not resident while they are in school, we use various definitions of the kids leaving home, some of which consider college students as still present. For the majority of households that save little outside of their 401(k), the W-2 tax records yield a highly accurate measure of total saving in financial assets. But the departure of kids from the household may also coincide with the cessation of mortgage payments and changes in labor supply. We therefore carefully control for earnings and the presence of a mortgage and plan to estimate models that include non-401(k) savings in the dependent variable in a future draft. A further

concern is that the HRS contains households where the head is 50 or older, and therefore the results may not reflect the behavior of the broader population. We therefore supplement the HRS analysis with a pooled-cross-section analysis of *Survey of Income and Program Participation* (SIPP) data.

The results show a small increase of 0.3 to 0.9 percentage points in 401(k) contributions around the time the kids leave home, depending on the specification being considered. This result holds for both the HRS pooled-cross-section and fixed-effects models and in several of the pooled-cross-section analyses conducted in the SIPP. While in some specifications this increase is statistically significant, the magnitude of the increase is only a fraction of that implied by models that assume the marginal utility of consumption is higher when the kids are at home. Of course, it is possible households respond to the kids leaving by increasing their savings through other means – for example, by paying down mortgages or other debt faster or by contributing more to non-tax-deferred retirement accounts. The results, however, show if households are behaving in a manner consistent with models that assume large declines in consumption when the kids leave, they are not doing so by increasing 401(k) contributions.

The remainder of the paper is organized as follows. The first section describes the life cycle model and reviews relevant literature. The second section describes the data. The third section presents the empirical methodology. The fourth section presents our results, and the fifth section concludes.

## **Life Cycle Model and Literature Review**

The life cycle model is an especially relevant tool for describing retirement savings behavior, because it prescribes optimal paths of saving and consumption that maximize expected lifetime utility and is therefore a frequent topic in the academic literature.

### *Life Cycle Model*

Financial planners often think in terms of replacement rate targets – households should try to save sufficient amounts to achieve a target replacement rate that will permit them to maintain their standard of living. Economists, on the other hand, do not typically think in terms of replacement rate targets, but instead postulate that households should select an asset accumulation and decumulation plan that maximizes expected discounted lifetime utility, subject

to a budget constraint – a life cycle model of saving. Assuming that consumption and leisure are separable in the utility function<sup>1</sup> and ignoring mortality risk, the optimal consumption path is one that satisfies the following first-order condition:

$$u'(c_t) = \beta E_t[(1 + r_{t+1})u'(c_{t+1})]$$

where  $r$  is the rate of interest. The household will choose a consumption path such that the marginal utility of this period's consumption equals the expected marginal utility of next period's consumption, discounted by a rate of time preference, and multiplied by 1 plus the rate of interest. The intuition is that the household cannot increase total utility by shifting consumption from one period to another.

If the rate of interest equals the rate of time preference, and if the marginal utility of consumption does not vary with the number of resident kids, then in the absence of risk the household would choose a savings plan that provides level consumption over the lifecycle.<sup>2</sup> On the other hand, if the marginal utility of consumption is higher when kids are present, then households will optimally plan for higher consumption when the kids are at home, and lower consumption after the kids have left home and in retirement. Many life-cycle models assume that the marginal utility of consumption is higher when the kids are home, effectively imposing a time path of consumption that is high when the kids are at home and much lower when they move out. In contrast, target replacement rate calculations, such as those of the Georgia State RETIRE Project (Palmer, 2008) and that used by the National Retirement Risk Index compiled by the Center for Retirement Research (Munnell, Webb, and Delorme, 2006) implicitly assume the marginal utility of consumption does not change when the kids leave home. As a result, both the Georgia State and National Retirement Risk Index calculations assume no change in consumption when the kids leave home. It is an empirical question which assumption is correct.

---

<sup>1</sup> Separability implies that the marginal utility of consumption does not depend on the amount of leisure.

<sup>2</sup> In practice, households face both liquidity constraints and investment, labor market and mortality risk that will affect the optimal consumption path.

## *Literature Review*

Calculations of financial preparedness for retirement based on target replacement rates tend to show that about half of working age households are financially prepared. Using Survey of Consumer Finances (SCF) data, Munnell, Rutledge, and Webb (2014) estimate that fewer than half of households age 30-59 in 2013 will be able to maintain their standard of living in retirement even if they retire at age 65, annuitize their financial assets, and take out a reverse mortgage. Using HRS data, Munnell, Orlova, and Webb (2013) estimate that only 48 percent of working households approaching retirement will be able to achieve their replacement rate targets if they retire at age 65.

In contrast, Scholz and Seshadri (2006, 2008), using an intertemporal optimization model, and the same HRS data arrive at much more optimistic conclusions. Scholz, Seshadri, and Khitatrakun (2006) estimate that only 16 percent of households born between 1931 and 1941 had saved less than optimal amounts by 1992, when they were ages 51-61, given the shocks they had experienced. With the benefit of hindsight, households that experienced adverse labor market outcomes might wish that they had saved more, but ex-ante, few households had undersaved. Scholz and Seshadri (2008) extend the above analysis to include more recent data and subsequent birth cohorts and again find a low percent of households had undersaved.

One of the major reasons for these large differences is how the various papers treat kids. In contrast to Munnell, Rutledge, and Webb (2014), Scholz and Seshadri assume that households optimally plan to enjoy higher consumption when the kids are at home, and lower consumption both after the kids have left home and in retirement when they have fewer mouths to feed. Specifically, they assume the following equivalence scale proposed by Citro and Michael (1995):

$$n_j = (A_j + 0.7K_j)^{0.7}$$

where  $n$  is the household's needs,  $A$  denotes adults and  $K$  denotes kids. This equivalence scale implies a dramatic decline in consumption once the kids leave home, and an implied increase in savings of about 20 percent of earnings. As the Scholz and Seshadri households plan to enjoy lower consumption not only after the kids leave home but also in retirement, they need to accumulate less financial wealth. Furthermore, most of what little saving they do should take place in the interval between the kids leaving home and retirement.

The treatment of kids has a non-trivial effect on estimates of retirement preparedness. Munnell, Rutledge, and Webb (2014) show that differences in the treatment of kids explain about

half of the difference in the estimates of the percent of households with inadequate savings. For HRS households age 51-61 in 2004, Scholz and Seshadri (2008) report that 8 percent of these households have saved sub-optimally. In contrast, Munnell, Rutledge, and Webb (2014) estimate that 35 percent will be unable to hit their replacement rate targets. Half of the 26-percentage points – 13 percentage points – reflects differences in the treatment of kids.<sup>3</sup>

The literature on whether consumption drops when kids leave home is scant and inconclusive. Coe and Webb (2010) examine this question using HRS Consumption and Activities Mail Survey (CAMS) data. They found no evidence that households decreased total consumption when the kids left home. But the sample size was relatively small, and the HRS consumption data suffers from both non-response and reporting error. On the other hand, Klos and Simon (2013), using German data, find a moderate decrease in consumption and increase in saving when the kids leave home.

We therefore adopt an alternative approach of testing for changes in saving rather than for changes in consumption. Because all income is consumed, saved, or taxed, holding income and taxes constant, if households increase saving, they must be decreasing consumption. The advantage of this indirect approach is that both earnings and savings in 401(k) plans can be measured using tax data – forms W-2. Although households can also save outside of their 401(k) plans, most have relatively small non-IRA/401(k) balances.

Our paper builds on a literature that investigates the frequency and determinants of changes in 401(k) elective deferrals. Using SIPP data linked to W-2 tax records, Smith, Johnson, and Muller (2004) found that contributions fluctuated considerably over time. They found some evidence that contribution rates responded to life events, but the magnitude of the responses was generally small. In contrast, Utkus and Young (2009) found that participants rarely changed their asset allocations or stopped elective deferrals.

---

<sup>3</sup> Most of the remainder is the result in differences in drawdown. Munnell, Rutledge, and Webb (2014) assume that households purchase an inflation-indexed annuity. Scholz and Seshadri (2006, 2008) assume that households undertake an optimal drawdown of unannuitized wealth. They optimally choose a declining consumption path, reflecting a preference for greater consumption at ages at which they are more likely to be alive. Given their assumed intertemporal elasticity of consumption, they require less wealth per dollar of age-65 consumption than purchasers of inflation indexed annuities, and therefore optimally accumulate less wealth.

## Data

Our primary analysis uses data from the 1992-2010 waves of the HRS linked to W-2 tax records. Because the HRS allows estimation using only individuals over age 50, we supplement this main analysis with the 2001, 2004, and 2008 panels of the SIPP to check whether the savings behavior of HRS households is similar to that of younger parents.<sup>4</sup>

### *Health and Retirement Study*

The HRS is a panel survey of households where the head is age 50 or older that has been administered every two years since 1992. The survey collects in-depth information on income, work histories, assets, pensions, health insurance, disability, physical health and functioning, cognitive function, and health care expenditures. The goal of the HRS analysis is to examine how households' 401(k) contributions respond when kids leave home. The sample consists of only of coupled households at the first wave the respondent appears in the sample.

The initial sample comprises 10,467 households whose head was aged under 70 at the first wave they were observed. We discard 2,360 households who did not work for pay between 1992 and 2010, reducing the sample to 8,107 households. We restrict the sample to households that participated in a 401(k) plan at some time during the above period, reducing the sample to 4,482 households.<sup>5</sup> We further restrict the sample by eliminating households where one or both spouses was working for pay but did not consent, yielding a final sample of 2,468 households. We follow this final sample until the earliest of 2010 or the wave prior to a change in marital status, and include only waves where the household was working for pay, yielding 11,006 household-wave observations.

---

<sup>4</sup> The present draft does not link the SIPP to W-2 records, but a final draft will do so.

<sup>5</sup> One alternative would be to estimate the model on all households, regardless of whether they were eligible for a 401(k). But this would bias downwards our estimate of the effect of kids leaving home because some of these households are ineligible for a 401(k) and could not increase contributions even if they wanted. Another alternative would be to condition on participation. But this would also bias downwards our estimates if participation is one of the margins on which households adjust consumption. Yet another approach would be to condition on eligibility. But this might bias our results if households select into jobs offering 401(k) plans based on their taste for savings. Our approach is intended to identify households that have some opportunity to find a job that offers a 401(k) plan.

We consider three definitions of kids living at home. The first is having kids that physically live at home, regardless of age.<sup>6</sup> However, this first definition suffers from an important omission: kids who have left the home but are residing at college. Since the purpose of identifying resident kids is to provide a proxy for identifying households with financially dependent kids, our second definition includes kids who moved out of the household but are still in school.<sup>7</sup> This definition essentially assumes all children in college are financially dependent, even though some kids attending college may be financially independent. We therefore consider a third definition in which kids in college are excluded if, at a prior interview, they were neither physically resident nor attending college. Table 1 shows the allocation of households among categories by the definition of kids leaving home.

Using the first definition of kids leaving home, Table 2 compares the socioeconomic characteristics of the four groups of married couples. Those whose kids have left home were about five years younger when their first child was born than those with resident kids. Married couples who never had kids have the most education, and those whose kids have already moved out have the least education. Couples who never had kids have significantly higher earnings than those with kids. This pattern likely reflects differences in educational attainment but may also reflect differences in labor supply decisions, underscoring the need to control for both education and income in our regressions. Those with kids have similar wealth levels regardless of the whether the kids are in residence. One explanation is that the two groups are indeed similar. An alternative explanation is that the households whose kids have left home are saving more, but the effects are offset in this cross-sectional analysis by their lower income and educational attainment. Again, it requires multivariate analysis to identify the separate effects.

A potential concern is that if 401(k) contribution rates are sticky, lower consumption after the kids leave home may be reflected in increased non-401(k) financial wealth. In a future draft, we will address this concern by estimating a specification in which savings include the annual average increase in financial assets from wave  $t-1$  to wave  $t$ . In this draft 401(k) plans remain

---

<sup>6</sup> It is reasonable to assume that resident children under age 18 are financially dependent on their parents. But adult resident children may provide support to their parents. In a future draft, we consider an alternative in which we only include physically resident children under the age of 18.

<sup>7</sup> The project will also conduct sensitivities to see if defining the kids leaving based on child age or child completion of school alters the results.

the focus, which is reasonable given that the median increase in non-401(k)/IRA wealth is small at only \$3,460.

The W-2 data reports earnings and 401(k) contributions per calendar year.<sup>8</sup> We need to determine whether, each calendar year, the household had resident kids. The residence status of kids is only observed at the interview date. We only know that the kid moved out between one wave and the next, not the date they moved out. We assume that if kids were present at interview  $t-1$ , they were present throughout the calendar year in which the interview took place. If they were absent at interview  $t$ , we assume they were absent throughout that calendar year.

### *Survey of Income and Program Participation*

To augment the main HRS analysis, we use data from the *Survey of Income and Program Participation* (SIPP) and again investigate whether workers whose kids are no longer resident save more through their 401(k)s than households with resident kids. The SIPP has one major disadvantage relative to the HRS, its short-panel design – even the longest SIPP panels typically last less than four years. This design makes it difficult to do the kind of longitudinal analysis being conducted in the HRS where many individuals have 15 to 20 years of data. However, the SIPP offers one major advantage over the HRS – the sample includes younger individuals. This allows us to check that our HRS results apply equally to younger parents.

The SIPP analysis conducted in this draft relies on the traditional, public-access version, focusing on the 2001, 2004, and 2008 panels. The SIPP is designed as a Core Questionnaire asked every four months augmented by a series of “Topical Modules” that include additional information but are often only asked once per panel. The Core Questionnaire includes information on education, race, age, ethnicity, employment, and earnings that are essential to any individual-level analysis, including this one. In addition to the Core Questionnaire, this paper relies on several of the Topical Modules: the “Fertility History” module to provide information on the number of kids ever born and their ages; the “Retirement and Pension Plan Coverage” module to provide data on self-reported plan features and contribution rates; and the “Real

---

<sup>8</sup> In contrast, HRS participants self-report current 401(k) contributions and earnings for the last calendar year. We assume that current year earnings equal those for the last year and base current and last year 401(k) contributions on the current contribution rate.

Estate, Dependent Care, and Vehicles" module to provide data on whether the household still has a mortgage on its home.

As in the case of the HRS, the SIPP analysis focuses only on married couples. The sample starts with 44,194 married-couple households where at least one individual was aged 18 to 70. Additionally, the sample is restricted to households where both members of the household were present during the interview where pension data were collected – this reduces the sample by 4,682 households to a total of 39,512 households. The key independent variable in this paper is whether or not a household with kids still has kids residing in the home. To define this variable in the SIPP, we take two approaches. The first uses the SIPP's Fertility History to determine if the wife had ever given birth and the household roster to identify whether any of these kids were still residing in the household.<sup>9,10</sup> If the female has given birth but no kids reside in the household, we assume they have left home. If the female has given birth and at least some are resident, we code the household as having resident kids. Finally, if the female has never given birth we assume the household has no kids. The second approach simply controls for the youngest child's age. In this specification, controls are included for households who never had any children, who have a youngest child 18 and under (approximating children present), who have a youngest child between 19 and 22 (approximating children potentially in college), and age 23 and over (approximating out of college).<sup>11</sup>

The dependent variable is the percent of the household's earnings contributed to defined contribution pensions. For the purposes of the analysis, the sample is restricted to households where at least one member was eligible for one of these plans, not just to those participating (i.e., zero values are possible). This criterion reduces the sample to 18,322 households. Also some attrition occurs because at least one working member of the couple was missing earnings data – this missing earnings data causes 153 observations to be dropped. The final sample used in estimation has 18,169 households. In this draft, the dependent variable is the self-reported share of the household's total earnings contributed to a defined contribution plan. However, in future

---

<sup>9</sup> We use the female because we assumed that any husband's kids from prior relationships would be residing with their mother. While it would be preferable to use data from both parents, it is difficult to determine from the SIPP whether the husband's kids ever lived in the household.

<sup>10</sup> Any kids residing in school dormitories are also assumed to be residing in the household.

<sup>11</sup> Again, all children variables are based on the female member of the household. If the male had children with a different woman, it is implicitly assumed that the children resided with the mother.

drafts this analysis will be augmented with actual data from forms W-2, using the newly available synthetic SIPP cohorts.

Table 3 offers descriptive statistics of the data separately for households who never had kids, households who still have kids present, and households whose kids are absent based on whether or not the kids are residing in the home (i.e. not based on child age). Households whose kids are absent are generally older than households where kids are present, but otherwise have similar characteristics. Compared to the HRS sample, the SIPP sample is generally younger, slightly better educated, but lower earning. Although households whose kids have left contribute a higher share of their income to defined contribution plans than workers who still have kids present, this may reflect their greater average age.

### **Empirical Methodology**

We use two empirical methodologies: 1) a cross-sectional model in which individuals with kids present are compared to similar individuals where kids are not present and 2) a fixed-effects model examining within household variation in contributions before and after the kids leave the home. The HRS data are used for both analyses, the SIPP, which does not track households over long periods of time, only for the cross-sectional component.

#### *Pooled Cross-section Model*

In the pooled cross sectional models, the dependent variable is the contribution rate as a percent of salary. The cross-sectional models take the following form:

$$S_{i,t} = \alpha_0 + \alpha_1 NoKids_i + \alpha_2 KidsGone_{i,t} + \alpha_3 Y_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t} \quad (1)$$

where  $S_{i,t}$  is the contribution rate.<sup>12</sup> In equation (1), the independent variables are  $NoKids_i$ , indicating that the household never had any kids;<sup>13</sup>  $KidsGone_{i,t}$ , indicating that all of the

---

<sup>12</sup> As a sensitivity analysis, we estimate an alternative specification of equation (1) in which  $S_{i,t}$  equals savings in both 401(k) and non-401(k) financial assets, net of leakages. Because data on yearly savings in non-401(k) financial assets are not directly available, these savings will be defined as the increase in an individual's holding of such assets from wave  $t$  to  $t+1$ , divided by the number of years from  $t$  to  $t+1$ .<sup>12</sup> This calculation requires a panel dataset, and the alternative specification will therefore be estimated only on the HRS data.

<sup>13</sup> We obtained similar results with a model that controlled for the number of children.

individual's kids had left home by time  $t$ ,  $Y_{i,t}$ , household labor market earnings; and  $X_{i,t}$  which is a vector of socio-economic, demographic, and other variables, including the ethnicity, age, and educational attainment of the household head. If households with kids consume more while the kids are there and cut back later, the  $\alpha_2$  coefficient should be positive and significant. If the childless also save more because they optimally target higher replacement rates, the  $\alpha_1$  coefficient should be positive and significant.

### *Fixed-effect Model*

Equation (1) does not control for potential biases resulting from any unobserved differences in household characteristics that may be correlated with both savings and the presence of kids. For example, if households that save more also have kids later, then the coefficient on resident kids,  $\alpha_2$ , may be biased downwards since the kids in these families may still be resident. To deal with this issue, we re-estimate equation (1), including a household fixed-effect. The fixed-effect model will also include a time-trend, to control for the possibility that 401(k) deferrals are increasing over time for reasons unconnected with the kids leaving home.<sup>14</sup>

The fixed-effect specification requires some households to change their savings rate and have kids leave home. If few households revisit their participation and contribution decisions, the fixed-effects model sample size may be quite small. But a finding that households rarely change their deferrals will lend support to the hypothesis that households increase their per capita consumption when the kids leave home. In essence, the fixed-effects model compares the change in the contribution rate of those whose number of resident kids does not change with the change in the contribution rate of those whose kids leave home.

## **Results**

Table 4 presents results from the HRS analysis separately for the three definitions of kids leaving home described above. In general, the pooled-cross-section results show a small but statistically significant increase in 401(k) contributions when comparing households where the kids have left to households where the kids had not. The size of the increase depends on the

---

<sup>14</sup> This possibility is suggested by Honig and Dushi (2009).

definition of resident kids being considered. When only kids residing in the household are considered (specification 1), the increase is equal to 0.9 percentage points and is statistically significant. However, when the definition is expanded to include students as well as residents, the effect is about halved to 0.4 percent, while remaining statistically significant (specification 3). Finally, under the third definition of kids leaving home – which excludes kids who have left the home and spent some time out of school (even if they re-enroll) – a statistically significant increase of 0.8 percentage points is observed (specification 5). The other coefficients in the regressions are generally intuitive – households headed by minorities contributed less while households headed by older workers or more educated workers contribute more.

The fixed-effect results show a smaller response of the kids leaving, ranking from no effect on contributions under the second definition of kids leaving (specification 4) to an increase of approximately 0.4 percentage points under the first (specification 2). However, in only the first specification does the effect approach conventional levels of statistical significance.

Table 5 reports the SIPP results. Specifications 1 to 3 report results for models in which the key explanatory variables are “Never had kids” and “Kids not residing in home”, relative to a base case of having resident kids. Specifications 4 to 6 report results where the key explanatory variables are “Never had kids”, “Youngest child 19-22”, and “Youngest child 23+,” relative to a base case of having kids age 18 and under. In these specifications, having a youngest child between 19 and 22 is a proxy for having some kids in college, while having a youngest child 23+ is meant as a proxy for all kids being minimally dependent on parents. In Table 5, specifications 1 and 4 include minimal controls, specifications 2 and 5 include only demographic controls, and specifications 3 and 6 add the employer match and variables related to home ownership.

In contrast to the HRS results, the “Kids not in home” coefficient in columns (1), (2), and (3) of Table 5 is always economically and statistically insignificant. In the specifications where having resident kids is based on age instead of actual presence in the household, the results are slightly different and sometimes significant. While the “youngest child age 19-22” coefficients in columns (4) to (6) are negative and statistically significant, a result that seems to fly in the face of the HRS results, this may simply reflect the fact that many parents are still supporting college students. On the other hand, the “youngest child age 23+ ” coefficients in columns (4) to (6), coefficients that apply to parents with children that are less likely to be dependent, are positive and statistically significant. These specifications indicate that households with kids 23

and over contribute 0.3 percent more of their salary into their 401(k)s than households with the youngest child aged 0-18. One result that is consistent across all the specifications is that households that never had kids save more in their 401(k)s than households with kids – roughly 0.5 – 0.6 percent of salary more. As in the HRS, minority headed households contribute less to their 401(k)s while older workers and the more educated contribute significantly more. The SIPP also has data on the employer match and, as would be expected, workers with more generous matches contribute more as well.

The HRS and SIPP both seem to tell a similar story – households contribute perhaps 0.3 percent to at most 0.9 percent more to their 401(k)s when the kids leave home. But does this answer the question this paper set out to address – do households cut their consumption significantly when the kids leave? While many of the results above are statistically significant, the increase in saving is small compared to that produced by models that assume the marginal utility of consumption drops when the kids leave. For example, consider a household with two adults and two kids making \$100,000 and contributing six percent of their salary to their 401(k). Under the assumptions of the typical model where kids increase the marginal utility of consumption, this household's 401(k) contributions would be expected to increase – at a minimum – all the way to the 401(k) deferral limit of \$18,000 in 2015 or 18 percent of earnings, a 12-percentage point increase. Yet the results showed only a 0.3 to 0.9 percent increase

Of course, these findings are not the final word on the subject. It is possible that households save in other ways – they could pay down debt, they could increase payments to mortgages, or save in means that don't include 401(k)s. It is also possible that the response is more lagged than even the HRS allows visibility in to. At the very least, if models that assume the marginal utility of consumption drops considerably when kids leave home are correct, the response of households does not seem to be showing itself through increased contributions to 401(k)s as analyzed here.

## **Conclusions**

Assessments of the adequacy of retirement savings depend crucially on whether households cut consumption and increase spending when the kids leave home. Using data from the HRS and SIPP, we find evidence of only small increases 401(k) contributions when the kids leave. These increases, while often statistically significant, fall far short of the predictions of

models that assume the marginal utility of consumption drops considerably when the kids leave. Our findings support the view that the retirement saving crisis is real, as the evidence suggests that households do not increase their savings very much when the kids leave home. Instead, they hold total consumption relatively constant, thereby increasing per-capita consumption. This response would be fine if households had adequate savings. But most households in their 40s and 50s have saved very little for retirement. Saving little while the kids are at home and then continuing to save little after they have left puts households on track to enter retirement with insufficient resources to maintain their standard of living.

However, we acknowledge this may not be the final word on the subject. First, as mentioned in the prior section, it is possible other savings mechanisms aside from 401(k) contributions are at play. Second, it is plausible that a considerable lag may occur between the cessation of child-related expenses and an increase in 401(k) contributions. Even in the HRS, the panel may not be long enough to observe a response, especially for HRS cohorts that entered the sample later. Third, our data may not permit us to identify the cessation of child-related expenses with sufficient precision. Parents may continue to support their kids after they have graduated and left home and may only increase their savings once their kids have been launched into adult life. However, given that 401(k) plans represent the majority of individual retirement saving for a majority of workers, the lack of a large increase in contributions is one more data point in the debate on retirement preparedness.

## References

- Citro, Constance F., and Robert T. Michael, eds. 1995. *Measuring Poverty: A New Approach*. Washington, DC: National Academy Press.
- Coe, Norma B., and Anthony Webb. 2010. "Children and Household Utility: Evidence from Kids Flying the Coop" Working Paper 2010-16. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Mitchell, Olivia S. and James F. Moore. 1997. "Projected Retirement Wealth and Savings Adequacy in the Health and Retirement Study" Working Paper 6240. Cambridge, MA: National Bureau of Economic Research.
- Munnell, Alicia H., Anthony Webb, and Luke Delorme. 2006. "A New National Retirement Risk Index." *Issue in Brief* 48. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Munnell, Alicia H., Natalia Orlova, and Anthony Webb. 2013. "How Important Is Asset Allocation to Financial Security in Retirement?" In *The Market for Retirement Financial Advice*, edited by Olivia S. Mitchell and Kent Smetters, 89-106. Oxford, United Kingdom: Oxford University Press.
- Munnell, Alicia H., Matthew S. Rutledge, and Anthony Webb. 2014. "Are Retirees Falling Short? Reconciling the Conflicting Evidence" Working Paper 2014-16. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Palmer, Bruce A. 2008. "2008 GSU/Aon RETIRE Project Report." Research Report Series 08-1. Atlanta, GA: J Mack Robinson College of Business at Georgia State University.
- Rotke, Simon and Alexander Klos. 2013. "Saving and Consumption When Children Move Out." German Economic Association Annual Conference.
- Scholz, John K., Ananth Seshadri, and Surachai Khitatrakun. 2006. "Are Americans Saving 'Optimally' for Retirement?" *Journal of Political Economy* 114(4) 607-643.
- Scholz, John K. and Ananth Seshadri. 2007. "Children and Household Wealth." Working Paper 2007-158. Ann Arbor, MI: University of Michigan Retirement Research Center.
- Scholz, John K. and Ananth Seshadri. 2008. "Are All Americans Saving 'Optimally' for Retirement?" Presented at the 10<sup>th</sup> Annual Joint Conference of the Retirement Research Consortium in Washington D.C. August 7-8.
- Smith, Karen E., Richard W. Johnson, and Leslie Muller. 2004. "Deferring Income in Employer-Sponsored Retirement Plans: The Dynamics of Participant Contributions" *National Tax Journal* 57(3) 639-670.

Utkus, Stephen and Jean Young. 2009. "Inertia and Retirement Savings: Participant Behavior in 2008" Valley Forge, PA: Vanguard Center for Retirement Research.

Table 1. *Number of Households by Kid Residence Status, under Different Definitions of Residence*

	Never Had Children	During time in sample		
		Children never in residence	Children always in residence	Children move in/out
Definition 1	92	895	413	1,068
Definition 2	92	531	513	1,301
Definition 3	92	773	490	1,113

*Notes:* Definition 1 of is having kids are physically living at home; definition 2 is having kids physically living at home or in school; and definition 3 is having kids physically living at home or in school and who never ceased living at home or school.

*Source:* Authors' tabulations from Waves 1-10 of the *Health and Retirement Survey* (HRS).

Table 2. *Descriptive Statistics for HRS Married Households*

	Total sample	No kids	During time in sample		
			Never resident kids	Always resident kids	Kids move in/out
Number of kids	2.9	--	2.8	3.2	3.1
Age when oldest kid born	25.4	--	23.2	28.2	25.2
Age at first observation	53.4	50.8	54.6	52.3	53.5
Less than high school degree	11.1%	6.5%	10.6%	10.8%	11.9%
High school graduate	32.9%	25.0%	39.8%	28.2%	31.0%
Some college	22.4%	14.1%	22.7%	20.6%	23.8%
College graduate	33.6%	54.4%	26.9%	40.4%	33.3%
Non-Hispanic white	83.0%	87.0%	89.4%	72.2%	82.9%
Non-Hispanic black	9.6%	5.4%	7.2%	14.1%	9.8%
Hispanic	7.4%	7.06%	3.4%	13.7%	7.3%
Household earnings (2014 \$)					
Average	\$111,500	\$158,500	\$101,500	\$110,500	\$114,000
Median	\$91,500	\$118,000	\$84,500	\$95,000	\$93,000
Household wealth (2014 \$)					
Average	\$115,000	\$220,000	\$118,000	\$119,000	\$98,000
Median	\$18,500	\$100,000	\$20,000	\$13,000	\$17,000
Homeowner	91.2%	88.9%	90.7%	91.4%	91.7%
Has a mortgage	72.7%	73.1%	65.8%	79.0%	73.5%
Share contributed to 401(k)s	7.4%	10.8%	7.4%	7.9%	6.8%
Observations	2,468	92	773	490	1,113

*Note:* All variables refer to the male in the married couple.

*Source:* Authors' tabulations from Waves 1-10 of the *Health and Retirement Survey* (HRS).

Table 3. *Descriptive Statistics for SIPP Married Households*

	Total sample	At time of sampling		
		Never kids	Kids present	Kids absent
Number of kids	2.2	--	2.2	2.3
Age when oldest kid born	27.9	--	29.0	26.0
Age at interview	46.1	41.7	41.6	55.1
Less than high school degree	3.9%	1.6%	3.6%	5.5%
High school graduate	22.5%	17.6%	21.2%	27.0%
Some college	33.5%	31.6%	33.3%	34.6%
College graduate	40.1%	49.2%	42.0%	32.9%
Non-Hispanic white	87.5%	90.8%	85.6%	88.9%
Non-Hispanic black	6.9%	5.4%	7.0%	7.3%
Hispanic	5.7%	3.8%	7.4%	3.7%
Household earnings (2014 \$)				
Average	\$104,500	\$109,500	\$108,000	\$97,000
Median	\$86,500	\$92,500	\$89,000	\$79,500
Homeowner	85.9%	81.5%	84.9%	89.3%
Has mortgage	84.7%	87.5%	91.2%	73.2%
Share contributed 401k(s)	4.6%	4.9%	4.4%	4.9%
Observations	18,169	2,710	9,478	5,981

*Note:* All variables refer to the male in the married couple.

*Source:* 2001, 2004, and 2008 Panels of the *Survey of Income and Program Participation* (SIPP).

Table 4. *HRS Regression of Share of Household Earnings Contributed to 401k Plans*

	Definition 1		Definition 2		Definition 3	
	OLS	FE	OLS	FE	OLS	FE
Kids not in home	-0.898*** (0.199)	0.381* (0.225)	0.446** (0.190)	-0.046 (0.197)	0.753*** (0.194)	0.118 (0.220)
Never had kids	-0.148 (0.484)		0.407 (0.488)		0.609 (0.490)	
Age	0.961*** (0.156)	1.512*** (0.280)	0.982*** (0.157)	1.576*** (0.281)	0.962*** (0.156)	1.537*** (0.280)
Age <sup>2</sup>	-0.01*** (0.001)	-0.01*** 0.001	-0.01*** (0.001)	-0.01*** (0.001)	-0.01*** (0.001)	-0.01*** (0.001)
Black non-Hispanic	-1.266*** (0.346)		-1.21*** (0.351)		-1.27*** (0.346)	
Hispanic	-0.603 (0.399)		-0.615 (0.403)		0.628 (0.399)	
Less than high school	-2.315*** (0.344)		-2.34*** (0.345)		-2.32*** (0.344)	
High school	-2.032*** (0.228)		-1.99*** (0.229)		-2.03*** (0.228)	
Some college	-1.900*** (0.240)		-1.86*** (0.241)		-1.89*** (0.241)	
Log of earnings	0.875*** (0.118)	0.692*** 0.113	0.870*** (0.118)	0.693*** (0.114)	0.878*** (0.118)	0.690*** (0.113)
Log net financial wealth	0.178*** (0.035)	0.046 (0.036)	0.184*** (0.035)	0.049 (0.036)	0.179*** (0.035)	0.047 (0.036)
Has mortgage	-0.152 (0.183)	0.026 (0.210)	-0.180 (0.184)	0.044 (0.212)	-0.157 (0.183)	0.055 (0.210)
Constant	-27.654 (4.895)	-51.032 (12.263)	- 28.22*** (4.938)	-52.86 (12.316)	- 27.65*** (4.896)	- 51.81*** (12.262)
Number of observations	11,006	11,006	10,936	10,936	11,006	11,006

*Notes:* Significance is indicated to the 1 percent level (\*\*\*), 5 percent level (\*\*) and 10 percent level (\*). All variables refer to male in the couple. Definition 1 of is having kids are physically living at home; definition 2 is having kids physically living at home or in school; and definition 3 is having kids physically living at home or in school and who never ceased living at home or school. All regressions also control for the HRS wave.

*Source:* Authors' tabulations from Waves 1-10 of the HRS.

Table 5. *SIPP Regression of Share of Household Earnings Contributed to 401k Plans*

	Definition based on residence			Definition based on kid's age		
	(1)	(2)	(3)	(4)	(5)	(6)
Kids not in home (Base Case = Res. Kids)	-0.166 (0.103)	-0.0794 (0.103)	-0.0943 (0.103)			
Youngest Kid 19-22 (Base Case = 0-18)				-.403*** (0.151)	-.376** (0.149)	-.292** (0.148)
Youngest Kid 23+ (Base Case=0-18)				.294* (0.152)	.314** (0.150)	.32** (0.150)
Never had kids	.535*** (0.109)	.473*** (0.108)	.497*** (0.107)	.568*** (0.106)	.485*** (0.106)	.518*** (0.105)
Age	.0543*** (0.005)	.0536*** (0.005)	.0536*** (0.005)	.0496*** (0.004)	.0511*** (0.004)	.0503*** (0.004)
Black non-Hispanic		-.876*** (0.147)	-.915*** (0.149)		-.874*** (0.147)	-.91*** (0.149)
Hispanic		-0.117 (0.162)	-0.216 (0.163)		-0.114 (0.162)	-0.212 (0.163)
High school graduate		0.168 (0.205)	0.201 (0.205)		0.169 (0.205)	0.201 (0.205)
Some college		.406** (0.202)	.43** (0.203)		.407** (0.202)	.43** (0.203)
College graduate		1.01*** (0.206)	.927*** (0.207)		1.02*** (0.206)	.934*** (0.207)
Log of earnings		-0.0261 (0.058)	0.0121 (0.059)		-0.0185 (0.058)	0.0175 (0.059)
DB pension available			-1.47*** (0.095)			-1.47*** (0.095)
Maximum employer match			.254*** (0.011)			.254*** (0.011)
Individual owns residence			.645*** (0.147)			.647*** (0.147)
Owens residence with mortgage			-.44*** (0.1140)			-.43*** (0.1140)
Constant	1.64*** (0.199)	1.75*** (0.559)	0.822 (0.562)	1.8*** (0.181)	1.77*** (0.558)	0.879 (0.560)
Number of observations	18,169	18,169	17,296	18,169	18,169	17,296

Note: Significance is indicated to the 1 percent level (\*\*\*), 5 percent level (\*\*) and 10 percent level (\*). All variables refer to the male member of the married couple.

Source: 2001, 2004, and 2008 Panels of the SIPP.