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Teresa Ghilarducci, Siavash Radpour, and
Anthony Webb

Schwartz Center for Economic Policy Analysis (SCEPA)

Department of Economics
The New School for Social Research
6 East 16th Street, New York, NY 10003
economicpolicyresearch.org

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Siavash Radpour

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Authors Note

Teresa Ghilarducci, Siavash Radpour, and Anthony Webb are, respectively, Bernard L. and Irene Schwartz Professor at The New School for Social Research and Director of the Schwartz Center for Economic Policy Analysis (SCEPA), SCEPA Research Associate, and Retirement Equity Lab Research Director.

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Abstract

Using data from the Survey for Income and Program Participation (SIPP), this study investigates the relationship between withdrawals from 401(k) and IRA accounts and household level economic shocks such as job-loss, job change, divorce, and the onset of poor health. Workers in low-wage households are more likely to withdraw from their accounts than those in middle and high income households, in part because they experience more shocks, and are more likely to withdraw, conditional on experiencing a shock. The above shocks are associated with about a fifth of all retirement account withdrawals and exacerbate pre-existing inequalities in financial preparation for retirement.

Introduction

Using data from the 2008 Survey of Income and Program Participation (SIPP), this paper investigates the relationship between retirement account withdrawals and household level economic shocks. The findings will inform policymakers about the desirability of further restricting pre-retirement withdrawals.

In contrast to other advanced economies, the United States places few restrictions on pre-retirement withdrawals from Individual Retirement Accounts (IRAs), 401(k) and other defined contribution (DC) retirement accounts. The amounts of wealth that United States DC participants accumulate by retirement fall far short of the predictions of hypothetical calculations. Although many factors contribute to the shortfall, including lack of access, high fees, and patchy contribution histories, leakages are significant, perhaps reducing plan balances by an average of 20 percent (Munnell & Webb, 2015). In general, younger workers, workers with small account balances, and workers in low-wage households are more likely to leak, and leakages thus contribute to retirement wealth inequality (Butrica, Zedlewski, & Issa, 2010).

For some workers, pre-retirement withdrawals may be an optimal response to consumption or income shocks. The increase in current period utility may compensate even a rational far-sighted worker for the reduction in post-retirement utility. But observed patterns of leakages may also reflect time inconsistent decisions by households (Laibson, 1997), with job changes precipitating leakages as a result of the associated reduction in withdrawal barriers.¹ If leakages

¹ In Laibson's model, from today's perspective the discount rate between two far-off periods, t and $t+1$ is the long-term discount rate. Households understand the importance of saving for retirement, starting next year. But from the time t perspective, the discount rate between t and $t+1$ is the high short-term rate. So, when time t arrives, the household reneges on its commitment.

are of both types, remedies might include increasing the penalties for early withdrawal from retirement accounts or even prohibiting withdrawals, while encouraging precautionary saving in more liquid accounts.

The study finds that workers in low-wage households are more likely to experience economic shocks and also more likely to withdraw from their retirement accounts, conditional on experiencing a shock, exacerbating pre-existing inequalities in the retirement savings system.

The remainder of the paper is as follows. The first section provides background and reviews previous literature. The second section describes the data and presents the econometric model. The third section reports results and the fourth section concludes.

Background

Over the last 30 years, 401(k) and similar DC retirement accounts have displaced defined benefit (DB) plans as the dominant retirement savings vehicle in the private sector. Many 401(k) plan participants roll over their plan balances to Individual Retirement Accounts (IRAs) on job-change. As a result, most DC wealth is now held in IRAs (Figure 1).²

In contrast to other advanced economies, the United States permits pre-retirement withdrawals from DC plans including IRAs in a wide range of circumstances (Beshears, Choi, Hurwitz, Laibson, and Madrian, 2015). The 401(k) rules differ from those applicable to IRAs.

[Figure 1]

Participants can withdraw from 401(k) plans through three channels: hardship withdrawals, loans, and cash-outs on job-change. Prior to age 59 ½, participants requesting in-service withdrawals must show an “immediate and heavy financial need,” or hardship. Qualifying

² Individuals can also contribute directly to IRAs

situations include medical expenses, postsecondary education, buying or repairing a home, or avoiding foreclosure. Withdrawals are subject to income tax and are usually subject to a 10 percent excise tax if the participant is under age 59 ½ (see Table 1 upper panel).

[Table 1]

Upon job separation, DC participants typically take a lump-sum distribution or roll over the plan balance into an IRA, or a combination of both. Less commonly, workers preserve the balance by leaving it in the prior employer's plan (if the employer permits) or transfer it to the new employer's 401(k) (provided the new plan accepts rollovers). Plan sponsors can only compel closure of accounts with less than \$5,000 but must deposit distributions between \$1,000 and \$5,000 in an IRA or another employer plan, unless the participant elects otherwise. Withdrawals are subject to income tax, and are usually subject to a 10 percent excise tax if the participant is under age 59 ½.

About 87 percent of 401(k) participants have access to a loan feature (Vanderhei, Holden, Alonso, & Bass, 2017). Loans are financed by the liquidation of plan assets. If the loan is repaid, retirement wealth is reduced to the extent that the interest payments on the loan fall short of their investment returns that would otherwise have been earned. Defaulted loans are treated as distributions. Usually, loans must be repaid within 90 days of job separation, and most defaults occur as a result of job-loss. However, most loans are repaid and contribute very little to leakages (Lu, Mitchell, Utkus, and Young, 2014). We therefore exclude loans from our analysis.

In contrast to participants in 401(k)s, IRA participants can take withdrawals at any time and without justification. Withdrawals are subject to income tax and are usually subject to a 10 percent excise tax if the participant is under age 59½ (see Table 1 lower panel).

Some prior studies use tax return data, which has the advantage of a long panel and a large sample size, yielding precise estimates, but which contain little information on socioeconomic status or financial wealth. Others use data from the SIPP, a dataset that is a rich source of household level information, but a panel of only two or three years.

Using tax return data for 1987-1996, Amromin and Smith (2003) find that job-loss (identified from receipt of unemployment benefit), income shocks, measured by a decline in Adjusted Gross Income (AGI), divorce, home purchase, and low levels of financial wealth were associated with penalized withdrawals from retirement accounts. The authors estimated financial wealth by dividing dividend and interest income by an assumed rate of return, yielding a potentially noisy measure.³ The authors inferred educational attainment from the average educational attainment of the taxpayer's residential zip-code. A significant limitation of the study is that the authors were unable to identify the source of the economic shocks and could not, for example, identify health shocks or job changes that were not associated with the receipt of unemployment benefit. An additional concern is that AGI is a noisy measure of income – for example it includes realized capital gains, so that a decline in AGI may reflect investment sales in the previous, but not the current year, and excludes 401(k) contributions.

Also using tax return data, Bryant, Holden, and Sabelhaus (2010) provides descriptive statistics of withdrawals. They find that the incidence of taxable distribution activity varies little by income. But if low-income households are less likely to have plans in the first place, this finding is suggestive of higher leakage rates among those with low incomes. They calculate that aggregate leakages in a single year (2007) among households under age 60 amounted to 2.5 percent

³ For example, a household that invested in non-dividend paying stocks would appear to have zero financial wealth.

of aggregate DC account balances and characterize this as “very low.” But cumulated over a working lifetime, this is a very high leakage rate.⁴

Again using tax return data, Argento, Bryant, and Sabelhaus (2015) show that shocks to income and marital status are strongly correlated with withdrawals. Lower income taxpayers were more likely to experience these shocks and also more likely to withdraw conditional on experiencing a shock.⁵ But as with the Amromin and Smith (2003) study, it is not possible to identify the cause of the income shock.⁶

Butrica, Zedlewski, and Issa (2010) analyze 2004 SIPP data and find that job-loss, job switch, the onset of poor health, and home purchase significantly and substantially increase the probability of leakage. They also find that individuals in households with few financial assets are more likely to leak.

Two studies examine the impact of taxes on withdrawals. Burman, Coe, and Gale (1999) found evidence that the 1986 imposition of the 10 percent excise tax discouraged withdrawals, while Burman, Coe, Dworsky, and Gale (2012) found evidence that the 1992 imposition of a 20-

⁴ Making simplifying assumptions, Munnell and Webb (2015) estimate that a similar order of magnitude of leakages reduces average retirement wealth by about 20 percent.

⁵ This study treats households as having experienced a shock if Adjusted Gross Income (AGI) declines by more than 10 percent.

⁶ Perhaps surprisingly, the authors found that the Great Recession had little effect on the level of withdrawals.

percent withholding tax further reduced withdrawals.⁷ This withholding tax did not increase the tax levy, but likely increased its salience.

Using a SIPP Panel Ghilarducci, Saad-Lessler, and Reznik (2017) conclude that previous studies may have swung too far in emphasizing inertia as a primary behavior trait explaining workers' 401(k) plan engagement. Low and middle income workers respond more readily to shocks and past economic trauma to protect their current living standards by reducing retirement savings.

Data and Model

The analysis uses pooled data from the 2004 and 2008 Surveys of Income and Program Participation (SIPP), a nationally representative panel of American households. Our samples comprise 19,160 individuals ages 25-58 who were working for pay during the whole of 2005 or 2009, participated in the relevant topical modules, and had a 401(k) or similar account in 2004-2005 or 2009-2010, and 4,135 similar individuals who had an IRA account but no 401(k). Table 2 presents a breakdown of the number of observations by survey year and account type.

[Table 2]

To identify 401(k) and IRA account holders, the study uses data from the 4th and 7th topical modules in the 2004 SIPP, and the 5th and 8th topical modules in the 2008 SIPP, fielded in February-May 2005 and 2006 and January-April 2010 and 2011, respectively. These topical

⁷ Neither study investigated the possibility that the withdrawal penalty might nonetheless increase aggregate withdrawals if those who are not dissuaded by the penalty increase their withdrawal to yield the same after tax amount.

modules asked interviewees whether they participated in a 401(k) or IRA in the previous year. For withdrawals, it uses data from the 7th topical module of the 2004 SIPP and the 8th topical module of the 2008 SIPP, fielded in September-December 2006 and June-September 2010, respectively. These topical modules asked participants whether they or their partner had made any withdrawals from their 401(k), IRA, and Keogh accounts during the previous year (2005 or 2009), and if so, the amounts withdrawn.⁸ To identify household level economic shocks, the study uses data from the core SIPP modules. These modules permit identification of individuals who experienced involuntary job-loss, job change, divorce, and other shocks during 2005 or 2009.⁹ Table 3 shows how we identified these events.

[Table 3]

The study places retirement plan participants into age-adjusted family labor market earnings quartiles.¹⁰ We assign quartiles separately for the 2004 and 2008 SIPPs. To avoid having categories with different – and possibly small – sample sizes, we also assign quartiles separately for the three retirement income categories (any account, only IRA, only 401(k)). Retirement plan participants are a relatively select group, with 79 percent having at least some college-level education. This is reflected in the income quartile cut points, which for the 2008 SIPP are \$53,400,

⁸ A Keogh plan is a retirement account for the self-employed.

⁹ The SIPP also contains information that can be used to identify consumption shocks such as admission to college, house purchase, and the birth of a child. We did not include these events in our model as our initial tabulations indicated that they were uncorrelated with withdrawals.

¹⁰ Without this assignment, low wage households would overwhelmingly comprise young single individuals. We do not apply any equivalence scale to the earnings of married couples. The labor market earning variable in SIPP (*tpearn*), which we use to construct family income, contains business earnings of a small number of people running their own business.

\$82,901, and \$123,219 for individuals aged 45-54 with any retirement account. We also generate another similar ranking based on family non-retirement financial assets, which the study uses as a control. At age 45-54, the non-retirement financial wealth quartile cut points for those with any type of retirement savings accounts at age 45-54 are \$1,350, \$10,500, and \$58,200. Tables 4 and 5 report the income and wealth 2004 and 2008 cut points for workers with any retirement plan, by age group.

[Tables 4 & 5]

Participants in any kind of retirement account who are in the bottom income quartile are significantly and substantially more likely to withdraw from their account than those in higher income quartiles (6.5 percent Vs 2.8 percent of those in the top quartile, see Table 6 first row).

[Table 6]

They were also more likely to experience job-loss, to transition from renting or living in a residence not owned by the family to living a residence they own. But were less likely to have a baby or to incur college expenses. They were less likely to be married, but conditional on being married, were more likely to get divorced. They are also more likely to be minorities, to have lower levels of educational attainment, and to fall into lower non-retirement financial wealth quartiles. Patterns are similar when we restrict the sample to 401(k) participants or to IRA participants (see Tables 7 and 8).

[Tables 7 & 8]

Among the sample as a whole, individuals are more likely to make a withdrawal if they experience a job loss, job switch, divorce, or purchase a home (Table 9). Reflecting smaller sample sizes, only a few of these shocks are significant within income quartiles. The incidence of withdrawals among non-job losers decreases with income, but the differences do not always

approach statistical significance. Importantly, the difference-in-difference impact of job-loss – the impact of a job loss on the share of top quartile workers leaking relative to the impact of job-loss on the share of bottom quartile workers leaking - is statistically significant.

[Table 9]

To identify the factors associated with plan withdrawals, we estimate the following linear probability model (LPM):

$$y = \alpha_0 + \sum_i C_i \alpha_i + \sum_j I_j \beta_j + \sum_k S_k \gamma_k + \sum_j \sum_k I_j S_k \delta_{jk} + \varepsilon$$

where y takes the value one if an individual withdrew from his 401(k) plan or IRA, zero otherwise, whether via a hardship withdrawal or cash-out, C is the vector of categorical demographic, education, and age-adjusted non-retirement financial assets controls, and I and S are the vectors of dummy variables representing age adjusted income categories and economic shocks. The vector for shocks (S) includes indicators for the family having experienced the following economic shocks: involuntary job-loss, job change, and divorce or widowhood. We also include the following investment shocks: the birth of a child, moving from a rental residence to a residence owned by the family, and college expenses.

While linear probability model (LPM) estimates are often biased and using Probit/Logit models is preferred in most cases, our use of LPM is justified since all our regressors are categorical.

One specification assumes that the impacts of shocks do not vary with income. The study then relaxes this assumption by interacting the I and S indicator variables, the interaction terms measuring the differential effect on the propensity to leak if the household experiencing an economic shock is also low or high income.

To estimate the effects of shocks on the amounts withdrawn from retirement accounts, we first compare the average account balance, withdrawal, and share withdrawn by those who both withdrew and experienced shocks during the study period with the averages of those who did not experience any shocks, by income quartile.

To identify the impact of shocks on the median share withdrawn, we estimate the following quantile regression:

$$Q_{0.5}(r) = \alpha_0 + \sum_j I_j \beta_j + S \alpha_s + \sum_j I_j S \delta_j + \varepsilon$$

In which r denotes the share of retirement account balance withdrawn, \mathbf{I} is a vector of dummy variable representing income categories and S is a dummy variable identifying those who experienced any economic shocks. The coefficients on interaction terms between \mathbf{I} and S will measure variation in the effects of shocks across income groups.

Results

Tables 10a and 10b report linear probability model (LPM) coefficients of shocks and interaction of shocks with income categories for individuals with any type of retirement plan, with only a 401(k), and with only an IRA, and coefficients of controls used in the regression. Columns one, three and five omit interactions, and columns two, four and six interact shocks with income. For each type of shock, the base case is an individual in a low-income household. Job-loss is associated with a 3.7 percentage point increase in the probability of leaking among individuals with any kind of retirement plan, a 3.5 percentage point increase in the probability that a 401(k) participant leaks and a 4.6 percentage point increase in the probability that an individual with only an IRA leaks. In each case, the increase is both statistically and economically significant, compared to the overall leakage rates reported in Table 8 of 4.4, 4.7, and 2.8 percent.

[Table 10a] [Table 10b]

In the specification in which job-loss is interacted with income, job-loss is associated with a 6.2 percentage point disparity in leakage rates between those in the bottom and top income quartiles. The disparity is 5.4 percentage points among those who only participate in 401(k)s, and 10.3 percentage points among those who only participate in IRAs. In all three samples, the leakage rates among those in the two top quartiles are significantly lower than that in the bottom quartile.

Job-switch, divorce, and house purchase all have an economically and statistically significant effect on leakages. But the interaction terms rarely attain statistical significance. Starting college or having a baby have no significant effect on withdrawals among the sample as a whole, or among income quartiles. For the specification including all types of retirement accounts, our model predicts that the number of withdrawals would decrease by 20 percent in the absence of the above shocks.

We find that the median amount withdrawn by those experiencing job-loss is not significantly different from the median for those who do not (Table 11). But those who did not experience shocks withdrew smaller shares of their accounts.

[Table 11]

Withdrawals may be particularly damaging to low-income households because they withdraw larger shares of their account balances. We find that economic shocks exacerbate this effect (Table 12). The median share withdrawn by a top quartile worker not experiencing a shock is 7.0 percent. A bottom quartile worker withdraws a statistically significant 18.0 percentage points more. Shocks have a small 3.1 percentage point impact on the share withdrawn by top quartile workers that lacks statistical significance. In contrast, shocks are associated with a statistically significant 18.9 percentage point increase in the share withdrawn by workers in the bottom income quartile.

[Table 12]

We note an important limitation of our study, namely that we are unable to determine whether the association between shocks and withdrawals reflects a spike in the marginal utility of consumption or a reduction in the barriers to withdrawal. Some shocks – for example job-loss that results in the worker immediately finding a better job – may not increase the marginal utility of consumption. Conversely, we may underestimate the role of shocks because the survey instrument only asks about a subset of all the shocks that might plausibly cause marginal utility to spike. Reflecting in our low R-squareds, the shocks we study are associated with about 20 percent of retirement account withdrawals and dollars withdrawn and we tentatively conclude that both economic shocks and time inconsistent decision-making are significant factors.

Conclusions

Workers in low-wage households are more likely to suffer economic shocks and also more likely to take pre-retirement withdrawals from their retirement accounts. Workers experiencing economic shocks are more likely to withdraw, particularly if they are also in a low-wage household.

Larrimore, Arthur-Bentil, Dodini, and Thomas (2017) show that in 2016, 30 percent of Americans reported they would be unable to cover three months of expenses, while another 22 percent reported that they cannot cover three months of expenses without selling assets or borrowing. The high incidence of pre-retirement withdrawals associated with economic shocks data suggests that for many households, retirement accounts serve a dual role, as both retirement savings and as buffer stock savings. Those that avoid pre-retirement shocks will arrive at retirement with significant financial assets. Those that experience multiple setbacks will not.

Our analysis shows correlation, not causation, and we cannot rule out the possibility that it is not the economic shock but the associated opportunity to liquefy the account that triggers the withdrawal.

If some leakages reflect shortsightedness and others result from economic shocks, the socially optimal savings system may involve a combination of totally illiquid and lightly penalized accounts. Together, these accounts would permit consumption smoothing, both in response to pre-retirement economic shocks and through retirement. Assuming plausible frequencies of pre-retirement shocks, Beshears, Choi, Clayton, Harris, Laibson, and Madrian (2014) calculate that in a socially optimal system 85 percent of savings would be placed in a totally liquid account and the remaining 15 percent in an account taxed at 15 percent. But households differ in the risks they face. Further research is required to better inform an assessment of the total amount households of various types ought to be saving and how those savings should be allocated between totally and partially illiquid accounts.

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Tables and Figures

Table 1: Distributions from 401(k)s and IRAs Not Subject to 10-Percent Penalty

401(k)s and IRAs	<ul style="list-style-type: none"> • In the event participant is totally and permanently disabled; • The distribution is part of a series of periodic payments; or • The distribution is to cover deductible medical expenses that exceed 10 percent of adjusted gross income.
IRAs only	<ul style="list-style-type: none"> • The distribution is to cover post-secondary education expenses for participant, spouse, children, or grandchildren; • The distribution (up to \$10,000) is used to buy, build, or rebuild a first home; or • The distribution is to cover the cost of medical insurance due to a period of unemployment of 12 or more weeks.

Sources: Internal Revenue Service (2016, 2017).

Table 2: Number of observations in the two SIPP surveys by type of retirement plan

Survey	Only IRA	Only 401(k)	Both IRA & 401(k)	Any Plans
SIPP 2004	2825	6670	5309	14804
SIPP 2008	1310	4159	3022	8491
Total	4135	10829	8331	23295

Table 3: Definition of different economic shocks included in the study

Type of Shock	Definition
Job-loss	Individual or a member of their family (or subfamily) quit a job as a result of layoff, being discharged or fired, employer bankruptcy, sale of the employer's business, illness or injury, if they newly reported that they had a health condition that limited the amount of work they could do, reported that they were unable to work full time because of injury, illness, or a chronic health condition or disability.
Job change	Individual or a member of their family (or subfamily) quit a job to take another job
Divorce	an individual reports at one interview that they were married and at a subsequent interview that they were divorced, widowed or separated
Starting College	individual or one of the members of their family (or subfamily) are in the first year of college in December
Baby	family includes an individual younger than one years old in December
Moving to own House	Moving from a rental residence to a residence owned by a member of household

Table 4: Income Category cut-points for age groups in SIPP 2004 and SIPP 2008

Age Group	Percentile	SIPP 2004	SIPP 2008
25-34	25th	\$47,096	\$47,500
	50th	\$68,546	\$69,496
	75th	\$95,683	\$98,896
	Sample Size	2,636	1,451
35-44	25th	\$53,777	\$54,804
	50th	\$79,452	\$82,212
	75th	\$113,308	\$116,305
	Sample Size	4,890	2,591
45-54	25th	\$54,962	\$53,400
	50th	\$83,382	\$82,901
	75th	\$123,113	\$123,219
	Sample Size	5,501	3,171
54-58	25th	\$48,765	\$49,884
	50th	\$76,968	\$81,696
	75th	\$117,374	\$122,096
	Sample Size	1,777	1,278

Source: Authors' calculations based on SIPP 2004 core data for 2004 calendar year and SIPP 2008 core data for 2008 calendar year.

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. All dollar amounts are in 2008 USD and represent family annual earnings.

Table 5: Wealth Category cut-points for age groups in SIPP 2004 and SIPP 2008

Age Group	Percentile	SIPP 2004	SIPP 2008
25-34	25th	\$879	\$700
	50th	\$4,360	\$4,512
	75th	\$16,914	\$19,620
	Sample Size	2,636	1,451
35-44	25th	\$1,197	\$1,000
	50th	\$7,688	\$6,000
	75th	\$35,695	\$34,800
	Sample Size	4,890	2,591
45-54	25th	\$2,197	\$1,350
	50th	\$11,422	\$10,500
	75th	\$57,002	\$58,200
	Sample Size	5,501	3,171
54-58	25th	\$2,306	\$1,615
	50th	\$15,047	\$14,700
	75th	\$78,200	\$81,900
	Sample Size	1,777	1,278

Source: Authors' calculations based on SIPP 2004 wave 3 topical module for 2004 calendar year and SIPP 2008 wave 4 topical module for 2008 calendar year.

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. All dollar amounts are in 2008 USD.

Table 6: Descriptive Statistics for the whole sample by age-adjusted income quartile, percentages

	Income Quartile				All
	Bottom	Second	Third	Top	
Withdrawals	6.50	4.56***	3.74***&&	2.76***&&	4.39
Demographic Controls					
Black	13.29	8.7***	6.42***&&&	4.65***&&&	8.27
Hispanic	10.48	8.79**	6.87***&&	5.01***&&&	7.79
Female	52.74	44.96***	44.93***	45.44***	47.02
Married	42.51	68.61***	78.9***&&&	84.00***&&&	68.49
Education					
High School or lower	32.77	24.79	16.69	8.59	20.72
Some college	43.85	41.31	36.35	22.67	36.05
Bachelor' Degree or higher	23.38	33.9	46.96	68.75	43.23
Non-retirement Financial Assets					
Bottom Quartile	47.68	28.37***	17.62***&&&	7.93***&&&	25.41
Second Quartile	24.91	29.57***	27.98***&	16.57***&&&	24.76
Third Quartile	14.67	24.78***	29.83***&&&	30.33***	24.9
Top Quartile	12.75	17.28***	24.57***&&&	45.16***&&&	24.93
Shocks					
Job Loss	18.8	16.1***	14.81***&	12.66***&&&	15.59
Job Switch	3.7	4.2	3.7	4.3	4.0
Divorce	1.19	1.03	1.08	1.02	1.08
Divorce if married	2.46	1.46***	1.33***	1.1***&	1.47
Having a baby	2.58	4.05***	4.67***&	5.8***&&&	4.27
Starting College	9.13	10.62***	13.6***&&&	14.51***&&&	11.96
Moving to own House	2.8	2.41	2.19***&	2.07***	2.37

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8)

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. Sampling weights are used for calculations. *, ** and *** indicate statistically significant difference in means from the bottom quartile at 0.1, 0.05 and 0.01 levels. &, && and &&& indicate statistical significance in difference in means from the lower quartile at 0.1, 0.05 and 0.01 levels.

Table 7: Descriptive Statistics for the 401(k) participants, by age-adjusted income quartile, percentages

	Income Quartile				All
	Bottom	Second	Third	Top	
Withdrawals	6.88	5.08***	3.98***&&	2.90***&&	4.71
Demographic Controls					
Black	14.87	9.35***	6.83***&&&	4.84***&&&	8.98
Hispanic	11.87	9.20**	6.62***&&&	5.29***&&&	8.25
Female	53.32	45.16***	44.81***	45.47***	47.19
Married	41.65	67.84***	77.53***&&&	84.10***&&&	67.76
Education					
High School or lower	34.40	24.82***	16.17***&&&	8.13***&&&	20.72
Some college	44.07	41.72**	35.99***&&&	21.93***&&&	36.05
Bachelor' Degree or higher	21.53	33.46***	47.85***&&&	69.95***&&&	43.17
Non-retirement Financial Assets					
Bottom Quartile	49.35	27.64***	16.72***&&&	7.82***&&&	25.40
Second Quartile	25.53	30.25***	28.07***&&&	15.46***&&&	24.82
Third Quartile	14.67	24.78***	29.83***&&&	30.33***	24.83
Top Quartile	10.50	18.02***	24.19***&&&	47.12***&&&	24.94
Shocks					
Job Loss	18.29	16.44**	14.43***&&&	12.43***&&&	15.4
Job Switch	3.96	4.21	3.84	4.38	4.10
Divorce	1.18	1.01	1.10	1.03	1.08
Divorce if married	2.39	1.45**	1.37***	1.12***&	1.47
Having a baby	2.68	4.12***	4.94***&	6.26***&&&	4.50
Starting College	9.29	10.92***	13.09***&&&	14.61***&&&	11.97
Moving to own House	2.85	2.53	2.26***	2.34***	2.50

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8)

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. Sampling weights are used for calculations. *, ** and *** indicate statistically significant difference in means from the bottom quartile at 0.1, 0.05 and 0.01 levels. &, && and &&& indicate statistical significance in difference in means from the lower quartile at 0.1, 0.05 and 0.01 levels.

Table 8: Descriptive Statistics for the IRA participants, by age-adjusted income quartile, percentages

	Income Quartile				All
	Bottom	Second	Third	Top	
Withdrawals	5.11	2.40	1.99	1.94	2.84
Demographic Controls					
Black	6.64	5.49	4.42*	3.22***&&	4.90
Hispanic	5.68	6.06	6.86	3.91&	5.63
Female	50.86	43.68***	45.20**	45.06***	46.21
Married	45.36	72.39***	86.41***&&&	83.84***&&&	71.96
Education					
High School or lower	25.19	24.02	19.32***&&&	10.91***&&&	19.89
Some college	43.90	39.26*	37.06***	26.07***&&&	36.61
Bachelor' Degree or higher	30.91	36.72***	43.51***&&&	63.02***&&&	43.51
Non-retirement Financial Assets					
Bottom Quartile	41.96	29.86***	20.06***&&&	8.57***&&&	25.17
Second Quartile	23.85	29.45***	28.27**	18.75***&&&	24.82
Third Quartile	14.67	24.78***	29.83***&&&	30.33***	24.83
Top Quartile	19.39	22.40	27.56***&&	30.11***	24.94
Shocks					
Job Loss	21.50	14.71***	16.06***	13.74***	15.4
Job Switch	2.81	4.16	3.06	4.16	3.55
Divorce	1.11	1.08	1.26	0.86	1.08
Divorce if married	2.45	1.49	1.46	0.90&	1.46
Having a baby	1.95	3.93**	3.44**	3.54**	3.21
Starting College	8.76	9.98**	14.58***&&&	14.36***	11.91
Moving to own House	2.28	2.36	1.56	0.81**	1.76

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8)

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. Sampling weights are used for calculations. *, ** and *** indicate statistically significant difference in means from the bottom quartile at 0.1, 0.05 and 0.01 levels. &, && and &&& indicate statistical significance in difference in means from the lower quartile at 0.1, 0.05 and 0.01 levels.

Table 9: Percentage of withdrawals conditioned on experiencing involuntary job-loss, by age-adjusted income quartiles

	Income Quartile	401(k)		Only IRA		Any	
		No Shock	Shock	No Shock	Shock	No Shock	shock
Job Loss	Bottom	5.7%	10.8%***	3.0%	11.8%***	5.2%	10.8%***
	Second	4.2%	8.1%***	1.5%	6.2%**	3.6%	8.1%***
	Third	3.7%	4.8%	1.8%	2.4%	3.5%	4.4%
	Top	2.8%	4.1%	2.1%	1.8%	2.7%	3.6%
	All	4.1%	7.3%***	2.1%	6.2%***	3.7%	7.1%***
Job Switch	Bottom	6.5%	8.7%	5.0%	2.1%	6.2%	7.6%
	Second	4.6%	10.0%**	2.1%	3.9%	4.1%	9.2%**
	Third	3.7%	8.2%**	1.9%	0.0%	3.5%	7.0%*
	Top	2.9%	4.3%	1.8%	6.8%	2.7%	4.8%
	All	4.4%	7.8%***	2.7%	3.6%	4.1%	7.1%***
Divorce	Bottom	6.6%	12.5%	4.9%	5.1%	6.2%	11.0%
	Second	4.8%	10.1%	2.1%	9.7%	4.3%	10.0%
	Third	3.8%	4.1%	1.8%	6.7%	3.6%	4.8%
	Top	2.9%	10.8%	2.1%	0.0%	2.8%	9.0%
	All	4.5%	9.4%**	2.7%	5.7%	4.2%	8.8%**
College	Bottom	6.6%	8.8%	5.1%	0.0%	6.2%	6.7%
	Second	4.9%	4.3%	2.2%	1.7%*	4.4%	3.4%
	Third	3.9%	2.9%	2.0%	0.0%	3.6%	2.9%
	Top	2.9%	4.4%	1.8%	6.5%	2.7%	4.7%
	All	4.6%	4.8%	2.8%	2.0%	4.3%	4.3%
Baby	Bottom	6.6%	6.2%	5.0%	0.0%	6.3%	5.3%
	Second	4.9%	4.0%	2.3%	0.0%	4.4%	3.4%
	Third	3.9%	2.3%*	1.9%	0.0%	3.7%	2.5%
	Top	3.1%	1.5%*	2.0%	3.8%	2.9%	1.3%**
	All	4.7%	3.0%**	2.8%	1.0%*	4.3%	2.7%***
House	Bottom	6.5%	12.0%*	4.7%	12.9%	6.1%	11.5%*
	Second	4.8%	7.8%	2.3%	0.0%	4.3%	6.4%
	Third	3.8%	7.2%	1.8%	7.4%	3.5%	8.1%*
	Top	2.7%	12.3%***	2.1%	0.0%	2.6%	11.5%***
	All	4.4%	10.0%***	2.7%	5.9%	4.1%	9.4%***

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8)

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. Sampling weights are used for calculations. *, ** and *** indicate statistically significant difference in means from the bottom quartile at 0.1, 0.05 and 0.01 levels.

Table 10a: LPM Regression Results - Shocks and Their Interaction with Income

	Any Plan		Have 401(k)		Only IRA	
	(1)	(2)	(3)	(4)	(5)	(6)
Job Loss	0.037 (7.57)***	0.072 (6.75)***	0.035 (6.38)***	0.067 (5.63)***	0.046 (4.50)***	0.102 (4.20)***
Second		-0.029 (1.95)*		-0.029 (1.79)*		-0.053 (1.66)*
Third		-0.064 (4.68)***		-0.057 (3.65)***		-0.090 (3.34)***
Top		-0.062 (4.72)***		-0.054 (3.58)***		-0.103 (3.82)***
Job Switch	0.033 (3.41)***	0.019 (0.96)	0.037 (3.42)***	0.027 (1.22)	0.010 (0.51)	-0.021 (0.85)
Second		0.032 (1.07)		0.026 (0.76)		0.043 (0.92)
Third		0.017 (0.62)		0.019 (0.60)		-0.004 (0.14)
Top		0.003 (0.11)		-0.011 (0.40)		0.073 (1.38)
Divorce	0.046 (2.32)**	0.068 (1.71)*	0.047 (2.05)**	0.075 (1.58)	0.039 (1.18)	0.034 (0.75)
Second		-0.018 (0.32)		-0.031 (0.49)		0.029 (0.29)
Third		-0.057 (1.24)		-0.075 (1.42)		0.020 (0.25)
Top		-0.009 (0.13)		-0.003 (0.03)		-0.045 (0.97)
Starting College	0.001 (0.16)	0.015 (0.76)	0.003 (0.32)	0.031 (1.31)	-0.007 (0.72)	-0.046 (3.60)***
Second		-0.028 (1.22)		-0.041 (1.42)		0.037 (1.67)*
Third		-0.027 (1.24)		-0.048 (1.81)*		0.021 (1.54)
Top		0.004 (0.17)		-0.018 (0.64)		0.092 (2.56)**
Having a Baby	-0.010 (1.69)*	0.010 (0.45)	-0.010 (1.53)	0.014 (0.55)	-0.014 (1.23)	-0.030 (2.62)***
Second		-0.017 (0.66)		-0.021 (0.72)		0.010 (0.75)
Third		-0.024 (1.04)		-0.033 (1.24)		0.008 (0.65)
Top		-0.025 (1.10)		-0.028 (1.07)		0.045 (1.13)
Moving to own House	0.055 (3.96)***	0.071 (2.50)**	0.059 (3.93)***	0.075 (2.49)**	0.029 (0.81)	0.081 (0.86)
Second		-0.056 (1.57)		-0.047 (1.21)		-0.112 (1.18)
Third		-0.028 (0.74)		-0.040 (1.03)		-0.030 (0.25)
Top		0.014 (0.32)		0.019 (0.40)		-0.106 (1.13)

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8).

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. Sampling weights are used for calculations. P-Values are in parenthesis. *, ** and *** indicate statistically significant difference in means from the bottom quartile at 0.1, 0.05 and 0.01 levels.

Table 10b: LPM Regression Results - Controls

	Any Plan		Have 401(k)		Only IRA	
	(1)	(2)	(3)	(4)	(5)	(6)
SIPP 2008 Dummy	0.016 (5.19)***	0.015 (4.81)***	0.015 (4.26)***	0.014 (3.96)***	0.020 (2.87)***	0.017 (2.56)**
Black	0.018 (2.80)***	0.018 (2.67)***	0.015 (2.15)**	0.014 (2.00)**	0.035 (1.92)*	0.034 (1.91)*
Hispanic	0.009 (1.27)	0.007 (1.07)	0.010 (1.27)	0.008 (1.04)	-0.006 (0.46)	-0.006 (0.48)
Married	0.017 (3.89)***	0.014 (3.04)***	0.020 (3.91)***	0.016 (3.20)***	0.007 (0.78)	0.002 (0.22)
Female	0.037 (6.69)***	0.033 (5.83)***	0.041 (6.56)***	0.036 (5.81)***	0.017 (1.42)	0.011 (0.92)
Married Female	-0.039 (6.10)***	-0.035 (5.32)***	-0.042 (5.72)***	-0.037 (5.07)***	-0.023 (1.73)*	-0.017 (1.26)
Education						
Some College	0.020 (4.84)***	0.018 (4.38)***	0.020 (4.28)***	0.018 (3.83)***	0.018 (2.38)**	0.015 (2.11)**
College or higher	0.002 (0.54)	0.000 (0.05)	-0.002 (0.51)	-0.004 (0.94)	0.020 (2.49)**	0.017 (2.14)**
Income Quartile						
Second	0.003 (0.63)	0.009 (1.75)*	0.004 (0.77)	0.010 (1.79)*	-0.007 (0.82)	0.002 (0.25)
Third	-0.001 (0.26)	0.011 (2.08)**	-0.001 (0.25)	0.011 (1.75)*	-0.010 (1.28)	0.006 (0.64)
Top	-0.002 (0.43)	0.007 (1.43)	-0.002 (0.40)	0.007 (1.11)	-0.008 (0.94)	0.003 (0.33)
Non-retirement Fin.						
Second	0.008 (1.81)*	0.007 (1.57)	0.011 (2.12)**	0.010 (1.89)*	0.002 (0.17)	-0.000 (0.05)
Third	-0.010 (2.31)**	-0.011 (2.63)***	-0.007 (1.38)	-0.008 (1.62)	-0.014 (1.97)**	-0.015 (2.09)**
Top	-0.011 (2.74)***	-0.013 (3.06)***	-0.010 (2.01)**	-0.011 (2.27)**	-0.006 (0.75)	-0.007 (0.85)
Less than \$1k	-0.009 (2.05)**	-0.011 (2.40)**	-0.007 (1.30)	-0.009 (1.61)	-0.015 (2.01)**	-0.017 (2.30)**
_cons	0.063 (9.31)***	0.061 (8.97)***	0.063 (8.31)***	0.061 (8.02)***	0.062 (4.11)***	0.054 (3.77)***
Adj. R ²	0.05	0.06	0.06	0.06	0.04	0.06
N	23,295	23,295	19,160	19,160	4,135	4,135

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8).

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account. Sampling weights are used for calculations. *, ** and *** indicate statistically significant difference in means from the bottom quartile at 0.1, 0.05 and 0.01 levels.

Table 11: Dollar amount and ratio of account balances withdrawn by job-loss

	Income Quartile	Q1	Q2	Q3	Q4	All
Not experienced Job-Loss	Median Withdrawal	\$3,000	\$4,400	\$7,000	\$9,900	\$4,500
	Median Balance in Previous Year	\$12,000	\$25,700	\$30,000	\$76,900	\$24,000
	Median Ratio Withdrawn	25%	25%	19%	8%	21%
Experienced Job-Loss	Median Withdrawal	\$3,500	\$7,700	\$9,900	\$8,800	\$6,000
	Median Balance in Previous Year	\$8,000	\$13,400	\$46,100	\$70,300	\$19,800
	Median Ratio Withdrawn	58%***	46%***	22%	11%	36%***

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8)

Note: Sample includes individuals with ages between 25 and 58 who have a retirement account and made an early withdrawal in 2005 or 2010. Sampling weights are used for calculations. All the dollar amounts are in 2009 USD. *, ** and *** indicate statistically significant difference in medians of those who experienced shocks and those who didn't at 0.1, 0.05 and 0.01 levels.

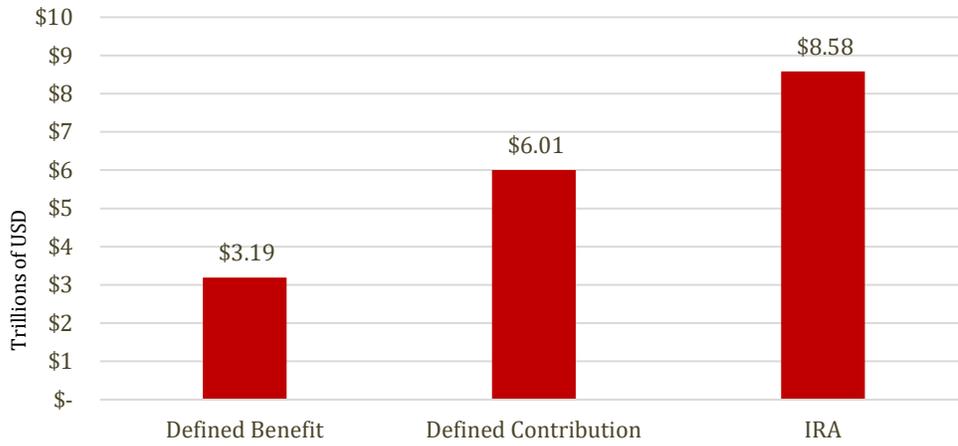
Table 12: Differences in the effect of shocks on the ratio of withdrawals to initial account balances among income categories, Quantile regression results

Dependent Variable: Withdrawal to initial account balance ratio	
Independent Variables and Interactions	
Income Category (top quartile as the base)	
1st quartile	0.180*** (0.0374)
2nd quartile	0.135** (0.0545)
3rd quartile	0.110* (0.0603)
Shocked	0.0313 (0.0353)
Shocked & 1st quartile	0.189** (0.0791)
Shocked & 2nd quartile	0.205*** (0.0786)
Shocked & 3rd quartile	-0.0208 (0.0850)
Constant	0.0704*** (0.00915)
Observations	876

Source: Authors' calculations based on SIPP 2004 (waves 4 and 7) and SIPP 2008 (waves 5 and 8)

*Note: Sample includes individuals with ages between 25 and 58 who have a retirement account and made an early withdrawal in 2005 or 2010. Sampling weights are used for calculations. Standard errors in parenthesis. *, ** and *** indicate statistically significant difference in means from the bottom quartile at 0.1, 0.05 and 0.01 levels.*

Figure 1: Total U.S. Private Retirement Assets by Type of Plan, 2017-Q3



Source: U.S. Board of Governors of the Federal Reserve System, Flow of Funds Accounts, Fourth Quarter of 2017.

Note: IRA assets of public sector employees are included in calculation of IRA assets