

What Explains Early Withdrawals from Retirement Accounts? Evidence from a Panel of Taxpayers

Abstract - We use data from a ten-year panel of individual tax returns to investigate the circumstances under which households choose to incur a 10 percent penalty in order to gain early access to retirement accounts. We attempt to link the likelihood of early withdrawals to shocks experienced by households at the time of withdrawal and to the availability of non-retirement assets. Our findings indicate that penalized withdrawals are significantly more likely among households that experience adverse shocks, and that the effect of shocks is amplified for households with low levels of non-retirement financial wealth. In particular, we find that job loss, income shocks, divorce, and home purchases increase the likelihood of early ESP withdrawals by an average of 3 to 10 points each, with significantly stronger increases among the poorest households. We conclude that a significant portion of early withdrawals from retirement accounts reflects consumption-smoothing behavior by liquidity-constrained households who experience financial shocks, rather than squandering of pension assets.

INTRODUCTION

Over the past 20 years, tax-deferred accounts (TDAs) such as Individual Retirement Accounts (IRAs) and employer-sponsored plans (ESPs) have become a key component of individual retirement planning.¹ Although such accounts can take on many guises, they generally share two features—tax-exempt account earnings and withdrawal restrictions before retirement.² Early withdrawals are generally subject to a 10 percent penalty, and, in the case of 401(k) plans, are prohibited outright except in cases of economic hardship or separation from the employer. A recent Administration proposal for establishing a new type of TDA with no early withdrawal penalties has brought into sharp relief the role of such

**Gene Amromin &
Paul Smith**

*Federal Reserve Board
of Governors
Washington, DC 20551*

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¹ For example, from 1983 to 2001, the share of households with either an IRA or an ESP increased from 37 to 59 percent (Survey of Consumer Finances), while total IRA and ESP assets increased from \$655 billion in 1985 to \$4.4 trillion in 2002 (Flow of Funds).

² IRAs include traditional, Roth and nondeductible IRAs, while ESPs include profit-sharing plans, thrift plans, money-purchase plans, 401(k)s, and 403(b)s. Similar accounts for the self-employed include Keoghs and SEP-IRAs.

penalties in shaping household behavior. Would households with free access to their TDA assets continually run them down, or would the increased liquidity encourage new savings by households with precautionary motives? One way to shed some light on this question is to examine what leads to pre-retirement withdrawals under the current system.

A number of recent studies have found that when ESP assets become available upon leaving a job, many individuals cash out the accounts and spend the assets, rather than rolling them over to another TDA.³ This result is particularly prevalent among households with low levels of ESP assets. Engelhardt (2002) and Poterba, Venti, and Wise (1995, 1999) find that the aggregate size of these cash-outs are small, i.e., a majority of assets in dollar terms are preserved in TDA form. Nevertheless, there is a certain sense of alarm that precisely those households that are worst prepared for retirement end up raiding their pension savings when given a chance.

We offer a somewhat different perspective on the failure of households to preserve TDA assets by investigating the economic circumstances under which such pre-retirement withdrawals are made. Due to a number of data limitations, previous empirical studies considered the TDA rollover decision in isolation, without taking into account the existence and severity of shocks to income or consumption needs. For example, many ESP distributions are associated with job separations, not all of which are voluntary. Thus, much of the previous work has focused on individuals who were disproportionately likely to suffer from adverse income shocks, and thus more likely to need the assets to smooth current consumption.

By contrast, our unique panel data set of 1987–1996 individual tax returns allows us to control for a variety of changes in household finances, including income

shocks, job loss, divorces, changes in the number of earners or dependents, home purchases, and high medical expenses. Our goal is to gauge the importance of such shocks in determining early withdrawals from TDAs. In addition to ESP withdrawals, we also study early withdrawals from IRAs, which feature fewer access restrictions than employer-sponsored accounts.

Our findings indicate that penalized withdrawals are significantly more likely among households with low levels of non-retirement financial wealth, job loss, income shocks, divorce, and home purchases increase the likelihood of early withdrawals by 3 to 10 percentage points each. In addition, households with low non-retirement financial wealth are significantly more likely than other households to access their retirement accounts in response to such shocks. We conclude that a significant portion of early withdrawals from retirement accounts reflects consumption-smoothing behavior by liquidity-constrained households who experience financial shocks, rather than squandering of pension assets simply because they have become available.

The rest of the paper is organized as follows. The second section discusses the tension between current consumption and retirement saving in the context of lifetime utility maximization. The third section summarizes the restrictions on IRA and ESP withdrawals, while the fourth section describes the data set. The fifth section contains the discussion of empirical results, and the sixth section summarizes our findings and offers directions for future research.

CONSUMPTION SMOOTHING AND RETIREMENT SAVINGS

The central feature of a standard multi-period model of consumption under uncertainty is that households seek to

³ See Burman, Coe, and Gale (1999), Engelhardt (2002), Moore and Muller (2002), and Sabelhaus and Weiner (1999).

smooth marginal utility of consumption over time and over different states of the world. As a result, households forgo current consumption in order to accumulate retirement savings. During their working years, households face uncertain labor earnings that can dramatically affect the amount of current income available to finance consumption. Thus, in order to smooth consumption across different states of the world, households build up stocks of precautionary assets. If borrowing is constrained or excessively costly, negative income or demographic shocks may compel households to dissave from accumulated precautionary or retirement assets. A similar result may occur if a household faces an increase in current consumption needs, such as an additional dependent.

Households that dissave in order to finance current consumption would be expected to dissave out of non-TDA assets before TDA assets. TDA assets are more costly because they grow at a pre-tax rate of return, while non-TDA assets grow at an after-tax rate. In addition, since many TDA contributions are made with pre-tax dollars, income taxes are due upon withdrawal of the assets. Finally, early access to TDA assets generally comes with an additional 10 percent penalty. Thus, pre-retirement TDA withdrawals can result in significant taxes and penalties, as well as the loss of future tax benefits on account earnings. Nonetheless, if few other assets are available for consumption smoothing, households may well use costly retirement savings for this purpose. While such choices may be unfortunate from the standpoint of retirement security, they would not necessarily be inconsistent with utility maximization over the lifetime.

In this context, the decision to cash out ESP distributions (or to withdraw IRA assets) becomes a function of the strength of a household's consumption-smoothing

motives, its income, and the size and composition of its savings. This modeling framework links the likelihood of TDA dissaving to the occurrence of adverse income shocks and the level of non-retirement assets. Income and demographic shocks trigger the need for consumption smoothing, while the level of non-TDA assets determines the household's ability to avoid drawing on its retirement savings.

Previous studies of TDA cash-outs have been based (usually implicitly) on comparisons between current and expected future tax rates.⁴ If the expected marginal tax rate at retirement exceeds the sum of current marginal tax rate and the 10 percent penalty, then it is optimal *not* to roll over the lump-sum distribution. This decision framework makes rollovers much more attractive to households that are at or near the top of the schedule of statutory marginal tax rates, because such households have little reason to believe that their future tax burdens will exceed their present marginal tax rates by more than the penalty wedge. Empirically, households with high MTRs are also likely to have high TDA balances. Thus, this decision framework fits well the robust empirical finding that the likelihood of rollover is increasing in the size of the TDA.

However, the tax-rate comparison model ignores other factors that affect the decision to cash out a TDA. In an intertemporal consumption model, the decision to withdraw TDA assets before retirement would be positively related to the strength of consumption-smoothing motives on part of households, which (for a given level of risk aversion) depends on the severity of current income or demographic shock. By extension, the withdrawal likelihood is a negative function of household current and expected income and liquid financial wealth. This set of testable restrictions guides our empirical analysis.

⁴ See Burman, Coe, and Gale (1999) for an explicit specification.

RESTRICTIONS ON ACCESS TO TDA ASSETS

All TDAs currently feature some restrictions on access to the funds before retirement age.⁵ IRAs permit withdrawals at any age, but taxpayers must pay a 10 percent penalty tax on withdrawals taken before age 59½. The penalty does not apply in certain cases, including death or disability, or withdrawals made in substantially equal periodic payments over the life of the participant or beneficiary. ESPs (including 401(k) plans) are also subject to the 10 percent penalty, but offer a longer list of exceptions, including (in addition to those listed above) withdrawals after reaching age 55 if the participant has separated from the employer, distributions to a spouse under a divorce-court order, deductible medical expenses, and certain ESOP distributions.⁶

Special restrictions apply to 401(k) plans, which prohibit pre-retirement access outright, except in the cases of death or disability, separation from the employer, termination of the plan, or employee hardship. Hardship withdrawals are limited to amounts necessary to satisfy an immediate and heavy financial need, including medical expenses, home purchase, post-secondary tuition, and expenditures required to prevent eviction or foreclosure. Hardship withdrawals are taxable and subject to the 10 percent penalty (unless an exception applies), and also trigger additional “implicit

penalties”: the suspension of new contributions (by either the employee or the employer) for at least 12 months, and a reduced contribution limit in the following year.⁷

Many ESPs (including 401(k) plans) offer loans against the account balance. Participants do not need to prove hardship to take a loan. A loan is generally not treated as a distribution (and thus not subject to taxes and penalties) as long as it is required to be repaid within five years (or is used for a home purchase) and is less than the smaller of \$50,000 or 50 percent of the account balance. Loans are not permitted from IRAs.

DATA

Clearly, not all of the nuances available in the withdrawal rules described above are observable in the tax data. We use a large panel of tax returns covering the years 1987 to 1996.⁸ The panel is based on a representative cross-section of about 88,000 returns in 1987. The panel was constructed by searching the population of post-1987 tax returns for the Social Security numbers of all taxpayers, spouses, and dependents that appeared in the 1987 cross-section sample. This method allows individuals to be tracked over time regardless of income changes, marriage, divorce, or establishment of a new tax unit by a former dependent. The sample includes rich detail on income, including information matched in from individual-level W2s

⁵ The Treasury Department’s proposal for Lifetime Savings Accounts, included in the President’s FY2004 budget request, would create a new set of tax-deferred savings accounts from which withdrawals could be taken at any time without penalty.

⁶ This discussion summarizes the rules in place over the time period covering our data (1987 to 1996). Later legislation expanded the list of IRA exceptions to include deductible medical expenses, health-insurance premiums for the unemployed, qualified higher education expenses, and first-time homebuyer expenses up to \$10,000.

⁷ Hardship rules have been modified slightly since 1996. A prohibition against rolling over hardship distributions was added in 1998, and the 12-month suspension of contributions was reduced to six months beginning in 2002.

⁸ The panel was developed as a joint effort between the Treasury Department’s Office of Tax Analysis and the IRS’s Statistics of Income division. The panel uses confidential records and is not publicly available.

and Social Security records (such as date of birth, date of death, and sex).⁹

We select a sample of returns in which the primary taxpayer is between the ages of 21 and 59, further restrict the sample to households for which we have complete 10-year histories.¹⁰ Divorces are identified using year-to-year changes in the reported marital status and the SSNs of the primary and secondary filers.¹¹ Our final sample contains 52,824 households, resulting in 528,240 returns.

Variable Construction

Our data suffer from a number of limitations which complicate the identification of retirement-account flows. While the IRA variables are available in a “ready-to-use” form, constructing ESP variables requires more effort. First, tax returns do not explicitly distinguish between traditional defined-benefit pension income and withdrawals from an employer-sponsored account plan. Second, the data do not explicitly identify the source of a retirement-account penalty (e.g., early IRA withdrawal, early ESP withdrawal, or excess contribution to, or withdrawal from, one of these accounts). Third, we cannot distinguish between an in-service distribution (e.g., a hardship withdrawal, or a loan in excess of the lim-

its) and a lump-sum distribution (withdrawal of the entire balance when retiring or separating from the employer).¹² Finally, we cannot explicitly identify how much of a distribution has been rolled over to another TDA.

Despite these limitations, the situation is not hopeless. We observe taxable and nontaxable pension income, taxable and nontaxable IRA income, and the amount of penalty taxes paid on retirement-account transactions. We use this information, in combination with age and other data, to construct the variables of interest.

Our first goal is to identify recipients of pre-retirement distributions from an ESP. We define this group by including returns of taxpayers under age 55 that indicate taxable or nontaxable pension income.¹³ Next we locate the source of a penalty by comparing the penalty amount to taxable IRA and/or pension distributions (e.g., a return containing a \$100 penalty and a \$1,000 taxable pension distribution would indicate a penalized withdrawal of \$1,000 from an ESP).¹⁴

Since previous literature focused on the question of how much of a lump-sum distribution (LSD) was rolled over vs. cashed out, we would like to identify those variables as well. We have little to go on in distinguishing LSDs from hardship withdrawals and loans in excess of the limits.¹⁵

⁹ While our sample is not subject to sample attrition bias, there is attrition from the *population* of tax filers that occurs when a filer’s income drops below the filing threshold (\$6,550 to \$13,400 in 1996, depending on age and filing status). This source of attrition is non-random—older and lower-income workers are more likely to drop out of the filing population than middle-aged, higher-income workers.

¹⁰ While this biases the sample towards middle-aged and slightly higher-income returns, it is necessary for identifying the year of divorce and to compute changes in household financial and demographic circumstances.

¹¹ We delete married-filing-separate returns and single returns of individuals who already appear as a spouse on another joint return. To construct complete 10-year histories for each spouse of a divorcing couple, we duplicate pre-divorce records and append them to post-divorce records of the second spouse.

¹² Loans that are below the limits do not trigger taxes or penalties, and thus do not appear in our data at all.

¹³ This age restriction filters out most recipients of traditional DB income; however, it would still include DB participants who received a lump sum payment upon retiring early or leaving the employer.

¹⁴ If the return shows taxable distributions from both an IRA and an ESP, we compare the penalty to a tenth of each distribution in order to determine the source of the penalty.

¹⁵ In one empirical specification we exclude returns indicating home purchases or medical deductions, since these two events account for the majority of hardship withdrawals. The exclusion makes little difference on the results.

We identify rollovers by selecting returns with nontaxable pension income but no taxable pension income.¹⁶ We impute the LSD amount as the sum of tax-exempt distributions and penalized withdrawals. This approach allows us to avoid counting any non-penalized (but not tax-exempt) distributions, such as regular pension income, in LSD.

The panel nature of the data is exploited in constructing measures of changes in households' financial situation, including divorces, job loss, income changes, new dependents, home purchases, reduction in number of earners, presence of high medical expenses, and the presence of college-age dependents. Job loss is defined as presence of unemployment compensation. Real income changes are calculated relative to the previous one-year and three-year averages. Home purchases are identified as the appearance of a home-mortgage interest deduction when none was claimed the prior year.

Permanent income is defined as the ten-year average of real income.¹⁷ We impute financial assets by grossing up capital income using average dividend payout rates and interest rates from the *Economic Report of the President*.¹⁸ Finally, we match in zip-code level measures for educational attainment and housing values from Census data.

EMPIRICAL ANALYSIS

Household financial decision-making involves many distinct facets, such as the decision to save labor earnings, the choice of account type and asset allocation, etc. Since the primary focus of our paper is pre-retirement dissaving out of to existing pension assets, we ignore the other aspects of savings and concentrate on households that have already made the decision to own tax-deferred pension accounts. Consequently, our empirical analysis is based on two subsamples indicating IRA and ESP ownership, respectively. We impute IRA (ESP) ownership to households that make any contribution to or receive any distribution from an IRA (ESP) over the ten-year sample period. Households who roll over ESP assets are assumed to own an IRA.¹⁹ However, in order to focus on ESP owners with pre-retirement access to their accounts, we restrict the ESP subsample to households that receive an ESP distribution (whether rolled over or cashed out). Moreover, since our interest lies in pre-retirement withdrawals, we restrict both the sample of IRA owners and the sample of ESP distribution recipients to households where the primary taxpayer is at most 59 years old.

¹⁶ A return showing both taxable and nontaxable pension income could indicate either a partial rollover or a withdrawal from an after-tax ESP (for which only account earnings are taxed). We test the likelihood of the distribution being entirely from an after-tax ESP by calculating the share of pension income that is taxable. With a few assumptions, we figure the maximum share of an after-tax ESP that could represent earnings (e.g., an account growing at 10 percent per year would generate 26 percent of its balance from earnings after 5 years, and 92 percent after 40 years). If the observed taxable share is larger than the relevant cut-off (using taxpayer age minus 25 to proxy account age), we deem the nontaxable income to represent a partial rollover rather than an after-tax ESP.

¹⁷ We use a broad income measure: starting with "total income" from the tax return, we add foreign income, tax-exempt interest, and deferred compensation and subtract self-employed deductions for one-half of SECA taxes and health insurance (the subtraction makes self-employed and wage workers comparable). Finally, we subtract taxable pension and IRA distributions, since these are essentially endogenous to the behavior we are investigating.

¹⁸ We concentrate on financial assets that generate non-discretionary returns (i.e., exclude capital gains). While not ideal, this approach is sufficient for assigning an ordinal ranking to household financial wealth.

¹⁹ This procedure likely overstates IRA ownership because some households that roll over their distributions into an ESP account with a new employer. We also exclude households that have made contributions only to Keogh plans, since withdrawals from such plans are recorded as "pensions and annuities" on Form 1040 and thus would not be identifiable as IRA withdrawals. We thank Paul Burnham for drawing our attention to this point.

Descriptive Statistics and Univariate Analysis

Table 1 presents summary statistics on the frequency and amounts of distributions from IRA and ESP accounts. Because we rely on the presence of contributions or rollovers to impute IRA ownership, we undercount the number of IRA households in the early years of the panel. That is, households that made contributions prior to 1987 and do not make any additional contributions or rollovers, do not generate any tax return activity that would allow designation of IRA ownership. However, we observe IRA *withdrawals* directly, i.e., the measure of withdrawals does not depend on our imputation of IRA ownership. We observe a very strong positive time trend in both the total and average amounts of IRA withdrawals in our weighted sample. In real terms, the amount withdrawn has increased from \$3.7 billion in 1988 to nearly \$9 billion in 1996. Some of this increase may be attributed to the growing size of IRA accounts, fueled both by asset returns and ESP rollovers.²⁰

The bottom panel of Table 1 contains a summary of the data on ESP ownership and distribution. Our classification of ESP owners depends on observing taxable events and so is subject to the same undercounting as IRA ownership. We note that the number of ESP distributions rises substantially towards the end of the sample, owing to higher participation rates in employer-sponsored plans and attendant distributions upon job separations. It is also interesting that the percentage of ESP distributions that are associated with penalties has declined to 41 percent in 1996, after reaching its peak of 54 percent in 1991.

Table 2 takes the first step towards investigating the relationship between existence of various shocks and household

decision to withdraw pension assets prematurely. For each shock that we identify, the table summarizes proportions of penalized withdrawals among households that experienced the shock and those that did not. Each of these conditional means is weighted using the tax panel sampling weights. A pairwise comparison of conditional means indicates that most shocks substantially increase the likelihood of an early withdrawal from an IRA. For example, an increase in the number of dependents raises the probability of an IRA withdrawal to 5.7 percent from 4.4 percent; an involuntary job loss produces an increase from 4.2 percent to 6.8 percent, and a 20 percent decline in wages results in 7.1 percent of households taking money from their IRAs. All of these results represent a substantial increase from the unconditional weighted mean of 4.2 percent and are statistically significant. Of all shocks identified in Table 2, only conditioning on the presence of “college-age dependents” and divorce does not result in a statistically higher proportion of early IRA withdrawals.

The right panel of Table 2 repeats the analysis for ESP distributions. Two things are immediately apparent from the comparison of the two panels—(a) shocks produce sizable increases in the share of households choosing early penalized withdrawals and (b) there exists a substantial difference in propensities to withdraw from the two retirement accounts. The latter is partly due to differences in the way in which samples are defined, since the ESP sample includes only ESPs from which some type of distribution has been made, while the IRA sample includes all IRAs. But it may also reflect unobserved heterogeneity in savings tastes, and the possibility that households regard lump-sum ESP distributions as

²⁰ According to data from the Surveys of Consumer Finances, the average size of an IRA/Keogh account grew by nearly 50 percent in real terms between 1989 and 1995 (from \$27,000 to \$40,000).

TABLE 1
DISTRIBUTIONS FROM IRA AND ESP ACCOUNTS IN THE TAX PANEL SAMPLE

Year	N of HHs (million)	IRA owners (million)	IRA ownership (% of HHs)	Penalized Withdr. (N million)	Penalized Withdr. (% of owners)	Mean IRA withdrawal	Total IRA withdrawals (\$ bln.)
1988	51.8	7.4	14.2	0.52	7.0	\$3,963	3.69
1989	51.4	10.2	19.8	0.55	5.4	\$5,096	4.77
1990	51.0	12.1	23.8	0.69	5.7	\$5,490	5.73
1991	50.8	13.7	27.0	0.72	5.2	\$5,509	5.88
1992	50.6	15.2	30.0	0.67	4.4	\$6,266	6.82
1993	50.5	16.3	32.2	0.58	3.6	\$7,142	6.84
1994	50.3	17.1	33.9	0.59	3.4	\$7,980	7.86
1995	50.4	17.9	35.5	0.54	3.0	\$8,866	8.15
1996	50.5	18.7	37.0	0.64	3.4	\$8,626	8.99

Note: the sample includes households between the ages of 21 and 65 that have complete 10-year filing histories. The sample also excludes married households that file separately.
All figures are in constant 1996 dollars and reflect sampling weights.

Year	N of HHs (million)	ESP owners (million)	ESP ownership (% of HHs)	ESP Distr.* (million)	Penalized Distr. (% of ESP distr.)	Mean ESP distribution	Total ESP distributions (\$ bln.)
1988	51.8	15.0	29.0	1.9	48.7	\$10,803	20.98
1989	51.4	17.9	34.9	2.2	48.5	\$10,738	23.85
1990	51.0	19.8	38.9	2.5	50.4	\$10,563	26.11
1991	50.8	21.6	42.6	2.9	54.2	\$11,950	34.21
1992	50.6	24.4	48.3	2.9	52.4	\$12,819	37.80
1993	50.5	25.9	51.4	2.7	45.5	\$14,963	40.67
1994	50.3	27.1	53.7	3.1	46.0	\$13,892	43.18
1995	50.4	27.9	55.3	3.5	42.5	\$14,435	51.24
1996	50.5	28.2	55.9	3.9	41.4	\$16,278	62.77

Note: the sample includes households between the ages of 21 and 65 that have complete 10-year filing histories. The sample also excludes married households that file separately.

All figures are in constant 1996 dollars and reflect sampling weights.

*ESP distributions include tax-exempt distributions (e.g. rolled over), taxable and penalized distributions (e.g. non rolled-over assets), taxable but non-penalized distributions (e.g., distributions used for medical exemption), distributions from Keogh plans, and hardship withdrawals.

TABLE 2
DECOMPOSITION OF INCIDENCE OF EARLY WITHDRAWALS—E [PENALIZED WITHDRAWAL | SHOCK]

Shock	from IRA holdings		from ESP distributions		F-stat
	Prob (state)	E [wthdr state]	Prob (state)	E [wthdr state]	
Increase in Dependents	No	4.4	0.93	57.2	10.4**
	Yes	5.7	0.07	62.6	
Divorce	No	4.4	0.99	57.4	7.9**
	Yes	4.9	0.01	67.8	
New Mortgage	No	4.3	0.94	57.0	24.5**
	Yes	6.8	0.06	66.6	
College-Age Dep	No	4.4	0.86	58.0	7.2**
	Yes	4.7	0.14	54.6	
Medical Expense	No	4.4	0.95	58.2	39.7**
	Yes	5.0	0.05	45.7	
Unemployment	No	4.2	0.86	56.3	47.4**
	Yes	6.8	0.14	65.4	
Decrease in # Earn	No	4.3	0.92	57.4	1.6
	Yes	5.4	0.08	59.4	
Wage Shock (1-yr) ^f	>20%	4.2	0.13	53.4	6.3*
	<-20%	7.1	0.19	58.0	
Income Shock (1-yr) ^f	>20%	3.5	0.14	51.9	12.8**
	<-20%	7.5	0.19	58.1	
Wage Shock (3-yr) ^f	>20%	3.3	0.17	54.9	0.6
	<-20%	6.0	0.25	56.3	
Income Shock (3-yr) ^f	>20%	2.9	0.17	54.0	5.4*
	<-20%	6.7	0.22	58.2	

Note: all proportions are computed for weighted data, using panel sampling weights
 The proportions are computed for samples of households that would generally be subject to early withdrawal penalties:
 # these income shocks are defined for a subsample of households that do not experience a change in the number of earners
 ** denotes statistical significance at 1% level, * at 5%

quite distinct from their equally accessible IRA savings.²¹

Some of the conditional means comparisons are quite different between the two panels of Table 2. For example, IRA withdrawals are more responsive to decreases in the number of earners and negative wage shocks relative to the 3-year household average. Some of the differences, however, have clear-cut explanations. During our sample years, the provision for penalty-free withdrawals for high medical expenses applied to distributions from some ESPs but not to IRA assets, which explains higher incidence of penalized IRA withdrawals and a lower incidence of ESP penalties for this shock.

Table 3 considers the variation in households' early withdrawal choices with respect to variables that relate to household ability to finance current consumption out of non-pension assets. The results cor-

roborate findings in the earlier literature, by identifying strong inverse relationships between consumption of ESP distributions and age, financial wealth, and income. We also document nearly identical patterns for IRA withdrawals. For example, only 1.3 percent of households that averaged more than \$300,000 in total earnings over the ten-year history of the panel took out an early withdrawal, whereas 4.5 percent of households in the lowest income quartile (less than \$32,350) did so.

Probit Analysis of Early Withdrawal Decisions from ESP Distributions

Table 4 contains the estimated coefficients from several formulations of a probit model for taking a penalized withdrawal from an ESP distribution. The first two panels are estimated on a subsample of households that received a taxable pen-

TABLE 3
EARLY WITHDRAWAL PENALTIES BY AGE, PERMANENT INCOME AND FINANCIAL WEALTH

	IRA ownership (% of group)	Penalized Distr. (% owners)	ESP ownership (% of group)	Receipt of ESP Distr. (% of owners)	Penalized Distr. (% recipients)
<i>Age</i>					
20 to 35	19.0	5.1	46.3	9.0	67.6
35 to 45	32.1	4.4	55.0	9.3	58.8
45 to 55	37.6	4.0	51.5	12.0	43.7
55 to 60	33.7	3.0			
<i>Permanent Income*</i>					
< \$32,350	17.7	4.5	35.3	9.7	55.1
32,350 to 65,270	33.4	4.6	51.6	11.9	55.4
65,270 to 300,000	44.0	3.6	61.5	12.2	41.3
>300,000	51.9	1.3	46.4	15.2	18.9
<i>Financial Wealth**</i>					
none	13.5	5.8	41.4	7.3	75.8
< \$2,555	27.0	6.6	48.8	11.6	63.2
\$2,555 to \$24,160	38.2	3.2	48.6	12.7	39.9
\$24,160 to \$350,810	47.8	1.4	42.5	16.4	21.2
> \$350,810	49.6	1.0	38.3	17.9	12.3

*Permanent income is defined as a 10-year average of total real income. Detailed definition is given in text.

**Financial wealth represents imputations of interest- and dividend-income generating assets. Imputations details are described in text.

The four positive breakpoints denote quartile thresholds for imputed financial wealth in our sample. All dollar figures are in 1996 dollars.

²¹ We repeated this exercise on a subsample of ESP distribution recipients that exhibited "high" taste for savings evidenced by either direct IRA contributions or IRA rollovers. The results (not reported) were little changed, leading us to discount the explanation of level differences in withdrawal propensities on the basis of unobserved taste heterogeneity.

What Explains Early Withdrawals from Retirement Accounts?

TABLE 4
PROBABILITY OF A PENALIZED ESP DISTRIBUTION

	(1)			(2)		
	No shocks			Total income shocks		
	Coeff.	Std.Err.	dF/ dx	Coeff.	Std.Err.	dF/ dx
Lagged MTR	-1.37**	0.10	-0.51	-1.42**	0.11	-0.53
Lsum (\$1,000 to \$5,000)	-0.04	0.02	-0.01	-0.05*	0.02	-0.02
Lsum (\$5,000 to \$10,000)	-0.10**	0.03	-0.04	-0.10**	0.03	-0.04
Lsum (more than \$10,000)	-0.46**	0.02	-0.17	-0.49**	0.02	-0.18
Age 35-45	-0.11**	0.03	-0.04	-0.12**	0.03	-0.04
Age 45-55	-0.30**	0.03	-0.11	-0.33**	0.03	-0.12
Age 55-60	-0.81**	0.03	-0.25	-0.82**	0.03	-0.26
Perm Income 2	0.12**	0.03	0.05	0.13**	0.03	0.05
Perm Income 3	0.15**	0.03	0.06	0.17**	0.03	0.07
Perm Income 4	0.10*	0.04	0.04	0.14**	0.04	0.05
Financial wealth Q2	-0.28**	0.03	-0.10	-0.28**	0.03	-0.10
Financial wealth Q3	-0.74**	0.03	-0.25	-0.75**	0.03	-0.25
Financial wealth Q4	-1.06**	0.04	-0.33	-1.07**	0.04	-0.33
Financial wealth Q5	-1.18**	0.04	-0.36	-1.20**	0.04	-0.36
Fewer earners				0.04	0.03	0.02
Involuntary job loss				0.10**	0.03	0.04
Bad income shock				0.14**	0.02	0.05
Good income shock				-0.03	0.02	-0.01
More dependents				0.03	0.04	0.01
Divorce				0.21**	0.07	0.08
Home purchase				0.24**	0.04	0.09
College age dependents				0.13**	0.02	0.05
High medical expenses				-0.08*	0.04	-0.03
% College + in ZIP	-0.16	0.14	-0.06	-0.13	0.14	-0.05
% HighScholl - in ZIP	-0.12	0.12	-0.04	-0.09	0.12	-0.03
Median house value in ZIP	-0.001	0.001	0.000	-0.001	0.001	0.000
1989 year dummy	-0.07	0.04	-0.02	-0.07	0.04	-0.02
1990 year dummy	0.01	0.04	0.00	0.01	0.04	0.00
1991 year dummy	0.12**	0.04	0.04	0.12**	0.04	0.05
1992 year dummy	0.08*	0.04	0.03	0.09*	0.04	0.03
1993 year dummy	-0.08*	0.04	-0.03	-0.08*	0.04	-0.03
1994 year dummy	0.06	0.04	0.02	0.07	0.04	0.02
1995 year dummy	0.03	0.04	0.01	0.05	0.04	0.02
1996 year dummy	0.11**	0.04	0.04	0.14**	0.04	0.05
Intercept	1.17**	0.11		1.10**	0.11	
Number of observations		28,856			28,563	
pseudo-R ²		0.175			0.182	

Note: cutoff points for permanent income and financial wealth groups are defined in Table 3.

*indicates statistical significance at 5% level.

**at 1% level.

sion distribution, as discussed in the previous section. Thus, this subsample likely includes recipients of both lump-sum and hardship distributions. In an attempt to establish a link with earlier studies, we first estimate the probit model that includes only financial and demographic characteristics of household, such as its age group, permanent income and financial wealth quartile, and median education and house value levels in its zip-code. Following Burman et al., (1999) we also

include the size of the ESP distribution, partitioned into several discrete groups, and the marginal tax rate (MTR).

Since our data come from tax returns, we are able to obtain a precise measure of the effective marginal tax rate, which is lagged to alleviate endogeneity concerns. The MTR serves as a central measure of the two key costs associated with early withdrawals—the direct cost of paying taxes on withdrawals and the opportunity cost of forgoing the benefit of tax-free ac-

cumulation of assets. We also control for broad macroeconomic shocks by including a series of year dummies.

The results of this “no-shock” formulation are listed in panel 1 of Table 4. In line with earlier studies (e.g., Burman et al., 1999; Engelhardt, 2002) we find that the likelihood of consuming (in our formulation, paying penalties on) an ESP distribution is decreasing with the size of a distribution, age, and especially financial wealth. We also find that MTR is a strong predictor of withdrawal behavior, with higher rates corresponding to lower probability of a penalized distribution. Looking at marginal effects, increasing the MTR from 10 percent to 28 percent results in decreasing the likelihood of an early ESP withdrawal by 9.2 percent, while building up even modest liquid wealth (i.e., moving from zero non-pension wealth to approximately \$2,500 in interest and dividend-generating assets) decreases this likelihood by 10 percent.

The regression in panel 2 incorporates information on various financial shocks that were experienced by a household in a year when it received an ESP distribution. We expect that experiencing an adverse shock strengthens the consumption smoothing demand of a household and thus results in a higher likelihood of raiding an ESP distribution. For ease of reading the results, we arrange shocks by category—income shocks (a decrease in the number of earners, involuntary job loss, and wage or total income shocks), demographic shocks (an increase in the number of dependents and divorce), and lumpy consumption needs (home purchase, college-age dependents, and medical expenses). In order to separate the effects of various income shocks, we define job loss and income/wage shocks only for households that did not have a change in the number of earners.

Our results in panel 2 show that at least one shock in each category has a strong and statistically significant effect on the likelihood of consumption out of an ESP distribution. In particular, adverse shocks to total income, involuntary job loss, divorce, as well as house purchase and presence of college age dependents produce a 4 to 9 percent increase in the likelihood of early ESP withdrawal. Whereas the latter two shocks represent alternative investment decisions, as opposed to pure consumption needs, they fit the predictions of the intertemporal consumption-savings model just as well (one would only need to replace labor income shocks with exogenous consumption shocks in the model). The estimated marginal effects of shocks appear to be economically significant with income shocks increasing the likelihood of a penalized ESP distribution by 4–5 percentage points, and demographic/consumption shocks by 5–9 percentage points.

In an unreported regression we used wage shocks in place of total income shocks, and did not obtain significant wage shock effects even though the coefficients on all other shocks remained virtually unchanged. This finding highlights the difference between a wage shock that can be ameliorated by transfer payments or other income sources and a total income shock, which represents a broad deterioration in household ability to finance its consumption.²² Finally, the annual pattern of ESP withdrawals shows a noticeable increase in withdrawals during the 1991 recession, though there is also an equivalent increase at the end of the sample in 1996.

Ideally, we would want to conduct the analysis of penalized ESP distributions on the sample of households that have access to their ESP assets. However, the complexity of rules governing ESP access and especially the lack of necessary detail about properties of pension distributions in tax

²² In unreported regressions, we also tested the effects of wage and total income shocks relative to their three-year averages and found that results were essentially unchanged.

returns data make this task nearly impossible. As one extreme solution, we could assume that all ESP assets were effectively accessible through hardship provisions and thus define the sample as that comprising all ESP owners. This, however, would ignore the fact that hardship provisions apply only in a very limited number of circumstances and are not available at all to DB plan participants, whose lump-sum distributions are nevertheless captured in tax returns. Since we believe that, as a whole, ESP assets are not as accessible as IRA funds, we choose a compromise solution, which is designed to eliminate most of the households that receive ESP distributions as a result of a hardship withdrawal. In a recent study by the Investment Company Institute (2000), nearly three-quarters of hardship withdrawals are made for the purpose of paying for a home or a medical emergency. Therefore, we eliminate households that bought a new home or had high medical expenses and re-estimate the model. The results show that the exclusion of probable "hardship withdrawal" households had little effect on estimated coefficients.²³ This is consistent with our earlier conjecture that the significance of effects of various shocks on the likelihood of penalized ESP distributions was not driven entirely by hardship withdrawals.

Probit Analysis of Early Withdrawal Decisions from IRAs

Table 5 repeats the estimation of models in the previous table for early IRA withdrawal choices in a sample of IRA owners. The general conclusions of the effects of shocks and wealth holdings carry over to the IRA early withdrawal decision. Higher financial wealth and (to a lesser extent) higher permanent income reduce the likelihood of an early withdrawal, as does each

of our measures of income shocks and lumpy expenditure needs. Income shocks as well as a decrease in the number of earners and involuntary job loss matter for the withdrawal decision.²⁴ As expected, we find a significant increase in penalized IRA withdrawals due to medical expenses, whereas we obtained (marginally significant) negative point estimates in the ESP distribution sample. Somewhat surprisingly, neither of the demographic shocks plays a role in the IRA withdrawal decision. The coefficient estimates of marginal tax rate fluctuate between -1.00 and -0.63 as the model is augmented to include shocks (panels 2 and 3), and are statistically significant in all specifications. Finally, the nearly monotonically decreasing time trend (i.e., coefficients on the year dummies) is primarily an artifact of the way in which IRA ownership is imputed, and should not be compared with the time trend in ESP regressions.

Turning to the economic significance of estimated coefficients, we note that the marginal effects appear to be much smaller than in the ESP distribution probits. For example, in panel 3, a bad total income shock increases the likelihood of an early IRA withdrawal by only 2.7 percentage points. These results, however, need to be compared to the baseline proportion of household IRA withdrawal choices, which amounts to only 3.8 percent in the unweighted sample of IRA owners used in regression. In this context, experiencing a bad income shock produces a 71 percent increase in the likelihood of an early withdrawal.

Probit Analysis of Early Withdrawal Decisions with Interacted Shock and Wealth Regressors

The theoretical model of consumption and savings choices indicates that

²³ The results are not reported for space considerations, but are available upon request.

²⁴ In an unreported regression, we find that, in contrast to the ESP findings, negative wage shocks increase the probability of an IRA withdrawal by about 2 percentage points. The full results are available upon request.

TABLE 5
PROBABILITY OF TAKING AN EARLY WITHDRAWAL FROM AN IRA

	(1)			(2)		
	No shocks			Income shocks		
	Coeff.	Std.Err.	dF/dx	Coeff.	Std.Err.	dF/dx
Lagged MTR	-1.00**	0.07	-0.07	-0.63**	0.09	-0.04
Age 35-45	0.05**	0.02	0.00	0.03	0.02	0.00
Age 45-55	0.08**	0.02	0.01	0.05*	0.02	0.00
Age 55-60	0.03	0.03	0.00	0.00	0.03	0.00
Perm Income 2	0.01	0.02	0.00	0.08**	0.02	0.01
Perm Income 3	0.10**	0.02	0.01	0.15**	0.02	0.01
Perm Income 4	-0.04	0.03	0.00	0.07*	0.03	0.00
Financial wealth Q2	0.04	0.02	0.00	0.03	0.02	0.00
Financial wealth Q3	-0.27**	0.02	-0.02	-0.31**	0.02	-0.02
Financial wealth Q4	-0.51**	0.03	-0.03	-0.62**	0.03	-0.03
Financial wealth Q5	-0.65**	0.03	-0.03	-0.82**	0.03	-0.04
Fewer earners				0.24**	0.02	0.02
Involuntary job loss				0.13**	0.03	0.01
Bad income shock				0.35**	0.02	0.03
Good income shock				0.03	0.02	0.00
More dependents				0.04	0.03	0.00
Divorce				-0.06	0.05	0.00
Home purchase				0.15**	0.03	0.01
College age dependents				0.08**	0.02	0.01
High medical expenses				0.02	0.02	0.00
% College + in ZIP	-0.28**	0.10	-0.02	-0.30**	0.11	-0.02
% HighScholl - in ZIP	-0.38**	0.09	-0.03	-0.36**	0.09	-0.02
Median house value in ZIP	0.01**	0.00	0.00	0.005**	0.00	0.00
1989 year dummy	-0.19**	0.03	-0.01	-0.16**	0.03	-0.01
1990 year dummy	-0.15**	0.03	-0.01	-0.14**	0.03	-0.01
1991 year dummy	-0.18**	0.03	-0.01	-0.18**	0.03	-0.01
1992 year dummy	-0.26**	0.03	-0.02	-0.25**	0.03	-0.01
1993 year dummy	-0.40**	0.03	-0.02	-0.39**	0.03	-0.02
1994 year dummy	-0.38**	0.03	-0.02	-0.35**	0.03	-0.02
1995 year dummy	-0.43**	0.03	-0.02	-0.39**	0.03	-0.02
1996 year dummy	-0.39**	0.03	-0.02	-0.34**	0.03	-0.02
Intercept	-0.85**	0.08		-1.09**	0.08	
Number of observations		161,179			154,949	
pseudo-R ²		0.056			0.071	

Note: cutoff points for permanent income and financial wealth groups are defined in Table 3.

* indicates statistical significance at 5% level.

** at 1% level.

dissaving out of pension wealth is a function of the *joint* occurrence of adverse shocks and inability to smooth consumption out of existing non-pension assets. Thus it makes sense to interact the two sets of conditions that have been treated separately in the preceding sections. In order to ease the interpretation of results, we aggregate individual shocks into three groups described earlier. That is, a house-

hold is deemed to have experienced a negative demographic shock if it either has gone through a divorce or an increase in the number of dependents. Similar designations are performed for income shocks and lumpy consumption needs.²⁵ Each of these consolidated shocks is interacted with each of the five discrete wealth categories described in Table 2.²⁶

²⁵ Since lump-sum distributions from 401(k) accounts allow penalty-free withdrawals to cover high medical expenses, we do not include medical expenses into the definition of lumpy consumption shocks for ESP. No such exemption exists for IRAs during our sample period.

²⁶ The first wealth category (FinWlth1, omitted in earlier regressions) represents households that have no interest or dividend-generating wealth outside of their ESP (or IRA) accounts.

What Explains Early Withdrawals from Retirement Accounts?

The results for withdrawals out of ESP distributions are presented in panel 1 of Table 6. The estimated coefficients for the MTR, size of the distribution and age are quite similar in magnitude and significance level to non-interacted regressions of Table 4. The effects of permanent income, especially for the highest quartile, are much stronger. Of most interest, however, is the behavior of interacted regres-

sors. For each of the three shock categories we observe a similar pattern—adverse shocks matter most for households with lowest levels of financial wealth. Moreover, the influence of adverse shocks dissipates monotonically as wealth increases. For example, an adverse income shock increases the likelihood that a zero-wealth household will consume its ESP distribution by 24 percentage points,

TABLE 6
PROBABILITY OF AN EARLY WITHDRAWAL FROM A TAX-DEFERRED ACCOUNT

	(1) from ESP distributions			(2) from IRA holdings		
	Coeff.	Std.Err.	dF/dx	Coeff.	Std.Err.	dF/dx
Lagged MTR	-1.43**	0.10	-0.53	-0.85**	0.07	-0.06
Lsum (\$1,000 to \$5,000)	-0.04	0.02	-0.02			
Lsum (\$5,000 to \$10,000)	-0.12**	0.03	-0.04			
Lsum (more than \$10,000)	-0.53**	0.02	-0.19			
Age 35–45	-0.19**	0.03	-0.07	-0.01	0.02	0.00
Age 45–55	-0.44**	0.03	-0.16	-0.03	0.02	0.00
Age 55–60	-1.01**	0.03	-0.30	-0.10**	0.03	-0.01
Perm Income 2	0.13**	0.03	0.05	0.05**	0.02	0.00
Perm Income 3	0.03	0.03	0.01	0.05*	0.02	0.00
Perm Income 4	-0.24**	0.04	-0.09	-0.24**	0.03	-0.02
Income shock * FinWlth 1	0.61**	0.05	0.24	0.50**	0.03	0.06
Income shock * FinWlth 2	0.34**	0.03	0.13	0.49**	0.02	0.05
Income shock * FinWlth 3	0.00	0.03	0.00	0.25**	0.02	0.02
Income shock * FinWlth 4	-0.09**	0.03	-0.03	0.10**	0.02	0.01
Income shock * FinWlth 5	-0.07	0.03	-0.02	0.01	0.03	0.00
Demographic shock * FinWlth 1	0.30**	0.10	0.12	0.00	0.06	0.00
Demographic shock * FinWlth 2	0.10	0.06	0.04	0.09*	0.04	0.01
Demographic shock * FinWlth 3	-0.02	0.06	-0.01	-0.04	0.05	0.00
Demographic shock * FinWlth 4	0.04	0.07	0.01	-0.04	0.05	0.00
Demographic shock * FinWlth 5	0.00	0.09	0.00	-0.06	0.07	0.00
Lump sum cons. need * FinWlth 1	0.46**	0.07	0.18	0.17**	0.04	0.01
Lump sum cons. need * FinWlth 2	0.43**	0.04	0.17	0.27**	0.02	0.02
Lump sum cons. need * FinWlth 3	0.21**	0.04	0.08	0.14**	0.02	0.01
Lump sum cons. need * FinWlth 4	0.02	0.04	0.01	-0.04	0.02	0.00
Lump sum cons. need * FinWlth 5	-0.11**	0.04	-0.04	-0.09**	0.03	-0.01
High medical expenses	-0.12**	0.03	-0.04			
ZIP % College or more	-0.39**	0.14	-0.14	-0.42**	0.10	-0.03
ZIP % High School or less	-0.21	0.12	-0.08	-0.44**	0.09	-0.03
Median house value in ZIP	0.00	0.00	0.00	0.00**	0.00	0.00
Intercept	0.75**	0.10		-1.11**	0.07	
Number of observations						
pseudo-R ²	28,856			161,179		
	0.155			0.055		

Note: cutoff points for permanent income and financial wealth groups are defined in Table 3.

Note: the above regressions are estimated with year effects that are not shown.

* indicates statistical significance at 5% level.

** at 1% level.

while the next wealth group experiences only a 13 percentage point increase and there is no measurable effect of a shock for the following wealth group.

Early IRA withdrawals shown in panel 2 indicate a very similar pattern. As in non-interacted regressions of Table 5, the MTR, age and permanent income categories have strong effects on the likelihood of early withdrawal. Effects of each of the shock categories are amplified for the lowest wealth income groups, but are indistinguishable from zero for wealthiest households. The findings are with the hypothesis that retirement assets are a financing source of last resort. The similarities in the two panels of Table 6 underscore the joint importance of shocks and alternative wealth sources for decisions to liquidate retirement assets in both types of tax-deferred accounts.

As a final check on the robustness of our results, we investigate pre-retirement IRA withdrawals in a longitudinal context, conditional on an individual-specific random effect. The random effect plays an important role by capturing unobserved sources of heterogeneity, the most important of which are factors that influence tastes for saving. Models of saving are often plagued by the inability to identify the effects of observable variables separately from the effects of unobserved savings preferences; a key advantage of panel data is the ability to use econometric techniques to condition on such unobserved influences.²⁷

We use a random-effects probit framework to model explicitly the correlation between the disturbances of multiple observations on the same taxpayers. Introduced by Butler and Moffitt (1982), the random-effects probit specification is not

as commonly used as other models, but the approach allows consistent parameter estimates in a probit model with unobserved household-specific effects. As such, it is well suited to longitudinal studies of savings behavior. It also allows the estimation of parameters characterizing the degree of correlation over time in taxpayers' participation decisions. However, it requires an assumption of equal correlation of residuals over time. In addition, it requires the use of numerical estimation techniques to evaluate multiple integrals.²⁸

The results of the random effects model of IRA withdrawals are shown in Table 7.²⁹ The coefficient estimates are very similar to the non-random-effects model, though with the slightly larger standard errors that come from taking proper account of the autocorrelation of within-household residuals. The estimate of ρ indicates the degree of autocorrelation in the total error term (i.e., the relative importance of household-specific heterogeneity in the total prediction error). In this case, the estimated ρ of 0.37 is relatively small, indicating that unobserved household heterogeneity plays an important but not overwhelming role in the decision to make a penalized early withdrawal from an IRA.

CONCLUSION

One of the key features of tax-deferred retirement accounts is their limited accessibility. Accessibility restrictions are meant to discourage households from consuming their pension assets prior to retirement. Yet, as shown by previous research (e.g., Burman et al., 1999) a significant number of households fail to preserve

²⁷ In cross-sectional limited-dependent variable models such as probits or logits, unobserved tastes for saving that are correlated with right-hand side variables can lead to inconsistent parameter estimates.

²⁸ The quadrature-based Butler-Moffitt random-effects probit model is available in Stata.

²⁹ Relatively infrequent lump sum distributions remove most of the panel dimension from our sample of lump sum recipients, so we do not estimate a random-effects model of ESP withdrawals.

What Explains Early Withdrawals from Retirement Accounts?

TABLE 7
RANDOM EFFECTS MODEL OF PROBABILITY OF AN EARLY WITHDRAWAL FROM AN IRA

Prob (withdrawal)	Coeff.	Std.Err.	dF/ dx	t-ratio
Lagged MTR	-1.02**	0.09	-0.08	-11.81
Age 35–45	-0.06*	0.03	0.00	-2.39
Age 45–55	-0.12**	0.03	-0.01	-4.30
Age 55–60	-0.22**	0.04	-0.02	-6.14
Perm Income 2	0.06*	0.03	0.01	2.26
Perm Income 3	0.04	0.03	0.00	1.43
Perm Income 4	-0.33**	0.04	-0.03	-8.95
Income shock * FinWlth 1	0.57**	0.04	0.04	13.64
Income shock * FinWlth 2	0.52**	0.03	0.04	19.27
Income shock * FinWlth 3	0.28**	0.03	0.02	10.31
Income shock * FinWlth 4	0.11**	0.03	0.01	3.93
Income shock * FinWlth 5	0.03	0.03	0.00	0.98
Demographic shock * FinWlth 1	-0.01	0.07	0.00	-0.08
Demographic shock * FinWlth 2	0.12*	0.05	0.01	2.36
Demographic shock * FinWlth 3	-0.02	0.05	0.00	-0.38
Demographic shock * FinWlth 4	-0.02	0.07	0.00	-0.29
Demographic shock * FinWlth 5	-0.06	0.09	0.00	-0.68
Lump sum cons. need * FinWlth 1	0.19**	0.05	0.01	3.48
Lump sum cons. need * FinWlth 2	0.29**	0.03	0.02	9.49
Lump sum cons. need * FinWlth 3	0.18**	0.03	0.01	6.19
Lump sum cons. need * FinWlth 4	-0.04	0.03	0.00	-1.18
Lump sum cons. need * FinWlth 5	-0.09*	0.04	-0.01	-2.21
% College + in ZIP	-0.51**	0.15	-0.04	-3.45
% HighScholl - in ZIP	-0.51**	0.13	-0.04	-3.94
Median house value in ZIP	0.01**	0.00	0.00	6.56
Intercept	-1.24**	0.11		-11.60
Rho	0.37	0.01		
Sigma (e)	0.77	0.02		
Number of observations	161,179			
Number of groups	27,661			

Note: cutoff points for permanent income and financial wealth groups are defined in Table 2.

Note: the above regressions are estimated with year effects that are not shown.

*indicates statistical significance at 5% level.

**at 1% level.

their pension savings when assets from employer-sponsored retirement accounts are made accessible to them upon job separation.

We extend the existing body of literature on early household consumption of retirement assets in two ways. First, we attempt to link the likelihood of early withdrawals to a series of shocks experienced by households at the time of withdrawal decision and to availability of alternative asset sources. This allows us to investigate the possible reasons underlying

ing withdrawal decisions. Second, we use a panel of tax returns data to summarize the existing evidence for early withdrawals from IRA accounts, thus broadening the previous focus on lump-sum ESP distributions.

Our main finding is that shocks matter, and they matter much more for households that have few financial assets outside of their pensions. This result lends support to the view that retirement savings can be breached in an attempt to smooth consumption in adverse circum-

stances. It is also consistent with the view that the higher opportunity cost of dissaving out of tax-deferred accounts makes such accounts a financing source of last resort. We also find that the same factors appear to influence penalized withdrawal decisions from both IRA and ESP holding.

It is worth noting that there exists a persistent (and significant) difference in levels of propensity to take penalized distributions from the two account types. In particular, there is a significantly higher propensity to consume out of ESP distributions than IRA holdings that cannot be explained by the presence of external shocks or lack of alternative resources. This observation can be ascribed to several potential factors—household desire to avoid transaction costs of rolling over ESP assets, higher savings tastes among IRA owners than ESP owners, imprecise sample definition, or the importance of default choices for lump-sum ESP distributions. A number of institutional changes in the recent years, such as expansion of penalty-free IRA withdrawal categories and automatic rollover of lump-sum distributions in excess of \$1,000 into an IRA, facilitate formal testing of these hypotheses and make it an exciting area for future research.

Note: The analysis for this paper was done while Paul Smith was an employee of the Department of Treasury. The viewpoints expressed here are those of the authors and do not necessarily represent those of the Federal Reserve Board or Department of Treasury.

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