ONE POTENTIAL DOWNSIDE OF A PARTICIPANT-driven, employer-sponsored retirement system is the possibility that significant leakage takes place before employees reach retirement. Leakage occurs when employees take withdrawals prior to retirement, when they cash out lump-sum distributions at job separation, or when they fail to pay back loans taken out against their accounts. Although it is possible that leakage could be undermining the account-based pension system that now dominates in the private sector, the analysis here, based on tax return, administrative, and survey data, suggests those concerns are probably somewhat exaggerated.

The possible negative effect of leakage on retirement preparedness is receiving increasing attention, but it is important to remember that policymakers and retirement plan sponsors walk a fine line when it comes to preventing leakage. Studies show that when employees know they can get access to their funds before retirement they are more likely to participate in the first place, and they contribute more when they do participate. Lawmakers have acknowledged this and made it clear that employees will sometimes desire access to their savings before retirement for legitimate reasons. Thus, although pre-retirement withdrawals are discouraged by a 10 percent penalty on top of the income tax owed, withdrawals from retirement plans and IRAs are not prohibited. Ultimately, though, the only way to know whether or not a given level of contributions will generate adequate retirement incomes is to acknowledge that some of the inflows to retirement accounts will leak out.

The empirical strategy in most of the previous research on retirement plan leakage involves using household survey data to study the disposition of retirement accounts for separating employees (Chang, 1996; Burman et al., 1999; Engelhardt, 2002, 2003; Hurd and Panis, 2006). This approach has the potential advantage of evaluating retirement dispositions in the context of the overall demographic, labor supply, and financial situation of the household. One conclusion of the survey-based leakage studies is that the size of the distribution is a key determinant of the ultimate disposition. A second finding, highly correlated with the first, is that lower-income participants are more likely to cash out a distribution, which gives rise to concerns about distributional outcomes.

However, household surveys fail to capture up to 70 percent of retirement account distributions in any given year, so using these estimates to draw inferences about overall leakage or differences across types of families may be somewhat premature. Some of the failure to measure distributions occurs because household surveys that ask about retirement plan distributions when the employee separates from a job are missing leakage associated with in-plan hardship withdrawals. Also, the surveys are generally missing withdrawals from IRAs.

TRENDS IN AGGREGATE RETIREMENT PLAN LEAKAGE

Employer-sponsored pension coverage in the private sector has been steadily changing composition from defined benefit (DB) to defined contribution (DC) plans since the passage of ERISA in 1974 (Clark and Sabelhaus, 2009). Assets in DC plans are generally more susceptible to leakage, because employees often have access to their accumulated balances through loans and in-service withdrawals in addition to distributions at job separation. Since DC plans have grown in prominence, leakage has potentially become a much larger problem.

The concept of leakage used in this section is meant to reflect taxable withdrawals prior to retirement, but data limitations make it necessary to use an age proxy to distinguish leakage from other

*Views here do not represent those of the Investment Company Institute or the Internal Revenue Service. We are grateful to Steve Utkus for comments on an earlier version of the paper.
In addition to age, the other attributes of IRA and pension withdrawals that can be tracked over time are whether or not a penalty is paid on the withdrawal, and whether or not the distribution reflected a failure to repay a loan (a so-called deemed distribution). In general, the penalty amount is 10 percent of the taxable portion of the distribution, so the inferred penalized distribution is set to 10 times the reported penalty.

In order to benchmark withdrawals over time one needs corresponding data on total DC and IRA assets by age. The denominators against which to benchmark trends in pre-retirement withdrawals are constructed using the triennial Survey of Consumer Finances (SCF) for 1992 through 2007. The SCF is a household survey, and, thus, balances can be aggregated across several possible dimensions. For most of the leakage measures here, that means tracking total retirement account balances by age over time.

Several measures of aggregate pre-retirement withdrawals relative to underlying assets suggest that leakage is very modest in all years and, if anything, leakage has been trending down over time (figure 1). The specific measures of leakage shown here are (1) penalized withdrawals relative to total DC and IRA assets for all ages, (2) penalized withdrawals for taxpayers younger than 55 relative to DC and IRA assets for that age group, (3) total taxable withdrawals for taxpayers younger than 55 relative to DC and IRA assets for that age group, and (4) total taxable withdrawals for taxpayers younger than 60 relative to DC and IRA assets for that age group. The various measures provide a fairly wide range for the leakage estimates, but the differences are intuitive and all support the assertion that aggregate leakage is modest and declining despite being biased toward overestimating leakage.

Penalized withdrawals are the narrowest concept of leakage considered in figure 1. Overall, penalized withdrawals in 2007 were just over 0.5 percent of account balances, and that ratio has fallen over time. This statistic is arguably biased by the phasing in of the DC- and IRA- based retirement system over the past few decades, though, because the aging of the system has been associated with the aging of the typical participant in the system. To control for this, the second measure restricts the comparison to penalized withdrawals over account balances for taxpayers younger than 55 years of age. Most of the penalty occurs for taxpayers

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**Figure 1: Measures of Aggregate Leakage Relative to DC Plan and IRA Assets**

![Graph showing measures of aggregate leakage](source: Authors’ tabulations of IRS Statistics of Income Tax Returns and Survey of Consumer Finances (SCF))
younger than age 55, but they own less than half of the DC and IRA assets, so the penalized withdrawal to asset measure for this group is double that for the entire population. Still, at 1.2 percent of assets in 2007, penalized withdrawals for the younger than 55 age group are relatively modest.

The other measures shown in figure 1 are based on total taxable withdrawals, which include penalized withdrawals, but also the non-penalized amounts taken out because of exceptions in the tax code (first-time home buying, hardship, and education) or the initiation of retirement income payouts (for those 55 to 59 years old). Adding non-penalized withdrawals raises the estimated leakage to asset ratio significantly, but, again, the overall withdrawal rates are modest at just over 2.0 percent for taxpayers younger than 55 and about 2.5 percent for taxpayers younger than 60 years old.

The perspective one gains from considering overall penalized and non-penalized withdrawals for pre-retirees gives a sense that leakage is modest and trending down, and that impression is reinforced by looking at aggregate leakage relative to aggregate contributions (figure 2). Although there is no single data source that tracks aggregate DC and IRA contributions, it is possible to piece together new contributions from a variety of sources. The numerator used to compare leakage with new contributions is the narrow total penalized withdrawals measure repeated from figure 1, in order to avoid any contagion from using total taxable withdrawals that may be associated with retirement or portfolio shifts. In that sense, figure 2 presents a direct answer to the question: for every dollar that goes into the DC and IRA system, how many cents leak out through penalized withdrawals in the same year? For the past 20 years that ratio has been a steady 14 percent or 15 percent of gross inflows leaking out.

The final component of the aggregate trend analysis in this section focuses on one source of possible leakage, loans from retirement plans. It is important to note that loans themselves are not a form of leakage, though they can lead to leakage directly if the participant separates and fails to repay the loan (or lowers subsequent contributions, but that effect cannot be measured directly). In any event, loans relative to private-sector DC plan assets are relatively small and stable over time, and the amount of deemed distributions from failure to repay loans is also small and stable (figure 3). The actual leakage relative to balances is thus the product of two small and stable ratios, which is a tiny and stable fraction of plan assets. In 2007, only 0.02 percent of private-sector DC plan assets leaked out because of a failure to repay loans.

Figure 2: Total Penalized Withdrawals Relative to DC Plan and IRA Contributions

Source: Authors’ tabulations of data from IRS Statistics of Income tax returns, U.S. Department of Labor Form 5500, and Federal Employees Retirement System TSP
Even though aggregate retirement plan leakage seems modest and declining over time, leakage may still be an issue of possible concern from a distributional perspective. That is, in any given year, the leakage that does occur may be concentrated among lower-income workers, which would suggest that financial mistakes could be undermining retirement security for the most vulnerable part of the population. In fact, a careful inspection of the distribution of retirement plan leakage using a combination of tax returns and information returns (Forms 1099-R and 5498) shows that leakage is actually fairly balanced across income groups, and, after controlling for income, even surprisingly balanced across pre-retirement age groups.

The starting point for the distributional analysis is acknowledging that retirement plan coverage varies across tax filers, by age, and income (figure 4). The criteria for being exposed to possible leakage is that the tax filing unit (the tax return) have one or more of the following: evidence of employer-sponsored retirement plan coverage on Form W-2, evidence of an IRA with a positive balance on Form 5498, or evidence of an actual distribution from a qualified retirement plan on Form 1099-R. This inclusive approach to identifying taxpayers exposed to retirement plan leakage means, for example, that a particular taxpayer need not have current coverage—they are included even if all they have is a withdrawal from a previous plan.

Retirement plan participation rises with both income and age in the younger than 60 population. Overall, 60 percent of tax returns filed by this group include some indication of coverage, but that ranges from just under 20 percent for the lowest income deciles up to nearly 100 percent for the highest income deciles. The coverage estimates also show a consistent positive age effect, especially for the lower-income groups. These patterns reflect a typical lifecycle story of retirement plan participation, insofar as participation rises with both income and age, with income being the more dominant factor.

Having narrowed down the tax-filing population to include only those filers who are possibly exposed to leakage, the next step is to determine what percentage of each age and income group actually received a qualified distribution during the year (figure 5). Overall, 24 percent of tax filers with
Figure 4: Evidence of Employer-Sponsored Retirement Plan Coverage or IRA Ownership by Age and Adjusted Gross Income (AGI)

Source: Tax Year 2007 Statistics of Income Individual Complete Report Matched Form 1040, Form 5498, and Form 1099R File

Figure 5: Percent of Covered Tax Returns with Gross Distributions by Age and Adjusted Gross Income (AGI)

Source: Tax Year 2007 Statistics of Income Individual Complete Report Matched Form 1040, Form 5498, and Form 1099R File
evidence of participation received a distribution. The patterns of gross distribution events by income has a slight u-shape within any given age group (and for all age groups younger than 60 combined) but the range is within a few percentage points of the overall average for the group. The higher rate of gross distributions for lower-income returns may reflect a sampling effect, as those tax units would not have filed had it not been for the distribution.

Not every taxpayer receiving a gross distribution has a taxable distribution, because many roll the entire distribution over to another qualified account. About two-thirds of taxpayers younger than 60 with gross distributions indicate that at least part of the distribution is taxable (figure 6). The variation in incidence of taxable distributions by income is a muted version of the gross distribution pattern, which is another way of saying that the ratio of taxable to gross distribution incidence does not exhibit a lot of variation by income. The characteristic more strongly correlated with taxable distributions is age. About 75 percent of those with a gross distribution in the 55 to 59 age group are at least partially taxable.

The higher rate of taxable distributions for some taxpayers may reflect a sample selection effect. That is, a lower-income filer, especially in the 55 to 59 age range, may be filing a tax return only because they have a qualified distribution—otherwise, they would not have been required to file a return. If the tax filer has no other income, and only the taxable portion of the qualified distribution shows up in Adjusted Gross Income (AGI), then they are characterized as being a lower-income person who is experiencing significant leakage relative to income.17

A better understanding of the role of leakage relative to income involves two more steps. The first question is how much of the gross distribution actually becomes taxable? There are several possible outcomes when a participant receives a gross distribution (table 1). Overall, for tax filers younger than 60, taxable distributions are 38.0 percent of gross distributions and amount to 2.5 percent of AGI. The lion’s share of the non-taxable amount reflects a direct rollover from one qualified account to another. Some distributions can be characterized as indirect rollovers because there is evidence of a

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**Figure 6:** Percent of Covered Tax Returns with Taxable Distributions by Age and Adjusted Gross Income (AGI)

Source: Tax Year 2007 Statistics of Income Individual Complete Report Matched Form 1040, Form 5498, and Form 1099R File
Table 1  
Gross and Taxable Distributions from Qualified Retirement Accounts for Taxpayers Above and Below Age 60  
Billions of dollars

<table>
<thead>
<tr>
<th>Taxpayers with Gross Distributions</th>
<th>All Taxpayers</th>
<th>Age Less Than 60</th>
<th>Age 60 and Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Distributions</td>
<td>$1,157.8</td>
<td>$348.9</td>
<td>$808.9</td>
</tr>
<tr>
<td>- Non Taxable Distributions</td>
<td>$489.5</td>
<td>$214.4</td>
<td>$275.1</td>
</tr>
<tr>
<td>Direct rollovers to other qualified accounts</td>
<td>335.8</td>
<td>172.5</td>
<td>163.3</td>
</tr>
<tr>
<td>Indirect rollovers to other qualified accounts</td>
<td>6.8</td>
<td>2.3</td>
<td>4.4</td>
</tr>
<tr>
<td>Non-taxable distributions from Roth accounts</td>
<td>4.8</td>
<td>0.8</td>
<td>4.1</td>
</tr>
<tr>
<td>Return of after-tax contributions to qualified plans</td>
<td>59.1</td>
<td>14.4</td>
<td>44.6</td>
</tr>
<tr>
<td>Section 1035 exchanges</td>
<td>49.5</td>
<td>8.9</td>
<td>40.6</td>
</tr>
<tr>
<td>Other non-taxable distributions</td>
<td>33.1</td>
<td>15.3</td>
<td>17.8</td>
</tr>
<tr>
<td>= Taxable Distributions</td>
<td>$661.8</td>
<td>$132.7</td>
<td>$529.1</td>
</tr>
<tr>
<td>Non-Penalized</td>
<td>612.2</td>
<td>85.8</td>
<td>526.4</td>
</tr>
<tr>
<td>Penalized</td>
<td>49.5</td>
<td>46.9</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Addendum

Number of returns with qualified coverage (thousands) 87,925 62,114 25,811
Number of returns with gross distributions (thousands) 36,065 15,057 21,008
Gross distributions as a percent of AGI for covered 15.7% 6.7% 37.2%
Taxable distributions as a percent of AGI for covered 9.0% 2.5% 24.3%
Taxable distributions as a percent of gross distributions 52.9% 13.4% 0.3%

Notes: Age for joint returns is based on the older of the primary or secondary taxpayer. Excludes dependent filers.
Source: Tax Year 2007 Statistics of Income Individual Complete Report Matched Form 1040, Form 5498, and Form 1099-R File
Figure 7: Ratio of Taxable Distributions to Gross Distributions by Age and Adjusted Gross Income (AGI)

Source: Tax Year 2007 Statistics of Income Individual Complete Report Matched Form 1040, Form 5498, and Form 1099R File

Figure 8: Ratio of Taxable Distributions to Adjusted Gross Income (AGI) by Age and AGI

Source: Tax Year 2007 Statistics of Income Individual Complete Report Matched Form 1040, Form 5498, and Form 1099R File
gross distribution which the tax filer did not report as taxable, and for which there is an unexplained inflow to an IRA reported on the Form 5498.18

The overall ratio of taxable to gross distributions is 38 percent, but the more interesting distributional question is how that propensity to cash out a distribution varies by age and income. One of the most striking findings in the data is the nearly flat ratio of taxable to gross distributions across these dimensions (figure 7). If anything, there is a slight inverted u-shape to the cash-out percentages across income groups, with those in the middle of the income distribution exhibiting higher cash-out rates than in either tail. Cash-out rates are noticeably lower for the highest income group, but the bulk of the cash-out ratios across the groups fall into the 30 - 50 percent range.

The final step is characterizing taxable distributions relative to AGI across age and income groups (figure 8). The effect of selecting on tax filers is evident—the older/lower income groups have high taxable withdrawals to AGI ratios, but that is in part due to the fact that some of the tax filers in the sample are there only because they had taxable distributions. The overall ratio of taxable withdrawals to AGI for the under 60 population is 2.5 percent, but it is much lower (1.0 percent, 1.5 percent, and 1.9 percent) for the younger than 35, 35 - 44, and 45 - 54 groups, respectively. Overall, these distributional estimates of taxable withdrawals relative to income are consistent with the aggregate estimates presented above.19

Notes
1 See, for example, recent studies by Butrica et al. (2010) and Davis et al. (2010).
2 For example, Munnell et al. (2000) use data from the Survey of Consumer Finances to show that participation is higher if participants can get access to their funds before retirement.
3 Congress has even expanded the reasons for non-penalized withdrawals in recent years to include, for example, first-time home purchase, educational expenses, and certain emergencies, reducing the tax consequences of accessing retirement assets at younger ages. In general, a 10 percent penalty is assessed on the taxable portion of pension and IRA withdrawals for most taxpayers younger than 59½ years of age. There is one job change exception: if the taxpayer leaves a DC plan and is 55 or older they can take the money out of that plan without penalty.
4 The estimates of retirement plan leakage currently used by Poterba et al. (2007) are taken from a paper by Hurd and Panis (2006) that is similar in spirit to this paper but based on the Health and Retirement Study.
5 There is a closely related line of research on IRA drawdown behavior, which could in principle be studied in the general framework of leakage. See, for example, Bryant (2008) and Holden and Reid (2008).
6 Measuring leakage using survey data is problematic for conceptual reasons as well, because some cash-outs go into other types of saving or repayment of loans (Engelhardt, 2003).
7 Burman, et al. (1999) arrive at the 70 percent figure by comparing their survey-based distributions with the tax-based estimates from Sabelhaus and Weiner (1999). Some of the difference is definitional, insofar as the survey is not designed to capture some of the flows tracked in the tax data.
8 See Sabelhaus and Schrass (2009). Retirement account assets are often either left in the employer’s plan when the employee separates or directly rolled over to another qualified account without the money ever passing through the employee’s hands (Vanguard, 2010). Thus, the taxpayer may not perceive that as a distribution event.
9 In DB plans, pre-retirement access is generally limited to cash-outs of lump-sum distributions at job separation. Loans are allowed in the DB setting, but Form 5500 data indicate that loan activity in DB plans is rare.
10 Although most retirement plan participants continue working and contributing to their employer-sponsored retirement plans after age 55, that cutoff is important because the tax code permits non-penalized withdrawals from employer-sponsored plans after job separation for workers aged 55 or older. Above age 59½ workers can generally make penalty-free withdrawals from IRAs and DC retirement accounts whether they separate from their employer or not. The tax code permits in-service withdrawals, but some plan sponsors do not.
11 In practice this is a slight underestimate, because 10 percent is technically the largest penalty a taxpayer can face.
12 Throughout, the age for a joint tax return is set to the older of the primary and secondary taxpayers.
13 In 1989 the ratio of total IRA and DC plan (or thrift plans in SCF terminology) assets in the SCF to Income. The key missing contribution flows are contributions to state and local government 457 retirement plans and non-profit 403(b) plans.
14 The extent of deemed distributions can be measured comprehensively in the cross-sectional tax return data.
set used in the next section, but in order to construct aggregate trends, the analysis in this section is restricted to private-sector DC plans. The data on deemed distributions from private-sector DC plans is available from the year 2000 and forward from the Department of Labor’s Form 5500 data series. The Private Pension Plan Bulletin is published annually by the U.S. Department of Labor, available at www.dol.gov/ebsa/publications/form5500dataresearch.html.

16 The Form 5500 data report negligible amounts of participant loans and deemed distributions of participant loans in private-sector DB plans. Those are not analyzed here.

17 This potential problem underscores the need to use the panel dimension of the SOI to better classify the particular tax filer (they might have higher income in other years) and to help understand why the withdrawal is their only source of income (for example, they might have just experienced a divorce).

18 The other types of non-taxable rollovers include non-taxable Roth distributions, return of after-tax contributions to qualified plans, Section 1035 exchanges (involving the purchase of annuities and other qualified insurance products), and a residual other category where there is no explanation about why the event is non-taxable.

19 Aggregate penalized withdrawals are about 15 percent of contributions in any given year, and taxable withdrawals are just about double penalized withdrawals. Taxable withdrawals to AGI range from 1.0 percent to 1.9 percent. Given that overall contributions (from figure 2) are running about six percent of AGI (from the data underlying figures 5 through 8), the three to one ratio of contributions to leakage is approximately confirmed.

References


