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PRECAUTIONARY LIQUIDITY AND WORKER DECISIONS IN FRENCH EMPLOYEE SAVING PLANS

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ABSTRACT

This paper investigates the demand for precautionary liquidity versus commitment contracts among participants in retirement saving programs. It analyzes administrative data from the largest workplace saving plan provider in France, a country in which employers have wide discretion in structuring these plans. All plans must offer medium-term investments, which cannot be accessed for five years. Most also offer long-term investments, which cannot be accessed until retirement. All plans feature auto-enrollment; when a plan offers long-term investments, they must be included in the plan default. Take-up of the default option and overall plan participation rates are both lower when the plan offers long-term investments, suggesting that on balance, workers prefer medium-term to long-term investments. Nevertheless, two-thirds of those who make active choices—opt out of the default—at firms that offer long-term investments choose to allocate at least some of their contributions to them. Most contribute less than they would have by accepting the default. The findings suggest that while contributors are reluctant to forego access to their accounts completely, they nevertheless value commitment contracts.

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The design of workplace saving plans is an active subject of public policy debate in many countries, as fiscal challenges place growing pressures on public pension systems and elevate the importance of private saving for retirement. A key design feature of defined contribution plans, which now dominate the retirement plan landscape, is the extent to which participants can access their accumulated account balance before retirement. Countries vary widely in their policies, from very limited access, as in Australia, to access for particular hardship situations or for a fee, as in the United States, to flexible access after several years, as in France.[1]

Different theoretical models offer different predictions about the effect of restrictions on account access. Fully rational savers who recognize the prospect of future liquidity needs may be reluctant to tie up their funds in restricted accounts. Briere, Poterba, and Szafarz (hereafter BPS) (2022) label this a demand for precautionary liquidity, noting that tighter restrictions on account access may discourage contributions by some individuals.[2] In contrast, when individuals do not conform to the neoclassical benchmark, for example when they display present bias as in the model developed by Beshears, Choi, Clayton, Harris, Laibson, and Madrian (hereafter Beshears, et al) (2020), they may welcome access restrictions as a commitment contract that will enhance their retirement security. For such individuals, an account with more restrictions on withdrawals may be more attractive than one with greater flexibility, and contributions may be higher to such an account.

[1] Stuart and Bryant (2021) and Beshears, Choi, Hurwitz, Laibson, and Madrian (2015) describe the limitations on account access in the US. Pettit and Mitchell (2022) and Bateman, Dobrescu, Liu, Newell, and Thorp (hereafter Bateman, et al) (2023) describe the provisions related to pre-retirement withdrawals in many countries.
[2] Nehring (1999) explores the preference for flexibility which is rooted in the comfort of dealing with more opportunities in the future.

In practice, some individuals may regard accounts with flexible withdrawals as more attractive than more restricted accounts, while others may have the opposite preference. The relative importance of these two groups is a key input to retirement plan design, both because it can affect the level of contributions to the accounts, and because it determines the welfare effects of various provisions in the retirement saving system.

There is relatively limited empirical evidence on how employees at firms that offer retirement saving accounts view access restrictions. A number of studies have analyzed behavioral responses to changes in the level of restrictiveness. Goda, Jones, and Ramnath (2022), for example, find that withdrawals spike as soon as savers can withdraw assets without a penalty. Andersen, Bartscher, Leth-Petersen, and Moran (2024) study a reduction in the tax on withdrawals in Denmark, from 20% to 10%, and report a 2.5 percentage point increase – more than doubling -- in the share of account holders taking withdrawals. In a somewhat different setting, involving randomized controlled trials with saving products in developing countries, Kos and Lensink (2023) find greater demand for flexible withdrawals than for commitment contracts.

We are not aware of any evidence on the contribution choices saving plan participants make when they are offered both more and less restrictive investment options. Workplace saving programs in France confront most participants with just such a choice. Most French workers have access to employment linked saving plans that offer both medium-term (MT) investments, which can be withdrawn after five years, and long-term investments (LT), which are blocked until retirement. In this paper, we investigate whether, on average, more restrictive accounts draw higher or lower levels of participation and retirement saving than less

restrictive ones. All participants in French saving plans receive valuable tax benefits, and accept some degree of illiquidity, relative to workers who opt out and choose a cash payment. The tax benefits are similar for more and less restrictive accounts, however, while the degree of illiquidity is different.

Employer-sponsored saving plans in France feature an auto-enrollment default, so the two key decisions facing potential participants are whether to opt-out of the plan and, conditional on remaining in the plan, whether to select an investment allocation other than the default. We study both plan participation and take-up of the default investment option. We also analyze how participants who make active allocation choices divide their contributions between long-term and medium-term investments. We follow Choukhmane and de Silva's (forthcoming) analysis of equity allocations among active participants in US 401(k) plans and interpret the active allocations as a direct source of information on the relative demand for MT and LT investments.

We analyze administrative records from Amundi, the largest retirement plan manager in France. To mitigate the potential endogeneity of plan attributes, we focus on workers who change employers. We find that both take-up of the investment default and plan participation are lower when the plan offers LT investments than when it does not. This suggests that some workers demand precautionary liquidity and avoid commitment contracts. The decline in participation is also consistent with some workers being unwilling to incur the decision costs associated with making an active election when they opt out of the default, and therefore choosing not to participate at all when the default is not attractive. Many workers, however, appear to value the commitment feature of LT investments, since two-thirds of active decision-

makers who are offered LT investments choose to invest in them, although at a level lower than that in the plan default.

This paper is divided into five sections. The first presents a brief overview of the structure of French employer-sponsored retirement plan. The second describes the administrative data on employer-provided saving plans that underlies the analysis and explains our identification strategy. Section three presents our central findings on how the presence of LT investments affects the probability of taking up the plan default and the probability of plan participation. The fourth section describes the active choices of workers who opt out of the LT-inclusive default allocation. A brief conclusion suggests directions for future work.

1. Employer-Sponsored Saving Plans in France

Compensation of French workers has three components: a fixed wage, an individual bonus, and variable remuneration.[3] The latter, which incentivizes workers as group, relates to the profits of the company and not to individual productivity. French companies with over 50 workers are obliged to offer a variable compensation scheme, but they have substantial discretion with respect to its design.

Defined-contribution (DC) plans were introduced in France in 1967 as part of a program advanced by then-president Charles de Gaulle. The motivation was to require corporations to share profits with their employees, not a desire to improve retirement security. That is why the system started with MT investments that had to be held for five years before becoming

[3] The fixed wage is constrained by numerous legal restrictions, including an overall minimum and sector-based conventions with worker representatives (unions). It is a contractual unconditional amount, typically negotiated with the worker when hired. The individual bonus (if any) is fixed by the firm at the end of the year, conditional on the worker's individual productivity. It is added to the fixed wage. The bonus is designed to create performance incentives. The sum of the fixed wage and the bonus is taxed at a marginal rate that ranges from 14%, on total pay between about €10,000 and €27,000, to 41% above roughly €72,000 and 45% above €154,000.

available for penalty-free withdrawal, rather than LT investments that needed to be held until retirement. In 2003, the program was modified to allow firms to offer their employees LT investments, with access to the account balance restricted until retirement.

There are two types of DC plans in France: PEE (for plan d'épargne d'entreprise) and PERCO (for plan d'épargne retraite collective). Unless an employee actively opts out, her variable remuneration is automatically credited to a PEE or PERCO account. These accounts are managed by a custodian chosen by the employer. PEE, which offers MT investments, forbids withdrawals for a five-year period, although there are exceptions for events such as marriage, birth of a child, purchase of a home, and other life events. PERCO accounts, which offer LT investments, block withdrawals until retirement, although exceptions are also allowed for some life events – a more limited set than for PEE. Company stock, possibly sold to the accounts at a discount, may be held in PEE but not in PERCO accounts.

The French tax code provides income tax relief on contributions to employer-sponsored saving programs. Workers may choose to receive their variable compensation as an addition to their taxable current pay, or to contribute some or all of it to the firm's PEE or (when offered) PERCO plan. For most middle-income workers, those with income up to €26,818 in 2017, variable compensation would face a 14% marginal tax rate if paid out as cash; for higher income workers, the rate could be 30% or 45%. Contributions to a company saving plan may also be eligible for employer matching. Worker and employer contributions to the saving plan are not taxed when they are withdrawn, but the difference between the amount withdrawn and the initial contributions is taxed at 15.5%.

There are significant tax benefits associated with contributing to a PEE or PERCO, even for workers in the 14% tax bracket whose firms do not offer an employer match. For a worker in this bracket with variable remuneration of €2,211, the median for those offered plans with both MT and LT investments, the tax if this remuneration is paid out is 0.14*€2,211 = €310. If the worker is employed at one of the 92 percent of plans offering LT investments with an average match rate of 50%, contributing to PEE or PERCO would generate an additional annual benefit of 0.50*€2211 = €1106. These calculations understate the value of plan participation, because they omit the benefit of deferring taxation on accruing income until the account balance is withdrawn.[4]

Employers face three key design choices when establishing a saving plan.

i) Which investment funds to offer, including default investment funds for MT, and, if offered, LT savers. The default MT fund must be a relatively low-risk fund, such as a money market, bond or balanced fund. The default LT fund must be a balanced fund.

ii) Whether to offer LT investments in addition to compulsory MT ones. For most large firms, if the menu includes LT investments, the default must include them; the share of contributions allocated to LT investments is fixed by law as a function of the type of variable remuneration paid. The French Labor Code prescribes auto-enrolment in the default option and makes employers responsible for informing employees about the structure of the saving plan.[5]

[4] Beyond contributing their variable remuneration, workers can also voluntarily contribute up to 25% of their earnings, after tax, to their employer-sponsored plan. Employers may match all contributions, although many choose to match only those made with variable compensation.

[5] In the U.S., auto-enrollment grew in popularity after regulatory action in 2007 provided employers with a safe harbor from litigation if they adopted auto-enrollment. Beshears, Choi. Laibson, and Madrian (hereafter BCLM) (2010) point out that many firms embraced auto-enrollment as a tool for increasing plan participation and ensuring that the retirement plan passes the Internal Revenue Service nondiscrimination test, which caps the share of contributions to the plan that can be made by highly compensated employees.

iii) Whether and how to match the worker's contributions. This involves choosing a list of match rates, which can vary across investment options and be as high as 300%, and match ceilings associated with each investment option. A firm trying to boost employee holding of company stock, for example, might match only MT investments allocated to company stock.[6] Employers match contributions to the default investment allocation, and they may choose different match ceilings for MT and LT investments.

2. Administrative Data on French Employer-Sponsored Saving Plans

We study how take-up of the plan and of the default option respond to the availability of LT investments. At most large firms, if the plan includes an LT investment, it must be included in the default. To avoid making LT investments, therefore, a worker must opt out of the default and make an active portfolio choice. The take-up rate of the default investment option in plans that offer LT investments therefore provides indirect evidence on the demand for precautionary liquidity. The take-up rate of the plan may shed light on whether some workers are reluctant to make an active investment choice and therefore choose not to participate at all.

2.1 Workplace Saving Plan Data, 2015-2020

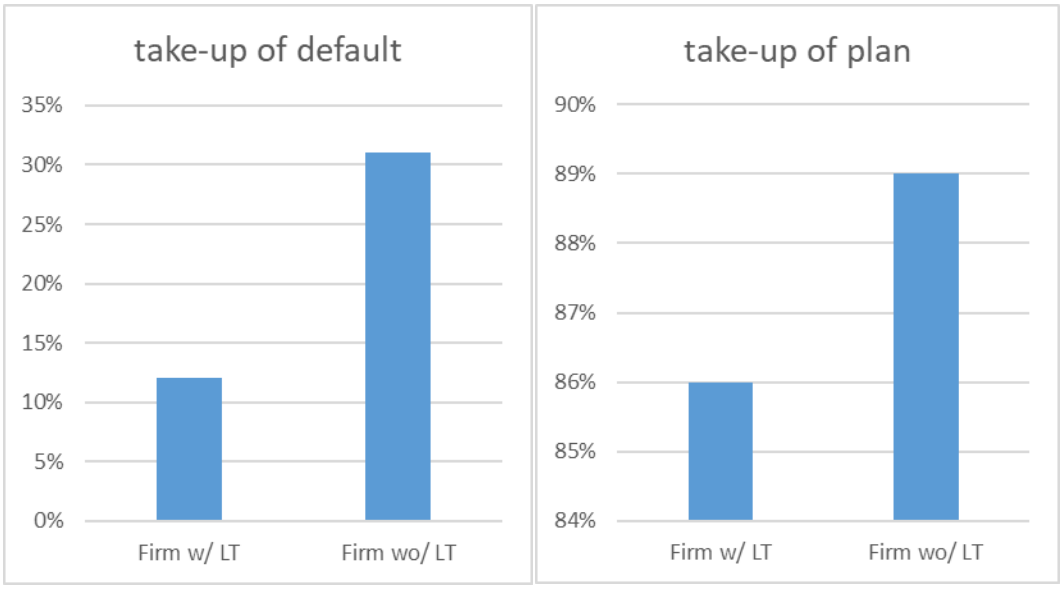
Our analysis is based on administrative data from 2015 to 2020 collected by Amundi, the largest DC plan provider in France. The data set includes information on the saving choices of 1,782,877 individuals who lived in France and who Amundi's records show received variable

[6]Although firms can design very complex rules, in practice most choose simple ones, such as a flat match that is identical across investment options.

remuneration from only one employer.[7] There are workers at 7,980 distinct firms – although a smaller number in any single year. There are 5,035,828 worker-year observations, 3,167,843 of which are associated with firms with LT plans.

Figure 1 presents summary information on worker decisions MT and LT plans. At firms that offer LT investments, 12% of workers take up the default, while at those without LT investments, 31% do so (N = 1,867,985 worker-years). Plan participation is marginally higher at firms that do not offer LT investment (89%) than in those that do (86%).

Figure 1: Take-up of Plan and Default Asset Allocation in Full Sample



The comparisons in Figure 1 are largely driven by cross-sectional differences in saving plans. They are consistent with the presence of LT investments affecting worker behavior, but they do not provide causal evidence because plan attributes are potentially endogenous.

[7] This restriction excludes 74,937 individual*year observations corresponding to various situations, such as employees with at least two part-time jobs. The small subset of job changers who receive variable remuneration from two firms in the same year -- most job-changers receive such remuneration from only the firm they left or the one they join, but not both – are excluded from our sample in the year of their job change, but are included in the years before and after their job switch.

Employers may design plans recognizing their employees' preferences, and workers may choose where to work based in part on attributes of the firm's retirement saving plan. At small firms, management may have information on worker preferences, and at large firms, unions may aggregate and communicate preferences.

2.2 Job-Switcher Identification Strategy

To address the potentially confounding effect of endogenous plan attributes on estimates of how plan attributes affect behavior, we follow previous studies including Chetty, Friedman, Let-Petersen, Heien, and Olsen (2014) and Choukhmane (2024) and focus on workers who change jobs during our sample period.[8] This identification strategy assumes that workers change jobs for reasons that have little or nothing to do with the savings plans offered by different employers, an assumption that is more reasonable in France than in some other nations because contributions to these plans account for a relatively modest share of compensation.[9]

We further restrict our sample in several ways. First, we focus on the subsample of firms with at least 50 employees, which reduces our sample to 1,214,744 workers, associated with 3,140,115 worker*year observations between 2015 and 2020. These firms may only offer two plan designs: a plan without LT investments, or a plan with them that includes LT investments in the plan default.[10] For a worker at one of these firms that offers LT

[8] We do not consider changes in access to LT investments that result from changes in plan structure at individual firms during our sample period, since we regard these changes as potentially due to evolving worker preferences.
[9] A job change does not mechanically affect a worker's plan balance. Funds in an MT savings plan can remain invested in the old plan, or can be rolled over to the new employer's MT plan. LT savings at a previous employer cannot be moved to the new employer's plan, even if it offers LT investment options.
[10] All firms with more than 50 employees must offer their workers profit sharing benefits known as "participation," and if the firm's plan offers a long-term investment, the default must allocate 50% of "participation" funds to those investments.

investments, the only way to avoid these investments is by opting out of the default and making an active choice.

Second, we limit the set of job changers to those who change jobs only once between 2015 and 2020. Some of these workers are offered saving plans with similar attributes at their initial employer and at the firm they move to; others experience changes in plan structure when they move. Third, we exclude firms that change their investment options, either introducing or eliminating LT investments, so that all changes the plan environment in our sample are the result of job changes. After applying these sample exclusions, we have a sample of 48,784 individuals with 216,051 worker-year observations between 2015 and 2020.

Table 1 presents summary demographic information on our job-changer sample, the full sample of Amundi plan participants, and the French labor force. The Amundi full sample and the job-changer sample are both somewhat older than the French working population, and they have a higher fraction of men than the working population. This is probably the result of the Amundi data being drawn disproportionately from large firms, with primarily full-time workers, in sectors such as construction and energy. Job changers are also slightly older, on

Table 1: French Labor Force in 2017 vs. Amundi Sample

	% Female	Age 15 to 24	Age 25 to 49	Age 50 to 64
French working population in 2017	48%	8%	62%	29%
Amundi full sample	36%	3%	60%	38%
Amundi job changer sample	31%	1%	57%	42%

Source: Authors' calculations from Amundi sample; data on French working population from https://www.insee.fr/fr/statistiques/3676623?sommaire=3696937

average, than workers in the full sample of Amundi plan participants. While the age distribution of the sample we analyze does not correspond to the French labor force, it over-weights workers in the years when they are most likely to be saving for retirement.

Table 2 presents additional information on the workers in the full sample and the job changer sample. Average variable remuneration is higher for job changers (€3,748 vs. €2,402). This value for job changers is the average for all years for which we have data on these workers, both before and after they make their change. Job changers are more likely to participate in saving plans, 96% vs. 87%, and they are less likely to take up the plan default, 8% versus 19%. The low take-up rate suggests that the default offering at many plans is unattractive to many employees.

Table 2: Sample Means: Full Sample and Job-Changer Sample

Variable	Full Sample (N = 5,035,828)	Job-Changer Sample (N = 216,051)
Age	44.7	46.0
Female	0.36	0.31
Variable Remuneration (€)	2,402	3,748
Plan with LT Investments	0.63	0.72
Plan with Matched MT Investments	0.64	0.87
Plan with Employer Stock	0.70	0.89
Employee Takes Default	0.19	0.08
Employee Participates in Plan	0.87	0.96

Source: Authors' calculations from Amundi sample.

There are differences between the saving plan attributes for the entire sample of worker-years and for the subsample associated with job changers. LT investments are more prevalent at the firms where job changers are employed than in the full sample (72% vs. 63%), as are matched MT plans (87% vs. 64%) and opportunities to invest in employee stock (89% vs.

70%).[11] There are also some differences between the firms that job changers leave and move to. While 70% of origin firms offer LT investments, 75% of destination firms do. Employer matching contributions are about equally available – 88% versus 87% -- and employer stock is more prevalent at destination firms (91%) than at origin firms (87%). The average take-up rate of the plan default (8%) and the plan participation rate (96%) differ by 1.4% and 1.6%, respectively, between the origin and destination firms.

3. Estimating the Demand for Long-Term Investments

Our econometric specification for estimating how the availability of LT investments affects saving plan participation and investment decisions follows Abowd, Kramarz, and Margolis' (1999) three-way fixed effects model for worker earnings. We replace firm fixed effects, however, with a linear function of three time-invariant attributes of the firm's saving plan. Our specification is:

$$y_{it} = \alpha_i + \mu_t + X'_{it}\gamma + Z'_{j(i,t)}\beta + \varepsilon_{it} \quad (1)$$

where y_{it} is worker i's take-up of the default, or participation in the plan, in period t. X_{it} is a vector of individual time-varying characteristics, including three indicator variables for which variable remuneration quantile the worker falls into at her current firm ($CompQuart_{j(i,t)k}$ for k=1,2, 3, with quartile 4, the highest quartile, omitted). α_i and μ_t are worker and year fixed effects. $Z_{j(i,t)}$ is a vector of possibly time-varying firm-specific indicator variables, including one for the presence of LT investments at firm j(i,t), which is the firm that employs worker i in year

[11] The higher prevalence of LT investments at destination rather than origin employers suggests that workers do not move to avoid plans with LT investments. One factor that may contribute to a higher prevalence of LT plans at destination rather than origin firms is the general rise in the availability of LT investments between 2015 and 2020: 60% of all workers in the full sample in 2015 had a plan with LT investments, compared with 70% in 2020. By construction, the worker's destination firm is always observed in the year after the origin firm, so if LT access is trending higher destination firms will be more likely to offer LT plans.

t. The characteristics of each plan are constant over time, but the plan that worker i is exposed to may vary over time. $Z_{j(i,t)}$ also includes indicator variables for the opportunity to invest in employer stock ($Stock_{it}$) and the presence of an employer match ($Match_{it}$).[12] Brière, Poterba and Szafarz (2021) focus on these three variables as salient influences on the attractiveness of a saving plan. There are also many other features of French saving plans, such as the number and types of funds and the matching rules, that we do not consider in our analysis.[13]

Aside from compensation information, employer saving records have little information on worker attributes, X_{it}. However, to allow for the possibility that unobserved individual attributes may shift around the time an individual changes jobs, we define a variable, $PostChange_{it}$, that equals 1 in the year when a worker starts a new job and all subsequent years. For a 2017 job changer, over the six year span 2015-2020, this variable would be defined as {0,0,1,1,1,1}. Our estimating equation is therefore

$$y_{it} = \alpha_i + \mu_t + \gamma_1 * PostChange_{it} + \Sigma_{k=1,3}\, \gamma_{2k} * CompQuart_{j(i,t)k}$$
$$+ \beta_1 * LTPlan_{j(i,t)} + \beta_2 * Match_{j(i,t)} + \beta_3 * Stock_{j(i,t)} + \varepsilon_{it} \qquad (1')$$

Since the specification includes worker fixed effects, the coefficient on LTPlan is identified by individuals moving between firms that offer different plan environments.[14] Since the variation in plan design is at the firm level, we report standard errors clustered at the firm level.

[12] We set Match = 1 when MT investment options are matched. LT investments are matched 97.5% of the time, and the matching of LT is often more generous than that of MT, as we report in BPS(2022). The correlation between LT and Match is 0.30, between LT and Stock is 0.13, and between Match and Stock is 0.35.

[13] Köszegi and Matejka (2020) consider an alternative to complete optimization: simplified choice based on limited attention to a small number of important and decision-relevant factors. The variables that we can measure and have therefore included are arguably amongst the most important for worker decision-making. In the rational inattention framework of Huang and Liu (2007), these variables have potentially important effects on participants' financial status and low learning costs.

[14] This identification strategy depends on the exclusion of firm fixed effects from (1).

In Table 3, the dependent variable is default participation conditional on being offered a plan. The results suggest that the presence of an LT investment has a negative impact of between 4.9 and 6.1 percentage points on the take-up of the default. PostChange is not significantly different from zero, suggesting that job changes are not correlated with significant changes in saving preferences. The specification in the last column of Table 3 includes three plan attributes (LT investment, matched MT investment, and employer stock). The results in Table 3 are qualitatively the same when the sample is limited to job changers who are

Table 3. Take-up of Plan Default

Explanatory Variable				
Plan Includes LT Investments	-0.061***	-0.060***	-0.061***	-0.049***
	(0.020)	(0.020)	(0.020)	(0.017)
Post Switch		0.005	-0.005	-0.010
		(0.008)	(0.008)	(0.009)
Variable Remuneration in First			0.025**	0.025**
Quantile (Q1)			(0.010)	(0.010)
Variable Remuneration Q2			0.002	0.001
			(0.004)	(0.004)
Variable Remuneration in Q3			0.003	0.002
			(0.003)	(0.003)
Plan Includes Matched MT				-0.028
Investments				(0.022)
Plan Includes Employer Stock				-0.047***
				(0.015)
Constant	0.119***	0.121***	0.117***	0.177***
	(0.014)	(0.015)	(0.015)	(0.026)
R2	0.65	0.65	0.65	0.66

All specifications include year and worker fixed effects and are estimated on a sample of 216,051 observations. Standard errors are reported in parentheses, with clustering at the firm level.

offered the same number of funds before and after the change, suggesting that the diversity of offerings plays a minor role in investment choices.

The presence of employer stock has a negative effect on default take-up, consistent with workers, on average, viewing investments in such stock as an attractive option and having

to opt out of the default to gain access to it. In contrast, the effect of matched MT investments is statistically indistinguishable from zero. This may indicate that workers do not view the match of MT investments as an essential plan attribute, or it may reflect matching contributions typically being available for both in-default and out-of-default investments. Employees in the bottom quartile of the variable remuneration distribution are about 2.5 percentage points more likely to accept the default than those in the top quartile, possibly reflecting different levels of investment knowledge and sophistication, or different valuation of portfolio customization.

For some workers, making an active choice entails a significant effort. Plan documents are complex, and many workers lack financial literacy. Even for someone comfortable with plan details, it may be difficult to predict future tax rates, a key input to the valuation of PEE and PER contributions. Some workers may be burdened by choice overload, a concept applied to the retirement saving context by Iyengar, Huberman, and Jiang (2004) and Iyengar and Kamenica (2010). Tse, Friesen, and Kalaycı (2016) present experimental evidence suggesting that as retirement plans become more complex, participants are more inclined to choose the default option, even when it does not seem like a well-suited choice for them.[15] For such workers, an attractive default may increase plan participation.

In Table 4, plan participation is the dependent variable. LT investments are associated with lower plan participation, but the effect is smaller than the difference in default take-up, possibly because opting out of the default allows workers to participate in the plan without

[15] Dahlquist, Setty, and Vestman (2018) suggest that in the U.S., the default is often different from the asset allocation that would be dictated by optimal portfolio selection. Goldin, Homonoff, Patterson, and Skimmyhorn (2020) find that in US Department of Defense retirement plans, plan simplification increases participation.

committing funds to LT investments. The lower participation rate at firms with LT investments may signal that some employees, reluctant to compose their own portfolios, opt out of participation entirely when the auto-enrollment default is not attractive.[16]

Table 4: Plan Participation

Explanatory Variable				
Plan Includes LT	-0.028***	-0.028***	-0.029***	-0.029***
Investments	(0.012)	(0.011)	(0.012)	(0.013)
Post Change		-0.001	-0.002	-0.010
		(0.013)	(0.014)	(0.013)
Variable Remuneration in			0.038**	0.038**
First Quantile (Q1)			(0.012)	(0.012)
Variable Remuneration			0.016	0.017
Q2			(0.007)	(0.007)
Variable Remuneration in			0.004	0.005
Q3			(0.003)	(0.003)
Plan Includes Matched LT				-0.046*
Investment				(0.024)
Plan Includes Employer				0.058***
Stock				(0.022)
Constant	0.983***	0.984***	0.976***	0.963***
	(0.009)	(0.010)	(0.010)	(0..021)
R2	0.50	0.50	0.50	0.50

All specifications include year and worker fixed effects and are estimated on a sample of 216,051 observations. Standard errors are shown in parentheses and are clustered at the firm level.

The choice overload narrative offers a possible interpretation of some workers' reluctance to make active portfolio decisions. It may be easier, even if costly in terms of after-tax spending power, to opt out of the plan than to opt out of the default and make an active decision about the allocation of contributions across investment choices. Alternatively, there may be a group of employees who dislike LT investments and would not choose them if opting out was costless, but who, when opting out is costly, accept the default and do not make active

[16] In BPS(2021), we report cross-sectional evidence on the relationship between the presence of an LT plan, plan participation, and default take-up in 2017. The effect sizes obtained with the mover design in Tables 2 and 3 are smaller than those in the cross section.

choices, provided the default does not include LT investments. These scenarios are observationally equivalent and differ only in what is defined as a friction.

4. Robustness: Moving to, and Away from, LT Investments

To investigate the robustness of our findings, we divide the job changer sample into two subsamples based on the presence or absence of LT investments at the changer's source firm.[17] For workers whose source firm offered an LT plan, a sub-sample that consists of 150,378 observations, we measure the effect of moving to a firm without such a plan. For those with source firms that did not , we measure the effect of moving to an LT firm. We consider plan participation and take-up of the default over a five year window. The year before the job change is the baseline year (date 0, omitted from our graphs). Year 1, which we label MoveYear, is the year when the job changer is first employed at the new job. Year 2 is the following year, the second year on the new job.[18] The estimating equation, with the time subscript running from t=-2 to t=2 with t=1 denoting the first year at the destination firm, is

$$y_{it} = \alpha_i + \mu_t + \Sigma_{k=-2.2}\, \delta_k * Treat_{k(i,t)} + \Sigma_{k=1.3}\, \gamma_{2k} * CompQuart_{j(i,t)k} + \beta_2 * Match_{j(i,t)} + \beta_3 * Stock_{j(i,t)} + \varepsilon_{it} \quad (2)$$

where $k(i,t) = t - MoveYear_i$, and $Treat_{k(i,t)} = 1$ if $k(i,t) \geq 0$ and zero otherwise.

Figure 2 plots the coefficient estimates $\{ \delta_k \}$ for workers whose source firm offered LT investments. The plot on the left shows the take-up of the default before and after the job change. The plot on the right features the coefficients on plan participation. In both graphs,

[17] We performed two additional robustness checks. First, we limited the years in the sample to two years (one before and one after the job change). Second, we replaced the quartiles for variable remuneration, which is related to the annual cash inflow to the saving plan, with quartiles for the total account accumulated by the employee, a measure of the stock of saving. Both exercises (available upon request) produced estimates of the effect of LT investments in plans that are similar to those shown in Tables 2 and 3.

[18] The small number of observations on workers more than two years away from their job change results in noisy estimates of event study coefficients more than two years before or after the change.

the treated group is the set of workers who joined a firm with no LT plan and the control group is the set of workers who had an LT plan at both their source and destination firms. Figure 3 presents similar plots for the second subsample, the 65,673 observations corresponding to workers whose source firms offered LT investments. The treated group is the set of workers who transitioned to a firm with LT investments, the control, those whose destination firm did not offer LT investments.

Figure 2: Changes in Default and Plan Participation, Workers Starting with LT Plans

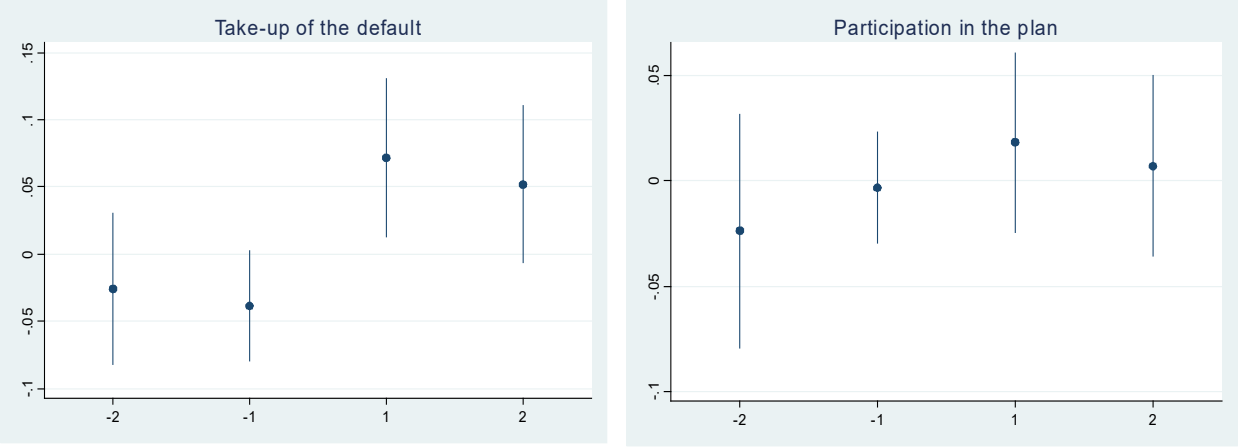
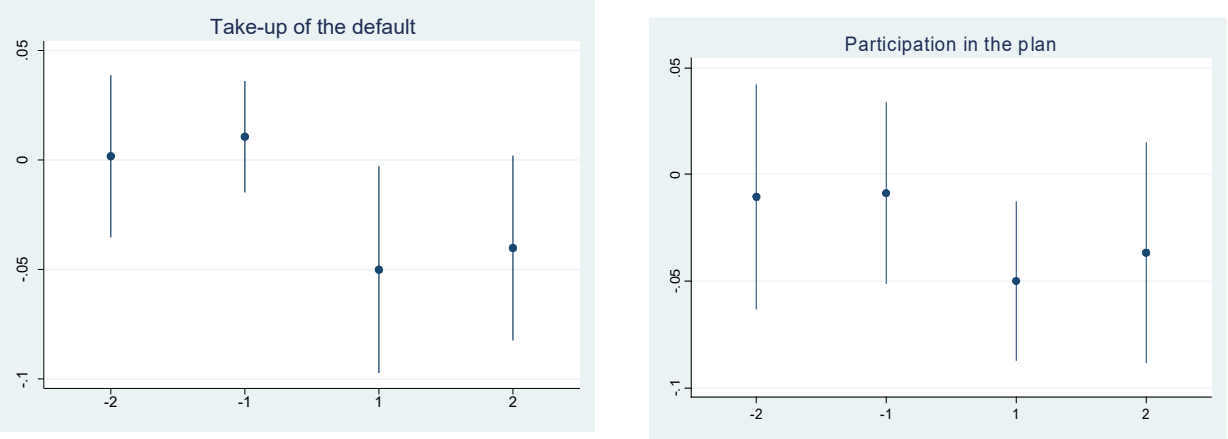


Figure 3: Changes in Default and Plan Participation, Workers Starting without LT Plans



For both sub-samples, the results are consistent with the findings in Tables 2 and 3, and they are of roughly equal magnitude. When moving from a firm that offers LT investments to

one that does not, workers are about 7 percent more likely to take the default and about two percent more likely to participate in the plan. When the move is from a firm that does not offer LT investments to one that does, as shown in Figure 3, both take-up of the default and participation in the plan drop by about 5 percent. The standard error bands are larger for participation than for default take-up, making it more difficult to draw strong conclusions.

5. Choices of Active Decision-Makers

The finding that on average plan take-up and default take-up are lower when plans include LT investments is consistent with there being more workers who demand precautionary liquidity than commitment contracts, but it does not rule out the presence of some present-biased consumers who value such contracts. Our dataset includes the allocation choices of workers who are offered LT investments, decline the default allocation, and select their own allocation. Building on recent work by Goldin and Reck (2020) and Choukmane and De Silva (forthcoming), we assume that those who make active decisions reveal their preferred mix of relatively liquid savings and commitment contracts. In contrast, the preferred allocations of plan participants who accept defaults are not directly observable because there are frictions that lead them to refrain from active choice.[19]

Table 5 shows the MT vs. LT allocations of all workers in the job changer sample who were offered LT investments (N = 155,723) as well as for the subsample of this group for whom

[19] The revealed preferences approach has the merit of providing numerical bounds on workers' demand for LT investments and the optimal share of savings invested in them, both of which are potentially relevant for the design of retirement saving policies.

at least some of LT investments were matched (N = 151,838). Since the firms employing these workers offer LT investments, default offerings also offer them.

Table 5: Active & Default Investors' Take-up of LT Investments at Firms Offering LT

Worker group	All plans with LT investments	Plans with Matched LT investments	Plans with unmatched LT investments
	Share of workers in plans with LT investments who invest in LT funds		
All (N = 155,723)	69%	70%	50%
Workers who take default (N = 6,329)	100%	100%	100%
Workers who opt out of default (N = 149,394)	68%	69%	35%
	Share of Contributions Directed to LT Investments		
All (N = 155,723)	21%	21%	26%
Workers who take default (N = 6,329)	37%	37%	41%
Workers who opt out of default (N = 149,394)	21%	21%	22%
Sample Size	N = 155,723	N = 151,838	N = 3, 855

Ninety-six percent of workers make active choices, and 69% of those at firms that offer LT investments direct some of their contributions to them. The average LT share is 21%. In addition, all workers who take the default (4%) contribute to LT investments. Most LT investments are matched. For workers taking the default, the LT investment share is 37% when the plan includes matched LT investments and 41% when it does not. These results suggest that workers value commitment contracts, but are reluctant to invest as much in these contracts as many default allocations require. The proportion of workers opting for LT investments is higher when these investments are matched.

Even when LT investments are matched, about 30% of active decision makers do not invest in them. This percentage is 65% without a match. Yet our foregoing results based on the job changer sample suggest that adding long term investments to the plan menu reduces default participation by about 6% and plan participation by about 2%. Is there any tension between these results? The two estimates correspond to different margins of behavior. The active saver evidence in Table 5 describes choices of who have chosen to participate in the employer's saving plan. The findings in Tables 3 and 4, in contrast, describe the behavior of a larger group: all workers who are offered plans. Some of these workers decide not to participate in the saving plan, and therefore are not considered when we study, in Table 5, the allocation decision between LT and MT investments.

6. Conclusion

This paper presents evidence on the demand for commitment contracts in retirement saving plans, and how the presence of such contracts affects contribution and investment decisions. We exploit French administrative data on workplace saving plans that present participants with both medium-term and long-term investments. By studying workers who experience changes in the features of their retirement plan as a result of job changes, we estimate that the participation rate is about three percentage points lower in plans that offer long-term investments than in those that do not, and that take-up of the default is about six percentage points lower. These findings are consistent with more workers being unwilling to forego access to their savings until retirement than being attracted to commitment contracts that prevent them from tapping these accounts. Andersen, et al (2024) point out that the

relative importance of these groups is a central consideration in regulatory policy debates about the parameters of retirement saving accounts.

Our finding that some workers choose not to participate in workplace saving plans that include long term investments, despite the tax and other benefits of doing so, is consistent with their not being prepared to exert the decision effort that is needed to select investment options other than the default. Demand for precautionary liquidity can rationalize the low take-up of the default for plans offering long term investments, but it cannot explain why a menu that includes both long- and medium-term investments is associated with lower plan participation. This suggests a potential role for behavioral explanations of the observed patterns.

Our findings contribute to the growing literature on the demand for commitment contracts among retirement savers. Amador, Werning, and Angeletos (2006) frame the general problem facing a consumer who wishes to constrain herself to avoid present-biased consumption choices. In contrast to the demand for commitment contracts found by Thaler and Benzarti (2004), who analyze 401(k) plan innovations in the U.S., Ashraf, Karlan and Yin (2006), who study commitment saving products in the Philippines, and Beshears, Choi, Harris, Laibson, Madrian, and Sakong (2020), who report experimental findings, we find that the net effect of offering commitment contracts is to discourages plan participation. This finding informs the small but growing literature on optimal default design, such as Beshears, et al (2020) and Carroll, Choi, Laibson, Madrian and Metrick (2009). Our findings also highlight the important role of defaults in employer-sponsored saving plans. Some plan participants appear to follow simple heuristics to reduce the cost of choosing contribution levels and investment

options.[20] Further analysis of how the structure of defaults affects worker choices will inform not only behavioral economics but also the design of regulatory policies.

One threat to the external validity of our findings is that French workers may value commitment less than savers elsewhere because France's unconditional retirement pension makes workers less responsible for their retirement security than workers in some other nations. French workers may also recognize that both medium- and long-term investments allow early withdrawals under hardship conditions, which makes contributed funds more accessible. Analysis of the extent to which hardship withdrawal provisions weaken commitment contracts in practice is a fruitful direction for future work.

Our analysis focused only on firms with more than 50 employees because they must include LT investments in their plan default if they are offered at all. Smaller French firms have more flexibility in plan design. Both matching provisions and investment offerings may be driven in part by tax-planning opportunities for owners. Organizational considerations, such as the fraction of the firm's workforce with close ties to the owner, may also matter. If the rich variation in the structure of French workplace saving plans could be linked with detailed information on worker characteristics, beyond the information available in the administrative data we analyze, it might be possible to use a job-changer identification strategy or other approaches to estimate demand functions for different plan attributes. We hope to explore these and other issues in future work.

[20] Madrian and Shea (2001) attribute the widespread take-up of defaults in part to inertia. Goda, Levy, Manchester, Sojourner, and Tascoff (2020) find that when plans offer auto-enrollment, present bias is a key predictive factor for participation. BCLM (2009) and Besedeš, Deck, Sarangi, and Shor (2015) show that the characteristics of default offerings affect the likelihood of making an active choice.

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