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## Implications of Pension Plan Features, Information, and Social Interactions for Retirement Saving Decisions

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## Implications of Pension Plan Features, Information, and Social Interactions for Retirement Saving Decisions

### Abstract

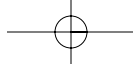
This chapter summarizes key findings from experimental or quasi-experimental studies on the determinants of savings through employer-sponsored retirement benefits plans. Research shows that default rules and the ability to commit now for the future can have a dramatic impact on enrollment rates. Analysis also shows that enrollment decisions can be influenced by peer decisions, as well as information provided by the employer. We also identify gaps in existing knowledge and propose new randomized experiments which could be conducted in the workplace that would fill important gaps in our understanding of the determinants of retirement savings.

### Disciplines

Economics

### Comments

The published version of this Working Paper may be found in the 2004 publication: *Pension Design and Structure: New Lessons from Behavioral Finance*.

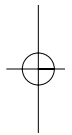


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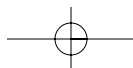
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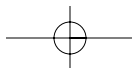
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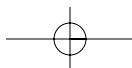
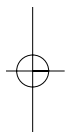
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## Chapter 8

# **Implications of Pension Plan Features, Information, and Social Interactions for Retirement Saving Decisions**

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*Esther Duflo and Emmanuel Saez*

There is growing concern in many nations about low levels of retirement saving. For most US families, employer pensions are the main source of cash income during retirement, over and above Social Security benefits (Poterba, Venti, and Wise, 1996). Yet, in the last 25 years, traditional defined benefit (DB) and employer plans with mandatory employee participation have steadily been replaced with Tax Deferred Account (TDA) retirement plans such as 401(k)s and 403(b)s, where employees choose whether to participate and how much to save for their retirement (Poterba, Venti, and Wise, 2001). As a result, many US workers now must make decisions about how much to save for their retirement, instead of being passive participants in their employer's DB pension plan. This makes it very important to understand how retirement savings decisions are made.

Deciding how much to save is a complicated decision, which requires processing a substantial amount of information and making intertemporal tradeoffs. It is clear that many households lack the financial education required to think about the saving problem as a standard intertemporal optimization problem, let alone to find the optimal solution. It is, therefore, plausible to think that participation and investment decisions in 401(k)s will be affected by factors other than standard economic maximization. Indeed, the recent empirical literature on 401(k)s has identified several of these channels: Default rules (Madrian and Shea, 2001; Choi et al., 2003, 2004), the possibility to commit now for the future (Benartzi and Thaler, 2004), information and peer effects (Bernheim and Garrett, 2000; Duflo and Saez, 2002, 2003; Madrian and Shea, 2002; and Choi and Garrett, 2000, Chapter 7, this volume).

Some recent research is based on actual experiments, either natural such as when a firm changes its retirement benefit policy, or prospective, in

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## 138 Esther Duflo and Emmanuel Saez

a randomized trial design where researchers can evaluate the impact of a specific channel on enrollment. The experimental approach has important advantages over previous analysis. First, it does not posit *a priori* models of savings behavior, and therefore the results are not dependent on behavioral assumptions. Second, experiments allow the researcher to raise new questions and provide new evidence on questions deemed irrelevant in standard approaches. As a result, the scope of investigation of saving problems has been considerably expanded so as to provide better understanding of the determinants of saving. Finally, experiments can allow researchers to develop research designs in order to answer very specific questions. We will see that, in many instances, the answers to those questions are very sensitive to the exact set-up, and therefore many experiments are called for in order to yield a solid sense of the key elements affecting the decision to save for retirement through employer sponsored benefit plans.

The goals of this chapter are twofold. First, we summarize the key features of the findings from studies that have used experimental or quasi-experimental methods. In our view, four main facts emerge from the literature. First, default rules in employer retirement benefits plans have a very important impact on retirement savings decisions. As Madrian and Shea (2001) have strikingly shown, shifting from the default rule in 401(k) plans from no-enrollment to automatic enrollment has a dramatic impact on the enrollment rates of new employees, and thus effect persists for several years. Second, the ability to commit now for the future also influences the willingness to participate. The “Saving More Tomorrow” plan proposed by Benartzi and Thaler (2004), whereby employees can decide to allocate automatically a fraction of their future pay raises to 401(k) contributions, produced a dramatic increase in the level of 401(k) savings. Third, network effects seem to be important. Duflo and Saez (2002) show that employees’ enrollment and contribution choices are influenced by the choices of colleagues within departments, within a large university. Fourth, information has some impact on participation decisions, but this effect is fairly small. Duflo and Saez (2003) conduct an experiment showing that attendance to information sessions on retirement benefits within a single large university, has a significant effect on the subsequent 401(k) enrollment rates.

Finally, we will identify the gaps in the existing knowledge and propose new randomized experiments. Most of these could be conducted in the workplace, and they would fill important gaps in our understanding of the determinants of retirement savings.

### **What Experiments Have Shown Thus Far**

#### *Default Rules and Commitment*

Several studies have analyzed how changes in the default rule for 401(k) enrollment and contributions within a single large firm influences the enrollment rates of new employees (Madrian and Shea, 2001). Enrollment rates for

## 8 / Implications for Retirement Saving Decisions 139

new employees increased from about 50 to over 80 percent. After the change, over three quarters of new employees remained in the default money market fund allocation, even though very few employees hired before automatic enrollment picked this particular outcome, and a money market fund is unlikely to be the optimal investment for long-term retirement savings.

How should we interpret the evidence on the impact of default rule? One possibility is that people do not take the time to make decisions about their 401(k) decision, or they assume that the firm has made the right choice for them. A different possibility is that the small cost involved in calling the benefits office to drop out of the 401(k) plan is actually large enough to prevent people from “acting on impulse,” to disenroll. This second explanation recognizes that people can make short-run decisions that will hurt them in the long run: The value of today’s consumption is very high, relative to the value of consumption in any future period. This means that, the individual will actually regret having consumed too much today, in the future. By enrolling employees by default, the firm provides employees with a commitment device. Even though the commitment is not particularly constraining, it appears sufficient to protect individuals from themselves.

If this is in fact the right explanation, then individuals should actually value the opportunity to commit themselves for the future by enrolling in the 401(k). The problem, however, is that in order to enroll today, they must give up consumption today. They would rather start giving up consumption *starting tomorrow*. The “Save More Tomorrow” (SMT) experiment developed by Shlomo Benartzi and Richard Thaler (2004) was meant to test exactly the possibility that workers would be willing to commit today to save *future* salary increases. Their analysis gave employees in a mid-sized company the option to commit in advance to allocate a portion of their future salary increases toward retirement savings. The vast majority of people (78 percent) who were offered the SMT plan elected to use it, and the vast majority of those who joined remained in it through at least three pay raises. Average contribution rates in the 401(k) plan for SMT plan participants increased from 3.5 to 11.6 percent of pay, over the course of 28 months.

### Information and Peer Effects

Several studies have investigated whether peer effects play an important role in retirement savings decisions. Using individual data on employees of a large university, Duflo and Saez (2002) study decisions to enroll in the 401(k) plan along with the choice of the mutual fund vendor for people who choose to enroll. The research question was whether people are influenced by the decisions of other employees in the same department. Results consistently suggest that peer effects are important: There is little difference in participation *within* departments, but larger variance in participation rates *across* departments, and individual participation rates are correlated with predicted participation in their peer groups.<sup>1</sup>

## 140 Esther Duflo and Emmanuel Saez

An interesting related experiment also sheds light on the role of information and social interactions in decisions to enroll in 401(k) retirement plans (Duflo and Saez, 2003). Here, a random sample of employees in a subset of departments was encouraged to attend a benefits information fair organized by the employer, who offered them a \$20 monetary reward for attendance. We set a variable  $D = 1$  were the treated departments where some letters were sent and by  $D = 0$  were the control departments where no letters were sent. Within the treated departments, each employee not previously enrolled in the 401(k) plan had a probability  $1/2$  of receiving the letter promising the \$20 monetary reward for attendance. We denote by  $L = 1$  the treated employees who did receive the letter, and by  $L = 0$  the employees who did not. Our experiment included only employees not yet enrolled in the 401(k) shortly before the fair.

Attendance rates at the benefits fair are reported for each group in Panel A of Table 8-1. For employees in control departments ( $D = 0$ ), the fair attendance rate was only 5 percent, whereas in treated departments ( $D = 1$ ), the fair attendance rate was above 20 percent. Within treated departments, the attendance rate was 28 percent for employees who received the letter, more than five times larger than in control departments. Interestingly, the attendance rate of employees in treated departments who did not receive the letter was 15 percent, three times higher than in control departments, even though those employees did not receive a monetary reward for attending. Therefore, this shows that there were important spillover effects within departments in the decision to attend the benefits fair: Employees who received the letter did induce some of their colleagues to attend the fair with them.

Panel B of Table 8-1 displays 401(k) enrollment rates 5 and 11 months after the fair, for each of the groups. The enrollment rates in treated departments remained significantly higher (by about 20 percent) than in control departments after 5 and 11 months, although the difference was small in absolute terms (1 and 1.4 points, respectively). Interestingly, within treated departments, the enrollment rate of those who did receive the letter is no higher than for those who did not.

Three interpretations, not mutually exclusive, can account for these results (Duflo and Saez, 2003). First, they could be explained by social effects at the department level. Fair attendees might be able to spread information gleaned from the fair in their departments, and therefore increase the enrollment rates of their colleagues, even if the latter did not attend the fair themselves. Second, the results might be explained by differential treatment effects. Employees who went to the fair only because of the financial reward are likely to be different from those who participate because of their colleagues, and it is plausible to think that the treatment effect would be larger for the latter group than for the former. Finally, the results could be explained by motivational reward effects. Paying people to attend the fair



## 8 / Implications for Retirement Saving Decisions 141

TABLE 8-1 Descriptive Statistics of Fair Attendance and 401(k) Participation, by Groups

	<i>Untreated Departments (Group D = 0)</i>	<i>Treated Departments</i>		
		<i>All (Group D = 1)</i>	<i>Treated (Group D = 1, L = 1)</i>	<i>Untreated (Group D = 1, L = 0)</i>
<i>Panel A: Benefits fair attendance<sup>a</sup></i>				
Fair attendance rate <sup>b</sup>	0.049	0.214	0.280	0.151
among non-401(k) enrollees	(0.005)	(0.006)	(0.01)	(0.008)
Observations	2,018	4,126	2,020	2,106
<i>Panel B: 401(k) participation<sup>c</sup></i>				
401(k) participation rate	0.040	0.049	0.045	0.053
after 4.5 months	(0.005)	(0.004)	(0.005)	(0.005)
Observations	1,861	3,726	1,832	1,894
401(k) participation rate	0.075	0.088	0.089	0.088
after 11 months	(0.0065)	(0.005)	(0.0071)	(0.007)
Observations	1,633	3,246	1,608	1,638
<i>Panel C: Response rate to additional questionnaire</i>				
Response rate	0.352	0.452	0.440	0.464
	(0.0402)	(0.018)	(0.0201)	(0.0405)
Observations	142	765	612	153

<sup>a</sup> Panel A includes all individuals not enrolled in the 401(k) plan by September 2000.

<sup>b</sup> Average fair participation in the non-treated department was obtained from the registration information collected at the fair. Since only 75% of the participants registered, participation was adjusted by a proportionality factor.

<sup>c</sup> 401(k) participation rates are obtained from administrative data.

*Notes:* Standard errors in parentheses.

*Source:* Authors' analyses.

could have affected their subjective motivation and therefore the perceived value or quality of the information they obtained at the fair.

Next we turn to new evidence from a follow-up questionnaire mailed after the fair. We believe this information helps to show that the important decision about how much to save for retirement is affected by small shocks, such as a very small financial reward and/or the influence of peers, and thus it does not seem to be the consequence of an elaborate decision process.

Five months after the benefits fair, a follow-up questionnaire was sent to 917 employees. This included two questions designed to measure employee knowledge of university retirement benefits system, as well as questions to elicit information on alternative retirement savings options available and

**142 Esther Duflo and Emmanuel Saez**

to measure the extent of procrastination. The questionnaire, reproduced in the Appendix, provides additional perspectives regarding how the information obtained at the fair boosted 401(k) enrollment, despite the fact that the response rate was under 50 percent (Panel C of Table 8-1).<sup>2</sup> Clearly, people who responded are a select group. For example, those who responded to the questionnaire were eight percentage points more likely to enroll in the 401(k) after 6 months, compared to those who received it but did not return the survey (the standard error is 1.7 percentage points). The questionnaire itself had no causal effect on participation, because the enrollment rate in departments where we sent questionnaires did not increase relative to others.<sup>3</sup> Thus, this difference is entirely due to selection.<sup>4</sup> Moreover, those who received the questionnaire and did not respond were less likely to enroll in the 401(k) after 6 months, than those who did not get the questionnaire.<sup>5</sup>

Results from the follow-up survey appear in Table 8-2. People who answered the questionnaire were more likely to have attended the fair than people who did not: In the treated group, 43 percent of the questionnaire respondents attended (while 28 percent of the entire treated population attended), and in the control group, 29 percent of the respondents attended (compared to 15 percent). The attendance difference (14 percent) is similar to the difference in fair attendance between the two groups as a whole (13 percent) recorded at the fair. Respondents overall reported very high satisfaction rates with the fair. Yet, satisfaction was significantly higher for the control group than for the treatment group (95 versus 85 percent), and the difference was almost as large as the difference in fair attendance. Panel A thus suggests either that the marginal fair participant induced by the reward was less likely to find the fair useful (thus supporting the hypothesis of differential treatment effects), or that having received the letter reduced fair satisfaction (supporting the motivational reward effect hypothesis).

Panel B of Table 8-2 reports responses to the question "Why are you not enrolled in the 401(k) plan?" for those who reported that they were not enrolled (none of them were actually enrolled). They could check as many answers as were applicable. Individuals in the treatment group were less likely to report that they lacked information (20 versus 30 percent), the difference was significant at the 10 percent level. They were more likely to say that they wanted to enroll soon but had not yet found the time (45 versus 36 percent), although the *t*-statistic was just 1.3.<sup>6</sup> All other reasons for not contributing were mentioned equally often by both groups, with "plan to enroll soon" being the single most often cited reason for not contributing. In Panel C, we match this answer with their subsequent behavior. Actual behavior was correlated with intention (virtually no one who did not declare that he intended to enroll did so) but it fell well short of intention. Among untreated individuals, 17 percent of those who indicated they planned to enroll did so, but among treated individuals, 10 percent did so.<sup>7</sup>

**8 / Implications for Retirement Saving Decisions 143**TABLE 8-2 Analysis of Answers to Follow-Up Questionnaire<sup>a</sup> and Standard Errors of the Difference Corrected for Clustering at the Department Level<sup>b</sup>

	<i>Treated Departments</i>		
	<i>Treatment</i> <i>(Received Invitation)</i>	<i>Control</i>	<i>Difference</i>
<i>A. Fair participation and impressions</i>			
Benefits fair participation	0.43 (0.03)	0.29 (0.05)	0.14 (0.06)
Benefits fair satisfaction (for those who attended the fair)	0.85 (0.03)	0.95 (0.05)	-0.10 (0.05)
Observations	301	70	
<i>B. Response to question "Why are you currently not enrolled in the 401(k)?"</i>			
Not enough information	0.20 (0.03)	0.31 (0.06)	-0.11 (0.06)
Cannot afford to save for retirement	0.33 (0.03)	0.37 (0.06)	-0.04 (0.08)
Plan to enroll soon but no time to do it yet	0.45 (0.03)	0.35 (0.06)	0.09 (0.07)
Other ways to save for retirement	0.22 (0.03)	0.24 (0.05)	-0.02 (0.06)
Observations	255	62	
<i>C. Enrollment 6 months after the questionnaires</i>			
Plan to enroll soon	0.10 (0.03)	0.17 (0.09)	-0.07 (0.1)
Do not plan to enroll soon	0.02 (0.01)	0.00	0.02 (0.01)
<i>D. Response to question "Where do you obtain information about benefits?"</i>			
Benefits fair	0.37 (0.03)	0.25 (0.05)	0.12 (0.05)
Benefits information packet	0.77 (0.02)	0.93 (0.03)	-0.16 (0.04)
Personal visit to the Benefits Office	0.12 (0.02)	0.08 (0.03)	0.04 (0.05)
Other information seminar	0.20 (0.02)	0.21 (0.05)	-0.01 (0.05)
Colleagues	0.25 (0.03)	0.31 (0.06)	-0.06 (0.05)
Family or friends	0.26 (0.03)	0.24 (0.05)	0.03 (0.05)
Administrative officer	0.05 (0.01)	0.01 (0.01)	0.03 (0.02)
Observations	300	71	

## 144 Esther Duflo and Emmanuel Saez

TABLE 8-2 *Continued.*

	<i>Treated Departments</i>		
	<i>Treatment</i> <i>(Received Invitation)</i>	<i>Control</i>	<i>Difference</i>
<i>E. Knowledge about benefits</i>			
Reported knew own 401(k) status	0.94 (0.01)	0.99 (0.01)	-0.05 (0.02)
Reported knew the number of vendors	0.74 (0.03)	0.71 (0.06)	0.02 (0.06)
Gave correct answer about 401(k) status	0.89 (0.02)	0.94 (0.03)	-0.06 (0.03)
Gave correct answer about pension plan	0.60 (0.03)	0.61 (0.07)	0.00 (0.07)
Observations	235	56	

<sup>a</sup> All statistics are weighted by population weight.

<sup>b</sup> Sample is restricted to treated departments.

*Source:* Authors' analyses.

Thus, treated individuals were more likely to have good intentions, but they were also more likely to procrastinate.

Panel D shows the answer to the question “Where do you obtain information about the 401(k) plan?” Not surprisingly, those in the treatment group were more likely to say that they obtained it from the fair (and the difference, 11 percent, is close to the 14 percent difference in fair attendance). However, they were *less* likely to obtain information from the benefits information *packet* (77 versus 93 percent). Those two sources of information thus appear to be substitutes. Other sources of information seem to be used equally by both groups.

Panel E reports answers to the knowledge questions. The first question asked whether the employee was not enrolled in the 401(k) plan (when we sent the letter, none of them were). Second, we asked them whether they knew the number of vendors with whom their Defined Contribution (DC) benefits could be invested. Employees were automatically enrolled in the DC plan at that firm, and they could choose to invest their contributions with four different vendors. Many employees had more than one vendor. If they did not make a choice, the benefits office randomly allocated them to one vendor. The results show that treatment and control groups were about as likely to know the number of vendors: 74 and 71 percent, respectively, ventured to answer the question, and in total 60 percent of each group gave the right answer.<sup>8</sup> However, those who received the letter were significantly less likely to report knowing their 401(k) plan status (94 versus 99 percent), and they were also less likely to give the correct answer (89 versus 94 percent).<sup>9</sup>

## 8 / Implications for Retirement Saving Decisions 145

This could reflect some over-confidence on their part, since the letter was sent only to those who were not contributing. The finding lends some support to the motivational reward hypothesis: In the group where fair attendance was high, the treated group had less knowledge than the group that was not directly treated.

In summary, then, our results show that participation in the fair did not have a large impact on the information set of those who received the letter. In fact, they seem to have substituted fair attendance for individual research. The result was that they were more unsure about their actual 401(k) status, and to wrongly report themselves as contributing even though they were not. However, they were less likely to think that they suffered from a lack of information, and they were more likely to plan to enroll soon. Of course, this does not imply that the fair had no impact on the information set of those who went to the fair without the letter (used here as the control group).

### Discussion

This experiment had two striking findings bearing further comment. First, there was a large spillover effect at the fair attendance stage. Second, despite the large remaining difference in fair attendance, there was no difference in 401(k) plan participation between treated and untreated individuals within treated departments, while there was a significant difference in 401(k) plan participation between treated and untreated departments. As noted above, the fair attendance results are a clear indication of social effects in the decision to attend the fair, but interpreting the 401(k) plan participation results is more delicate. These could be due to social effects, differential treatment effects, motivational reward effects, or a combination of all three. Yet, the three different explanations have a common feature: They all suggest that the decision to participate in the 401(k) plan is affected by small changes in the environment, and not only by the information content of the fair.

If our results were entirely explained by the social effects hypothesis, this would imply that peer effects are very strong, as compared to the direct effect of the fair. This could arise in two cases. One case would posit that the fair conveys useful information to the fair participant which is then completely diffused to his entire department. This could explain why individuals who received the letter did not participate in the 401(k) plan any more than their colleagues who did not, and both, in turn participated more than individuals in control departments. A second case would propose that when people see more colleagues attending the fair (or they see others receive a letter inviting them to attend the fair), they are directly induced to enroll in the 401(k) plan, irrespective of what those who went to the fair learned at the fair or decided to do. Such peer effects do not

**146 Esther Duflo and Emmanuel Saez**

seem to stem from rational “herd behavior” in an environment where information is scarce or difficult to obtain (Banerjee, 1992; Bikhchandani, Hirshleifer, and Welch, 1992). At the same time, however, there is clearly no strong social pressure to conform to the decisions of the majority regarding the 401(k) plan (as was true, for example, in Munshi, 2000).

Yet another explanation for our results is that the treatment effects may have been different for the various groups: It was positive for those who attended the fair because of their colleagues, but zero for those who attended because of the monetary reward. Yet, even if the results were entirely due to such differential treatment effects, so that social interactions play no role in explaining the 401(k) enrollment rate results, social network effects are still responsible for the increase in fair attendance among the untreated individuals in treated departments. Hence, social network effects still prompted some people to take steps which ultimately led them to change their 401(k) plan participation decisions.

As noted, the results could also be partly explained by the motivational reward effect. If true, this would also indicate that individuals’ decisions can be influenced by small non-economic factors. When attending the fair on their own, they were influenced by it, but they were not induced to go by a \$20 reward. A small perturbation in their motivation to attend the fair thus influenced their final decision, which again indicates that decision-making processes can be influenced by small changes in the environment.

In summary, a common theme across all these explanations is that the participation decision is influenced by things other than new information about costs and benefits of the 401(k) plan. Consequently, the decision to participate in the 401(k) plan is not purely the outcome of a sophisticated process of information-gathering and careful considerations of the alternatives. This conclusion is consistent with a growing body of evidence on retirement saving behavior showing that people believe that their saving rate is too low (Choi et al., 2002), but that their plans to increase it are rarely followed by action (Choi et al., 2002; Madrian and Shea, 2002), and that retirement decisions are characterized by very strong inertia and adherence to default rules (Madrian and Shea, 2001; Choi et al., 2003). It is important to emphasize, however, that the studies discussed analyze only the decision to enroll and contribute to a 401(k) plan. Starting to contribute to a 401(k) plan does not necessarily imply increased real saving, since individuals may offset 401(k) savings by reducing other saving or increasing their debt. Measuring the effects on total saving would require more data on overall assets and liabilities.

**Future Research**

Next, we sketch several further experiments to shed light on questions regarding the 401(k) enrollment decisions that remain unanswered.

## 8 / Implications for Retirement Saving Decisions 147

These experiments could be conducted within one large employer (in which case, employees within the firm would be randomly allocated to different groups), or at several companies (in which case, employers would be randomly allocated to different groups, and all employees would be treated similarly within a firm). Answering these questions would improve our understanding of the determinants of savings for retirement better, and can help design plans that will better serve both employees and employers.

### Seminars versus Fairs

More focused information, in smaller groups, could have a larger impact than a large-scale benefits fair: some groups are particularly in need of information, and do not receive it through the regular channels such as a general benefits fair. For example, the Bush administration proposed a retirement plan that would match up to 50 percent of the first \$1,000 of IRA or 401(k) contributions for low-income earners. Since eligibility conditions depend in a complicated way on income and marital status, it could be difficult to access precisely for the low-income families whom this reform targeted. Employers might use payroll information to determine who is likely to be eligible, and target information to these individuals through specialized seminars.<sup>10</sup>

Many firms offer benefits information sessions to their employees.<sup>11</sup> The impact of such sessions could be enhanced if they were combined with some of the interventions proposed below. New employees typically must make a number of decisions (e.g. regarding health and flex benefits), so it could be a good time to reach them. Compulsory information sessions for new employees might be a method of informing new hires without requiring financial incentives. Such sessions, however, might have no impact if the “motivational reward” effect is too large, since employees might feel that they are forced to attend and stop paying attention altogether. Measuring the impact of compulsory information sessions on new hires’ decisions could be very useful.

### Signing Up on the Spot

At the information session studied by Duflo and Saez (2003), the university did not offer enrollment on the spot; instead, employees interested in the 401(k) plan had to pick up an enrollment packet to take home. Quite plausibly, the additional effort required and the time lapse could be enough to undermine their resolve to enroll in the plan, especially if the reason that default rules matter is because people are simply reluctant to spend any time thinking about saving. In contrast, the “Save More Tomorrow” experiment offered people the option to enroll *right away* in the plan, which had greater success.

### 148 Esther Duflo and Emmanuel Saez

Three different hypotheses on the impact of default rules are as follows: there is information in the proposed default, individuals do not think at all about retirement; and the default is a commitment device that protects individuals from themselves. To distinguish between these, we propose three different experiments. First, one could compare the impact of regular information sessions with sessions where the employees could enroll on the spot, assisted by someone from the benefits office. To detect a clean effect, employees would be randomly allocated to sessions with or without on the spot enrollment. Second, information sessions with on the spot enrollment could be combined with default rules. The information session could deliver exactly the same message as before, but now enrollment would be the default option in one case, and non-enrollment would be the default option in a second case. Combining these two interventions would provide six groups that can be compared with each other:

- (1) no enrollment by default; no information session;
- (2) no enrollment by default; information session with no option to change choices on the spot;
- (3) no enrollment by default, information session with option to change choices on the spot;
- (4) enrollment by default, no information session;
- (5) enrollment by default, information session with no option to change choices on the spot; and
- (6) enrollment by default, information session with option to change choices on the spot.

If the enrollment rates were higher in group 3 than in group 2, we could conclude that the lack of salience of the 401(k) decision plays a big role in the enrollment decision. In other words, focusing people's attention on the question, and getting them to make a decision at the moment when they are focused, could have an important impact on the enrollment decision. It would also confirm that people spend very little time thinking about very important financial questions, a conclusion which seems to emerge from existing evidence, as argued above. If there were a difference in enrollment rates of groups 2 and 3, but not between groups 5 and 6, we could additionally conclude that when individuals think about the problem, they actually decide to remain in the 401(k).

A comparison between groups 2 and 4 (versus groups 1 and 3) would also shed light on whether people interpret the default as information. When the information session has taken place, people receive direct information on what an employer thinks is appropriate, and in both cases, they receive exactly the same information. Of course, the fact that the firm decides to enroll the individual by default could be additional information. But if the only reason why the default matters was that people see it as



## 8 / Implications for Retirement Saving Decisions 149

a signal, we should see a much smaller difference between groups 2 and 4 than between groups 1 and 3. To make it even clearer, the information session could provide precise recommendations, which differed across types of individuals. In this case, the default enrollment (common across individuals) should provide no additional information, and if it still mattered, it would be for non-learning reasons.

To summarize, an experimental design combining variations on default options, the ability to enroll right after an information session, and the ability to commit for the future, would allow plan designers and researchers to understand more clearly what determines saving decisions.

### Effect on Saving

The central question of interest remains whether access and contributions to a 401(k) plan increase net saving, or whether people offset additional 401(k) saving with less other saving. The answer to this question is of course critical: If 401(k) contributions crowd out other forms of saving, there is little reason to offer tax subsidies to these programs. Many researchers have tried to evaluate whether, in fact, 401(k) plans boost total saving, but the analysis remains controversial.<sup>12</sup>

The key reason why the question is very difficult to answer is that one cannot simply compare saving by workers enrolled in 401(k) with that of workers who are not enrolled. People who do enroll may be otherwise financially more savvy, and therefore likely to invest more, even in the absence of a 401(k) plan. Even comparing employees in firms that offer a plan to those in firms which do not offer a plan may not solve the problem, if firms that offer 401(k) plans employ different types of people (Poterba et al., 1996). The ideal experiment would be to randomly offer 401(k) plans, or to boost 401(k) contributions of some workers but not others, and then to measure the impact on net saving. Of course, this particular experiment cannot be conducted. On the other hand, contribution rates in 401(k) plans can be significantly increased, by default rules and commitment devices, and some of the experiments we propose above could have the same impact. For example, one could track the saving rate of individuals hired just before and just after the introduction of default 401(k) enrollment, and compare their saving and asset accumulation patterns over several years. Another possibility would be to offer the "Save More Tomorrow" program to a random group of individuals within a firm, and compare the subsequent saving of those offered the program, versus the rest. Of course in so doing, it would be important to compare all the assets of those subjected (or not subjected) to the new policy. The difference between the saving rates across the two groups could then be normalized by the difference in 401(k) participation in the two groups, to obtain an estimate of the effect of 401(k) enrollment on net saving. Ideally, both

## 150 Esther Duflo and Emmanuel Saez

groups of individuals would be followed over several years, making such a study expensive and yet these data would also provide the most useful insights on the most important questions.

### **Appendix: Questionnaire Sent 5 Months After the Benefits Fair**

Please answer the following 6 simple questions. You can check the “don’t know” answer if you are not sure of an answer. Your answers will remain strictly confidential and will be used for no purpose other than this study.

(1) In addition to your Basic Retirement Account, the university makes a monthly contribution of 3.5 percent of your monthly salary to an Individual Investment Account(s). You decide how this contribution should be invested from a list of four investment companies.

Through how many investment companies are you currently investing this contribution?

- One ...
- Two ...
- Three ...
- Four ...
- Don’t know ...

(2) The university offers a supplemental retirement plan called the Tax-Deferred Account (TDA) program. Through the TDA program, you can add to your retirement savings by contributing a portion of your salary on a pre-tax basis. You pay no taxes on these savings or the investment income until you withdraw your funds. You decide how much to contribute and the university deducts your contributions from your paycheck. You choose how to invest your savings from a wide range of funds offered by four different vendors.

Are you currently enrolled in the Tax-Deferred Account (TDA)?

- Yes ... (go to question 4)
- No ...
- Don’t know ...

(3) [To be filled out only if you are not currently enrolled in the TDA]  
Why are you currently not enrolled in the TDA (check all answers that apply)?

- You do not have enough information on the TDA: ...
- Right now, you cannot afford to save for your retirement: ...
- You plan to enroll soon, but did not have the occasion to do it yet: ...
- You save for your retirement through other means: ...

## 8 / Implications for Retirement Saving Decisions 151

(3b) If you check the last answer, which other means are you using to save for retirement:

- TDA through spouse's employer: ...
- Individual Retirement Account (IRA): ...
- Employer provided pension plan (own): ...
- Employer provided pension plan (spouse): ...
- Other mutual funds: ...
- Other ...

(4) [To be filled out by everybody]

From which of the following sources do you get information about the retirement plans (check all that apply)?

- The benefits information fair: ...
- Benefits information packet: ...
- You came in person to the Benefits office: ...
- You attended an information seminar: ...
- Colleagues: ...
- Family or friends: ...
- The Administrative Officer of your department: ...
- None ...

(5) Did you attend the university benefits information fair in the fall?

- Yes: ...
- No: ...

(6) If you did, did you find it useful?

- Yes: ...
- No: ...

### Notes

<sup>1</sup> While this evidence is suggestive, it might be contaminated by omitted variables, correlated within the group, and correlated with the observed variables used to predict aggregate participation rates.

<sup>2</sup> This is a common problem. The survey on savings intention by Choi et al. (2002a) had a response rate of 33%.

<sup>3</sup> This result is well in line with previous results by Bayer, Bernheim, and Scholz (1995) showing that distributing pamphlets or advertisement about benefits is not enough to change employees' behavior.

<sup>4</sup> Since we have shown above that the questionnaire had no causal effect on enrollment, this is also a sign of selection.

<sup>5</sup> In addition, the selection seemed to work differently in treated versus control departments: The response rate for treated departments was 45% (Panel C), while it was only 35% in control departments. It may thus not be very informative to compare the responses across samples. On the other hand, network effects within departments

## 152 Esther Duflo and Emmanuel Saez

seem to have played an important role here too. The response rates among treated and untreated individuals within treated departments were essentially identical. A plausible explanation is that those who had received the fair invitation letter were able to tell their colleagues that the researchers delivered on the promise of sending the reward. Since the response rates are the same, the assumption that the selection process is the same is reasonable. Thus, we can compare the response among treated and untreated individuals within treated departments. These responses are not representative of the population in general, but representative of the segment of the population that tends to respond to this type of questionnaire.

<sup>6</sup> The difference is 9%, almost as large as the difference in fair participation: A simple IV on the probability to report that one wants to enroll on whether an individual went to the fair, using the letter as instrument, would thus give a coefficient very close to 1, which is also what Madrian and Shea (2002) obtain: Virtually all seminar attendees who were not yet enrolled in the plan were intending to enroll soon after the seminar.

<sup>7</sup> This is in the ballpark of other studies. Following the survey conducted by Choi et al. (2001a), 14% of those who intended to enroll in the TDA did. Following the financial education session in Madrian and Shea (2002), 14% of the attendees (who all intended to enroll) did.

<sup>8</sup> Those who did not answer are counted as having given the wrong answer.

<sup>9</sup> Incidentally, this level of misclassification underscores the importance of working with administrative data when studying 401(k) savings behavior.

<sup>10</sup> In the university we studied, many potentially eligible employees would need to be reached with information sessions in Spanish, for example.

<sup>11</sup> A phone survey we conducted with Fortune 500 companies revealed that 71% of them conduct these sessions. See also other studies in this volume.

<sup>12</sup> Poterba, Venti, and Wise (1996) argue that 401(k)s have increased saving while Engen, Gale, and Scholz (1996) argue they did not. Poterba, Venti, and Wise (2001) summarize the most recent research on those issues.

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**8 / Implications for Retirement Saving Decisions 153**

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