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A Reminder That Never Gets Old: Behavioral Effects of an Annual Pension Statement *

Johannes Hagen† Amedeus Malisa ‡ Andrea Schneider § Jana Schuetz ¶

November 24, 2025

Abstract

We study the behavioral effects of a large-scale, repeated, and personalized reminder. Our empirical setting is Sweden's annual pension statement, which is rolled out region by region to all working-age individuals. Combining this variation with unique individual-level user data from the national pension dashboard, we find strong and immediate effects. Dashboard users' likelihood of making a pension forecast rises by 28 percentage points in the statement week—a fourfold increase—before returning to baseline within three weeks. Remarkably, similar spikes occur each year, indicating that repeated reminders consistently reactivate attention rather than losing their impact over time. Complementary regional data on actual pension claims show a 33% surge in weekly claims during the week the statement is sent out.

JEL classification: D83, H55, J32

Keywords: repeated nudge, retirement planning, pension dashboard, pension information, digital engagement

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1 Introduction

Preparing for retirement is inherently challenging. Long time horizons, uncertainty about future income needs, and the trade-off between current spending and future security make pension decisions both complex and easy to postpone. These challenges have intensified as many countries have moved from defined benefit to defined contribution systems, shifting greater responsibility from governments and employers to individuals (Poterba 2014).

To support individuals in this process, many countries use personalized pension communication strategies. A growing body of research examines how such information interventions influence retirement behavior (e.g., Mastrobuoni 2011; Goda et al. 2014; Dolls et al. 2018). However, most evidence focuses on one-time interventions, even though many pension communication tools are designed to be recurring. A prominent example of a repeated communication tool is the pension statement—a personalized message, typically delivered annually in paper or digital form, intended to help individuals understand their pension entitlements and encourage retirement planning. We know little about whether such recurring communication continues to influence behavior over time or whether its effectiveness gradually diminishes. Annual pension statements therefore provide a useful context for advancing the nudge literature by examining how *repeated* interventions influence behavior over time.

In this paper, we examine how personalized annual pension statements affect engagement with retirement planning and pension claiming decisions and how these effects differ across groups and over time. We exploit plausibly exogenous variation from the staggered regional rollout of Sweden's nationwide annual pension statement, the *Orange Envelope*, to identify causal effects using an event-study difference-in-differences design. Each year, the statement is distributed to all individuals with public pension entitlements—approximately eight million people. As a novel proxy for retirement planning, we leverage rich administrative data that capture individuals' real interactions with the Swedish national pension dashboard, *minPension*, which provides a comprehensive overview of projected retirement income from all pension providers in Sweden and interactive forecasting tools. Our data capture all user activity on the platform at weekly frequency, providing a detailed and objective record of retirement planning behavior for the majority of the Swedish population over multiple years. Using complementary data sources, we also study the effects of the annual statement on actual pension claiming and pension knowledge. Together, the institutional setup and rich administrative data allow us to study the behavioral effects of a large-scale and repeated nudge on key financial behaviors at population scale.

Using administrative data covering Swedish individuals born before 1969 who had not yet claimed their public pension, we track their engagement with the pension dashboard between 2019 and 2024. We find that receiving the annual pension statement leads to

a sharp and immediate increase in both registrations to the pension dashboard and the likelihood that a user makes a pension forecast. In the week the statement is received, registrations increase by 2 percentage points, a sixfold change, and pension forecasts rise fourfold, by 28 percentage points. Importantly, individuals across all socioeconomic groups respond strongly to the statement. Those with lower education or income levels react almost as much as—in relative terms, sometimes even more than—groups with higher socioeconomic status.

Three additional results on dashboard activity stand out. First, the surge in engagement is short-lived: Activity returns to baseline within four weeks of the statement's arrival, consistent with a strong but temporary reminder effect. Nevertheless, the magnitude of this response is considerable. Activity attributable to the statement accounts for approximately 18% of all registrations and 7% of all forecasts over the study period. Second, while most users retain the default retirement age in the forecasting tool, this share is noticeably lower during the weeks shortly after the statement is received. Third, although the immediate effect is short-lived at the weekly level, the impact of the annual pension statement remains remarkably stable across years. Each annual mailing generates similarly sharp spikes in dashboard use that persist—or even grow—over time, suggesting that attention is repeatedly reactivated and does not fade with familiarity. We also find that the substantial short-term engagement spikes observed each year are driven largely by users already activated by previous statements.

Turning to *actual* behavior, we find that the statement also leads to a noticeable rise in pension claims. Using aggregate regional data on public pension applications, we observe that claims increase by one-third in the week the statement is received, with the effect concentrated among individuals aged 63–64. The subsequent decline in applications suggests that the statement may prompt some individuals to claim slightly earlier than they otherwise would. Finally, using survey data on attitudes and knowledge about retirement among a representative sample of Swedes aged 51–60 from Elinder et al. (2022), we show that both the annual pension statement and pension dashboard are widely known and that reading the statement is strongly associated with using the dashboard. The survey also indicates that dashboard users tend to have higher levels of pension knowledge. While these correlations should be interpreted with caution, they suggest that increased engagement may support more informed retirement planning.

Our study contributes to three strands of literature. First, it contributes to the nudge literature by advancing the strand on repeated nudges and reminders, an area with limited empirical evidence (Lorko et al. 2025).[1] Building on theoretical insights from Ericson

[1]Since the publication of Thaler and Sunstein (2008), interest in the nudge literature has grown substantially. Beshears and Kosowsky (2020) review this progress and outline directions for future research.

(2017) and Taubinsky (2013), we interpret the annual pension statement as an anticipated reminder that has ambiguous effects ex ante. On the one hand, it may refresh attention among inattentive individuals; on the other hand, it could induce postponement if people expect the next reminder to arrive automatically, or it could lead to fatigue or habituation if repeated cues lose their salience over time. Our finding that the engagement responses remain strong and remarkably stable even after multiple years of exposure contrasts with evidence of diminishing effects in some reminder settings. For instance, Karlan et al. (2016) find no additional impact of repeated reminders on savings, and Antinyan et al. (2021) show that increasing reminder frequency can even reduce compliance. Instead, our results align more closely with studies documenting persistent or positive effects: Altmann and Traxler (2014) show that reminder postcards more than double the likelihood of scheduling a dental checkup, Calzolari and Nardotto (2017) find strong short-run effects of weekly reminders on gym attendance with some evidence of habit formation, and Milkman et al. (2025) demonstrate that simple, frequent, behavior-contingent email reminders significantly increase savings transfers in a large-scale digital field experiment.[2] We extend this work by studying a large-scale and repeated, and therefore partly anticipated, nudge that is sent annually to all Swedish retirement savers.

Our finding that the annual statement generates equally strong engagement spikes each year aligns with models of bounded rationality and rational inattention. In the framework of Gabaix (2014), individuals optimally allocate limited attention and therefore do not continuously monitor low-frequency financial decisions such as retirement planning. The annual statement serves as a salient cue that new pension information has become available, temporarily lowering attention costs and creating a recurrent spike in engagement rather than merely shifting activity from other parts of the year. Reminders may also remain effective even when anticipated (Ericson 2017), because individuals cannot fully replace external cues with their own internal attention management. Rather than forming internal routines for pension planning, individuals rely on this externally timed information release, which elicits a stable behavioral response each year.

Second, our study adds to research on how pension information affects retirement behavior and pension knowledge. For Germany, Dolls et al. (2018) show that a pension information letter increased private pension contributions without reducing other savings, while Goda et al. (2014) find similar effects among US university employees. However,

[2]Beyond the distinction between one-off and repeated nudges, this literature also differs in whether outcomes are evaluated in the short or long run. Most studies focus on short-term effects, but a few examine persistence: For instance, Allcott and Rogers (2014) show lasting energy savings from repeated feedback, and Cronqvist et al. (2018) document decade-long effects of a one-time pension default nudge. In our context, the regional rollout of the annual pension statement allows clear identification of *short-run* engagement responses around the statement's arrival.

Mastrobuoni (2011) finds that the introduction of the Social Security statement in the United States improved knowledge but did not alter behavior. Using Dutch survey data, Debets et al. (2022) show that receiving a pension letter slightly improves knowledge. Finally, Angelici et al. (2022) demonstrate that short informational videos increase both knowledge and interest in learning more.[3]

We contribute by analyzing how an annual personalized information statement interacts with the use of a digital platform for financial planning. Our measure of engagement based on high-quality dashboard user data provides an objective record of how individuals seek pension information and engage in retirement planning—in contrast to self-reported measures, which rely on stated intentions or recall. In addition, unlike previous studies focused on one-time interventions or the introduction of pension statements, our approach allows us to quantify the cumulative annual impact of repeated pension communication.

Finally, we contribute to the emerging literature on pension dashboards, which is closely related to the pension communication literature discussed above, as dashboards can be seen as another channel of communication. Several countries, including Sweden, the Netherlands, and Germany, have already implemented national dashboards, while others, such as the United Kingdom, are still developing them (OECD 2024). With more than 70% of Swedes aged 60–65 registered, *minPension* is a central platform for retirement planning and has inspired similar systems in several other countries. Studies document substantial socioeconomic disparities in dashboard engagement (Hentzen et al. 2022; Daminato et al. 2024; Goda et al. 2023; Bucher-Koenen et al. 2022; Dinkova et al. 2022), and others show that usage is stimulated by interactive features (Brüggen et al. 2019) and proximity to retirement (Ripani et al. 2024). However, the link between pension communication and actual dashboard usage remains unexplored. As online dashboards become an increasingly central tool for retirement planning, understanding how pension communication affects engagement is important for designing effective information strategies. We show that a personalized annual pension statement serves as a powerful prompt for digital engagement, with evidence that this engagement extends beyond planning to influence both claiming behavior and pension knowledge. In addition, as physical letters were increasingly replaced by digital statements over the study period, the effects became stronger, which underscores the role of low barriers to action, such as seamless digital integration, as a key driver of engagement.

The remainder of the paper is structured as follows. Section 2 explains the institutional background, while Section 3 introduces the data used in this study. The empirical strategy is discussed in Section 4. The main results are presented in Section 5, while the results on pension claims and pension knowledge are discussed in Section 6. Finally, Section 7

[3]A related strand examines information campaigns and take-up of means-tested benefits (Bhargava and Manoli 2015; Engström et al. 2019; Matikka and Paukkeri 2022).

concludes.

2 Institutional Background

2.1 The Swedish Pension System

The Swedish pension system, similarly to the systems in many other countries, consists of three pillars: public pensions, occupational pensions, and private pensions or other voluntary savings.

A public pension is available to all individuals who have worked and paid taxes in Sweden. It is a defined-contribution system, and benefits can be claimed from the early eligibility age (currently 63). The accumulated capital is converted into a life annuity on the basis of a cohort-specific annuity divisor that adjusts for rising life expectancy. Occupational pensions cover approximately 90% of the workforce through agreements negotiated at the union level (Hagen 2017). Individuals often hold several occupational pensions from different employments, with limited opportunities to consolidate them (Elinder and Hagen 2018). Last, private pensions include voluntary, privately managed savings options such as private insurance and bank accounts.[4] We provide additional institutional details in Appendix A.

The public pension system was reformed in 1999, with the old system gradually replaced.[5] To emphasize the shift toward individual responsibility, simplify information costs, and increase public engagement, the government introduced the annual pension statement in 1999. In 2004, the pension dashboard *minPension* was launched to further support individuals in planning for retirement. It has since become a cornerstone for savers navigating Sweden's complex, multitiered pension system. Both the annual pension statement and the pension dashboard are central components of the setting examined in this paper and will be discussed in more detail in the sections that follow.

[4] Although tax deductions for these contributions were abolished in 2016 (except for self-employed workers without access to occupational pensions), they remain a way to supplement retirement income. The maximum annual deduction allowed for self-employed people is 35% of business income, up to a cap of 10 times the price base amount (*prisbasbelopp*). For 2024, this limit was SEK 573,000 (≈ 52,150 USD).

[5] The transition began with individuals born in 1938, who receive 4/20 of their pension from the new system and 16/20 from the old. Each subsequent birth cohort receives an additional 1/20 from the new system, meaning that those born in 1954 are the first to be fully covered by the reformed system (Hagen 2017).

2.2 Annual Pension Statement

The annual pension statement, the *Orange Envelope*, was introduced as part of Sweden's pension reform in the late 1990s to provide individuals with regular updates on their public pension savings. The first annual pension statements were sent out in 1999 as physical letters to 5.3 million pension savers. The design, including the color choice, was carefully considered to ensure visibility and recognition.[6] While its content and format have evolved over time to improve accessibility and usability, no major changes occurred during our study period. Meanwhile, the shift toward digital access accelerated. Although the option to receive the annual pension statement online was introduced in 2014, it was rarely used until 2017, when only 13% opted for it. By 2024, this figure had risen to 72%, marking a significant transition in how people access their pension information. The digital version is delivered through digital mailboxes, which are widely used by many public authorities in Sweden.

The digital annual pension statement contains more detailed information than its physical counterpart. Besides details on accumulated pension rights, including the total amount earned and contributions added from the most recent income year, the digital version has information on factors that influence future pension levels, such as the impact of continued work, income growth, and fund choices. In addition, the digital version includes a direct link to a pension forecast. As the forecast relies on data imported from the pension dashboard, it is available only to registered users of the platform. We include examples of both the current physical version and partial views of the digital version of the annual pension statement in Figures B.1–B.3.

The annual pension statement has remained a well-known source of pension information, with surveys showing that most recipients are aware of it and a majority open and read it (The Swedish Pensions Agency 2014; The Swedish Pensions Agency 2019). Engagement with the annual pension statement has remained quite stable over time. Between 2011 and 2019, more than 80% of recipients were aware that they had received the statement. Out of those, more than 75% had also opened it. From those who had opened it, a majority of around 90% had read at least parts of it. This consistently high level of awareness and readership, combined with its regular delivery at the same time each year, suggests that many recipients expect its arrival. This makes the annual pension statement function as an anticipated reminder.

A common explanation for not reading the statement or postponing retirement planning is that the pension system is complex (Elinder et al. 2022). Thus, while digitalization offers

[6]More information about the *Orange Envelope* can be found on the Swedish Pension Agency's website: https://www.pensionsmyndigheten.se/other-languages/english-engelska/english-engelska/orange-envelope-annual-statement-for-your-national-public-pension.

new opportunities for engagement, ensuring clarity and accessibility remains a challenge.

Our identification strategy exploits the geographical variation in the timing of these annual statements, which applies to both the digital and physical versions. Specifically, the statements are sent out at different times across counties, with Sweden's 21 counties divided into five groups. We henceforth refer to these county groups as *regions*. Distribution begins in the northernmost region in calendar week 7 and progresses southward until calendar week 11 (see Figure 1).[7] Importantly, there are no regional differences in adoption of the digital version of the annual statement. In 2024, depending on the region, between 79% to 84% of individuals received their annual pension statement in digital form (more details are provided in Table C.1).

2.3 Pension Dashboard

The Swedish pension dashboard, *minPension*, is Sweden's central platform for pension information, offering individuals a comprehensive overview of their total pension savings, including public, occupational, and private pensions. The platform is neutral and independent, operated as a public–private partnership jointly funded by the Swedish government and pension providers, which ensures it remains free of charge. We provide screenshots of the pension dashboard in Figure D.1.

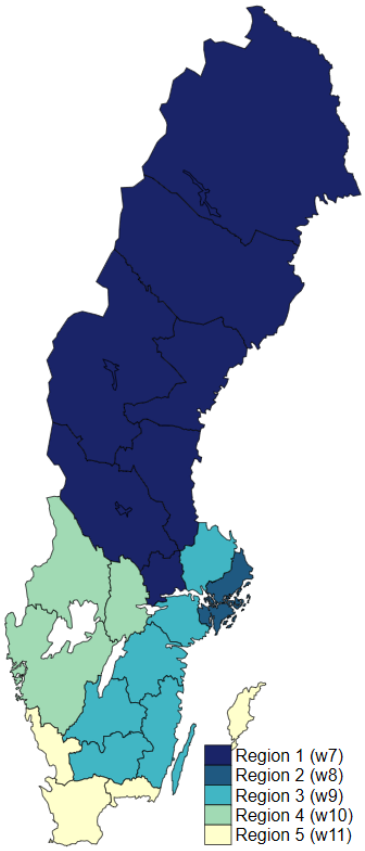
Since its inception, the pension dashboard has grown into an essential part of Sweden's pension system. From fewer than 50,000 users in 2004, the pension dashboard now has nearly five million registered users (see Figure D.2). User participation increases with age, with engagement peaking between ages 60 and 65 (see Section 3.2.1 for further details). Currently, more than 30 pension providers participate, covering 98% of total pension capital.

In addition to viewing their pension balances, users can simulate different retirement ages and pension payout strategies and estimate their future pension income under various assumptions. The pension dashboard follows a standardized methodology for generating pension forecasts, incorporating assumptions about economic growth, returns, and inflation.[8] The default retirement age in these forecasts is typically 65, except for occupational pensions in the public sector, where the normal retirement age was recently

[7] Swedish pension savers living abroad receive the statement starting in mid-February. Pensioners—defined as those who have begun claiming public pension benefits—receive it in mid-January, regardless of their residence.

[8] Forecasts are presented in real terms, assuming zero economic growth, so that the projected pension income remains comparable to current earnings. Expected capital returns are set at 1.9% above wage growth, on the basis of an underlying assumption of 3.5% nominal returns on pension capital before taxes and fees. Inflation is assumed to be 2%, aligning with the Swedish central bank's target, while contributions are projected to continue at current levels until retirement.

Figure 1: Rollout of the annual pension statement by region



Notes: This figure shows the geographical rollout of the annual pension statement across regions. Each region consists of several administrative counties (indicated by solid lines) that receive the statement in a given calendar week. More information on which counties are included in the regions is provided in Table C.1.

raised.

The pension dashboard is available as a standalone website. It is also integrated into the Swedish Pensions Agency's user portal. This digital integration is expected to generate substantial traffic to the pension dashboard servers from the Swedish Pensions Agency, particularly following the distribution of annual pension statements.

3 Data and Sample

We use register-based data from two sources: the Longitudinal Integration Database for Health Insurance (LISA) provided by Statistics Sweden for demographic and socioeconomic information and data from the Swedish pension dashboard for data on pension dashboard engagement.

We are the first researchers to make use of these pension dashboard data. The dataset contains detailed, individual-level records of users' interactions with the dashboard. This combination of platform characteristics—its long establishment, wide use, and systematic storage of user data—provides a unique opportunity for us to study how and when individuals plan for retirement.

3.1 LISA Data

LISA contains annual individual-level information on a wide range of demographic and socioeconomic characteristics, including various types of income, education, marital status, and place of residence. It covers all individuals aged 15 and above registered in Sweden.

Our sample consists of all individuals born before 1969, i.e., aged 53 and over in 2021, who had not yet started to claim their public pension. In 2021, this population included 1,576,218 individuals. We track these birth cohorts in the LISA data from 2018 to 2021.[9] We determine treatment status—i.e., the calendar week in which individuals receive their annual pension statement—on the basis of their county of residence as of December 31 each year.[10]

3.2 Pension Dashboard Data

3.2.1 Users and Nonusers

While everyone in our sample has access to the Swedish pension dashboard, not all individuals make use of it. We refer to individuals who have never logged into the platform as *nonusers*. Among those who have used the dashboard, we distinguish between *active* and *inactive* users. *Active* users are defined as those who logged in at least once between 2021 and 2023, while *inactive* users accessed the platform prior to 2021 but not thereafter. These classifications are based on register information from 2023.

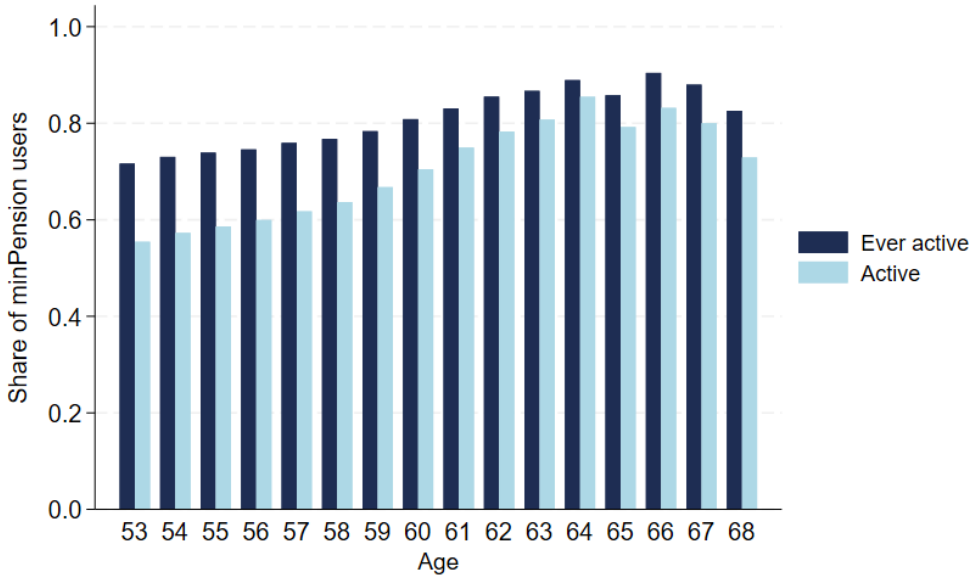
In Figure 2, we present the share of dashboard users among the full population by age group in 2021.[11] The dark blue bars represent the share of individuals who have ever engaged with the pension dashboard, including both inactive and active users. The light blue bars indicate the share of individuals classified as active users. The figure shows that most Swedish residents in these age groups actively use the pension dashboard. There is a

[9] Although we begin our analysis in 2019, we use 2018 data solely to identify individuals who had already begun claiming public pensions.

[10] Because the LISA data end in 2021, we determine treatment status for the years 2022 to 2024 on the basis of the last recorded county of residence.

[11] The year 2021 is the most recent for which we have population data from the Swedish register. We focus on ages 53–68 because the birth cohorts in our sample (1968 and earlier) were mostly in this age range in 2021.

Figure 2: Proportion of pension dashboard users by age



Notes: This figure shows the average share of ever-active and active dashboard users for each age in 2021, on the basis of data for all Swedish residents. An individual is classified as active if she used the tool at least once between 2021 and 2023. An individual is classified as ever active if she used the tool at least once since its launch.

noticeable rise in the proportion of recently active users between ages 53 and 64, indicating that engagement with the tool intensifies as individuals approach retirement. The share of users increases with age, surpassing 80% at age 64.[12]

To provide context, we compare the characteristics of active users with those of inactive users and nonusers. Descriptive comparisons, presented and discussed in more detail in Appendix E, show that active users tend to be more socioeconomically advantaged than the other groups. They have higher disposable and employment incomes and are likelier to be married. These patterns suggest that active engagement with the pension dashboard is associated with financial stability and greater planning capacity.

3.2.2 Registrations and Forecasts

For the group of *active* users, the dashboard data include longitudinal data on registrations and forecasts between the years 2019 and 2024. Users can make forecasts as frequently as

[12]To complement these findings, Figure D.3 shows the average number of pension forecasts made in 2021 by age group. Once again, we observe a sharp increase in the average number of forecasts among users aged between 53 and 65: The figure rises from fewer than 10 to over 30 forecasts in 2021. Among users aged over 65, the number of forecasts declines slightly.

they wish, and we record the specific date of each forecast.

We structure the data at weekly level so that each individual is observed in every calendar week during these years. Our outcome variables include a dummy variable for registering on the pension dashboard in a given week (*Registration*) and a dummy for generating a pension simulation (*Forecast*). Moreover, we provide some additional results using the number of forecasts an individual made in a given week in some robustness checks. The data on forecast activity are available for all years from 2019 to 2024, while the registration data end in 2022.[13]

In accordance with integrity and GDPR guidelines, user activity is deleted after two years of inactivity. As a result, for each user, we observe only the most recent period of activity. Consequently, we do not capture forecasts made by users who were previously active but later became inactive. Additionally, if a user had an earlier period of activity, then became inactive, and later reregistered, we observe forecasts only from their most recent period of activity. Any earlier forecasts are not retained. This also implies that the registration date marks the registration date of the *current* active period. We have information whether they have used the tool at any point for all individuals. However, for inactive users, we do not have details on specific usage patterns or dates.

In our empirical analysis of the impact of the annual pension statement on dashboard engagement (Sections 4 and 5), we apply two sample restrictions to the main sample of individuals born before 1969 who had not started claiming their public pension yet. First, we restrict the sample to users classified as active in 2023, as this is the group for whom we observe registrations and pension forecasts on the dashboard.

Since active users make up the majority of individuals in the relevant age groups (see Section 3.2.1), this restriction is not overly limiting. Note, however, that our analysis of the impact of the annual pension statement focuses on a selected group of active individuals; this is important to consider as we interpret our results.

Second, for technical reasons, the pension dashboard did not provide forecast data for all registered active users on the platform. Specifically, while we have records for all users who have ever used a specific subtool on the pension dashboard called *Uttagsplaneraren* (UP), we have only a random sample covering approximately 40% of active users who have not used this tool. Numerically, these groups are nearly equal in size, implying that we observe approximately 6 out of 10 active users in our data. To adjust for the differential sampling of UP users and non-UP users, we apply inverse probability sampling weights throughout our empirical analysis. This restriction applies to our main empirical analysis of how the annual pension statement affects dashboard engagement in Sections 4 and 5. After we apply these restrictions, our sample consists of 706,724 individuals and

[13]Information on registrations is available only until 2022 because the sample was drawn in early 2023. Therefore, only individuals registered by this point in time are included in the data.

184,907,040 individual–week observations.

4 Empirical Strategy

The identification strategy leverages the staggered rollout of the annual pension statement, which is sent annually between calendar weeks 7 and 11 (see Section 2.2). The statements are distributed at different times across county groups (regions), with residents in northern Sweden receiving their statements in mid-February while those in southern counties receive them in mid-March. This variation in timing creates a natural experiment, allowing us to compare regions that receive the statement at different times. For identification, we assume that the timing of the statements is exogenous and not correlated with other factors that could influence forecasting behavior, which enables us to estimate the causal effect of the statement on engagement with the pension dashboard.[14]

4.1 Weekly Engagement Patterns

Before presenting the econometric model, we provide descriptive statistics on user engagement with the pension dashboard by calendar week. This overview illustrates how engagement develops throughout the year and examines whether the annual pension statement, sent out in the first months, drives this engagement. Figure 3 presents (a) the probability of a user registering and (b) the likelihood of a user making a forecast by calendar week, for the years 2019–2022 for registrations and 2019–2024 for forecasts.

As shown in Figure 3, user engagement peaks during the first few months of the year, particularly around weeks 7–11, when the annual pension statement is sent out.[15] This suggests that the annual statement likely drives a surge in engagement. By using regional variation, we can isolate the impact of the annual pension statement from the generally high engagement around the turn of the year.

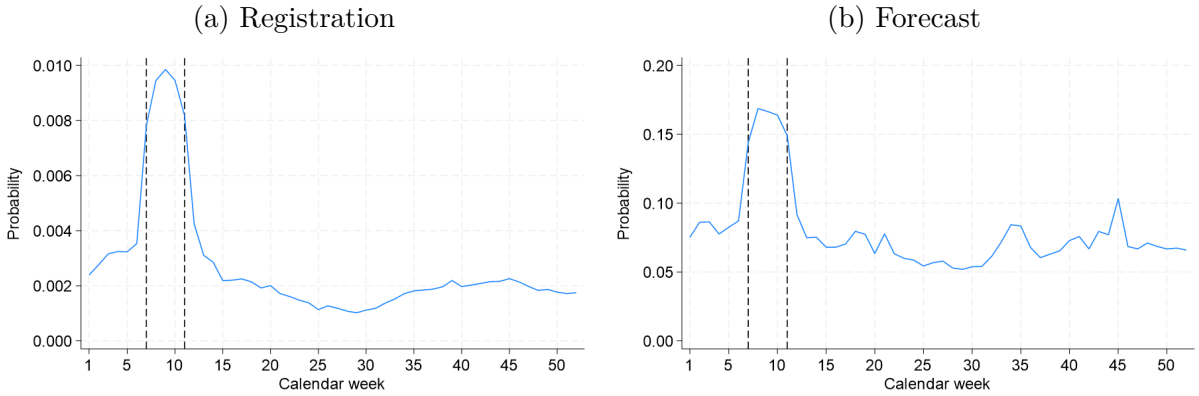
4.2 Engagement with the Pension Dashboard

We first focus on pension dashboard engagement, measured by users' likelihood of either registering or making a pension forecast in a given week. To estimate the effect of receipt

[14]We compare the demographic and socioeconomic characteristics of individuals across the five regions in Appendix Tables C.2 and C.3. The comparison shows that individuals in the five regions are similar in age, gender, and marital status. There is some variation in income, with Stockholm (Region 2) having the highest average income.

[15]A similar picture emerges when we focus instead on the number of forecasts made, as shown in Figure F.1.

Figure 3: Engagement with the pension dashboard by calendar week



Notes: This figure shows the probability of a user (a) registering and (b) making a forecast per calendar week among active users in our sample. The dashed lines indicate the receipt of the annual pension statement in the first region (week 7) and in the last region (week 11).

of the annual pension statement, we use the following event-study approach:

$$\text{Engagement}_{irw} = \sum_{t=-6, t\neq -1}^{3} \beta_t \cdot \text{Statement}_{rw}^{t} + \gamma_r + \delta_w + \epsilon_{irw} \tag{1}$$

where the outcome variable Engagement_{irw} captures either registrations or forecasts. In both cases, it is a dummy variable equal to 1 if individual i living in region r has registered (made a forecast) in week w. $\text{Statement}_{rw}^{t}$ denotes event dummies that represent the weeks before and after receipt of the annual pension statement. Finally, γ_r denotes county fixed effects and δ_w denotes week fixed effects.[16] We cluster standard errors at the county level.

We estimate treatment effects using the staggered difference-in-differences estimator proposed by Sun and Abraham (2021). This estimator accounts for variation in treatment timing by comparing individuals who receive the statement in a given week only to those who receive it last (week 11) within the same year, and by aggregating the resulting group–time effects into event–time estimates. This approach mitigates the well-known biases of two-way fixed-effects models in the presence of heterogeneous treatment effects (Goodman-Bacon 2021).

Since individuals receive the pension statement annually, we pool all instances in which an individual is treated across years. Under this approach, we assume that receipt of a pension statement in a previous year does not influence how the individual responds to a statement in a later year.[17]

[16] Our results are robust to the inclusion of individual rather than county fixed effects.

[17] Given the short-lived nature of the effects documented in our results section, we expect any carryover effects to be negligible and therefore do not apply methods designed to address repeated treatments with

Our main interest is in the treatment coefficients β_t. The pretreatment coefficients (β_{-6} to β_{-2}) test whether engagement changes before the annual pension statement is received. By selecting a six-week pretreatment period, we can ensure that all observations occur within the same calendar year. The week before the statement is received ($t = -1$) serves as the reference period. The post-treatment coefficients (β_0 to β_{+3}) capture the duration of the pension statement's impact, revealing how the effect develops over time. We cannot observe more than three weeks post-treatment as there is no not-yet-treated group from time $t = 4$ onward. This structure allows flexible estimation of the dynamic effects of the annual pension statement.

5 Main Results

5.1 Effects on Registrations and Forecasts

Figure 4 illustrates the effect of the annual pension statement on users' engagement with the pension dashboard. For each of the two outcomes (registration and forecast probability), we display both descriptive trends by region (left-hand panels) and event-study estimates (right-hand panels).[18]

Overall, the descriptive graphs (left-hand panels) show a sharp and synchronized spike in both engagement metrics during the week when the annual pension statement is received in each region. The spikes are consistently aligned with the week of receipt. However, the increases are short-lived: Activity levels return to baseline within a few weeks after the statement is sent out.

This pattern is confirmed by the event-study estimates shown in the right-hand panels. In both cases, the effects peak in week 0 and decline rapidly thereafter. In the first week after receipt ($t = 1$), the coefficients fall substantially. By week 3 ($t = 3$), they have largely faded.

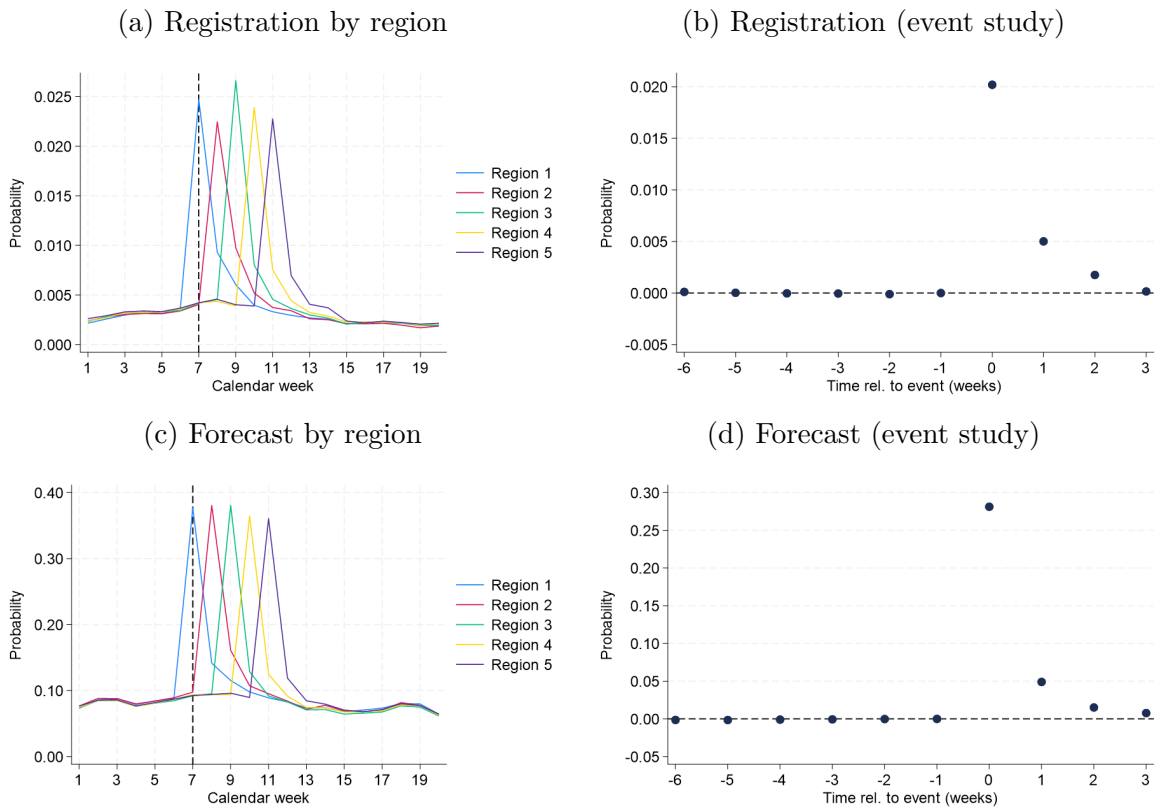
Importantly, the pretrends ($t = -6$ to $t = -2$) are flat across both outcomes, consistent with parallel trends prior to the intervention. Together, the sharp spike during the week the annual pension statement is sent out, the rapid attenuation, and the absence of pretrends provide strong evidence that the annual pension statement causally increases short-term engagement with the pension dashboard.

The event-study estimates for registrations in panel (b) show that the probability of registering increases by 2 percentage points in the statement week. This represents a sixfold increase relative to the baseline of approximately 0.4%. Panel (d) presents the

persistent effects. Event studies with multiple treatments per unit and approaches for handling potential carryover effects are discussed by, e.g., Sandler and Sander (2014) and Miller (2023).

[18] We provide additional results for the number of forecasts as the outcome variable in F.2.

Figure 4: Effect on registrations and forecast probability



Notes: This figure shows the probability of a user registering (Figures 4a and 4b) and the probability of a user making a forecast (Figures 4c and 4d) per week among individuals who were active pension dashboard users in 2023, who were born before 1969 and who had not yet started claiming their pensions, for the years 2019–2024 (2019–2022 for registration). The dashed line in the figures on the left-hand side indicates receipt of the annual pension statement in the first region. The figures on the right-hand side are based on the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

corresponding estimates for the probability that a user makes a forecast. Here, the annual pension statement increases the forecasting likelihood by 28.1 percentage points in week 0, relative to a baseline of approximately 9%, representing a fourfold increase.

5.2 Effect Heterogeneity

To examine whether the effect of the annual pension statement varies across different groups, we conduct heterogeneity analyses along four dimensions: gender, age, education and income.[19] For these analyses, we reestimate our main specification in Equation (1)

[19]We focus on these dimensions because research has revealed systematic differences in retirement planning and use of digital pension tools along these cleavages. Women have been found to engage less in retirement planning (Lusardi and Mitchell 2008) and respond less positively to the introduction

separately for each subgroup. The estimated effects are presented in Figures 5 and 6. We report coefficients for the week in which the annual pension statement is sent out ($t = 0$). Each coefficient therefore represents estimates from a separate regression model.[20]

In addition, to provide a clear measure of the statement's relative impact, Table G.1 reports group-specific averages of each outcome in the week before the statement is received ($t = -1$), together with the event-study estimate of the increase in activity during the week the statement arrives ($t = 0$). The total-to-baseline ratio—defined as the sum of the event-study estimate and the baseline divided by the baseline—captures how much higher engagement is in the statement week than the week before. We refer to these relative effects only when they differ meaningfully from the absolute effects.

First, we focus on the probability of registering on the pension dashboard (Figure 5). The top panel of the figure examines heterogeneity by gender. The estimated effects at week 0 are similar for men and women, indicating no meaningful gender differences. Because the baseline registration probability is slightly higher for women, the statement generates slightly smaller relative effects among women.

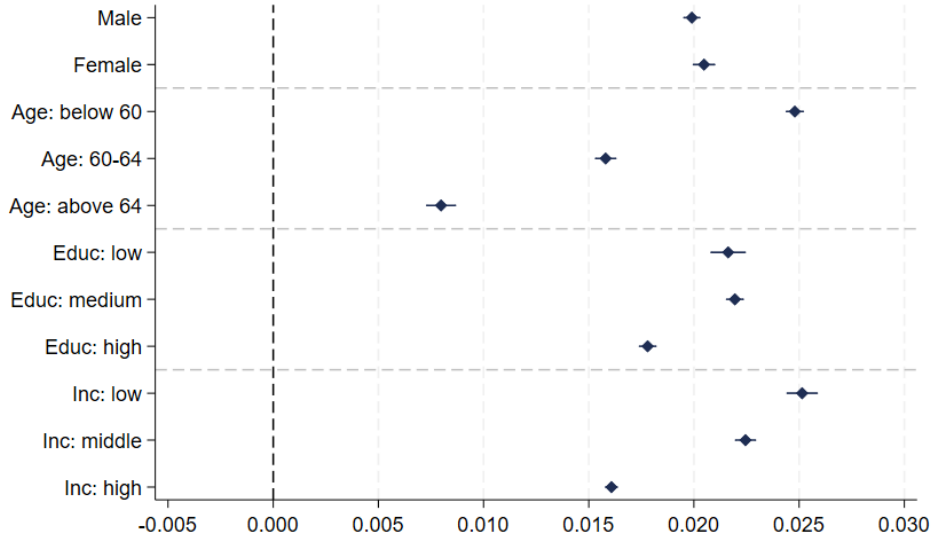
The second panel examines differences by age, dividing the sample into three groups: individuals younger than 60, those aged 60–64, and those older than 64. These categories represent individuals with several years left in the labor force, those approaching retirement, and those working beyond the traditional retirement age of 65. The effects are smallest among individuals above 64 and largest among those under 60, with the 60–64 group falling in between. The relative effects follow the same pattern, indicating that the differences are not simply driven by lower baseline activity among older individuals. A plausible explanation is that younger individuals may be likelier to open and review their statements and are generally more comfortable engaging in digital pension planning (see also Figure 2).

The third panel presents results by education level, defined by the highest completed level: *Low* refers to elementary school (9 years), *medium* to high school or up to two years of college, and *high* to college or university education longer than two years. Individuals with low or medium education exhibit larger effects than those with high education, with the relative impact of the annual pension statement being strongest among the medium-education group.

of digital pension applications (Daminato et al. 2024). As people approach retirement age, they tend to pay more attention to online resources that provide information about pension rights (Ripani et al. 2024). Furthermore, individuals with higher incomes are likelier to adopt online pension applications (Daminato et al. 2024), and these tools primarily benefit those who are already financially capable, typically individuals with higher levels of education (Goda et al. 2023). However, note that our analysis focuses on individuals who have used the pension dashboard at some point in time. For this reason, the results of our heterogeneity analysis may differ from those of previous studies.

[20]Full estimation results for both outcomes are shown in Appendix G.

Figure 5: Heterogeneous effects of the annual pension statement on pension dashboard registrations



Notes: This figure shows heterogeneous effects on users' probability of registering on the pension dashboard in response to the annual pension statement. Each point represents the coefficient for week 0 for a different subgroup, obtained by means of the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

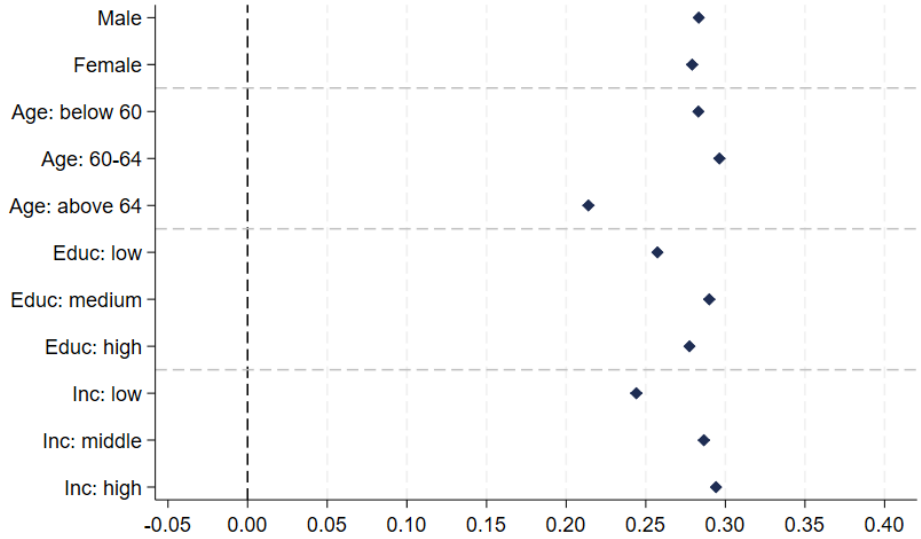
The fourth panel examines heterogeneity by income. Individuals are split into terciles (lower, middle, and upper thirds) on the basis of disposable income by age and year in the full population. As for education, the effect is higher among low- and middle-income individuals, while high-income individuals show a slightly weaker effect. We observe a similar, though less pronounced, pattern in the relative effects.

When we focus on heterogeneity in the probability of making a forecast, as shown in Figure 6, the results again indicate no substantial gender differences in absolute effects of the pension statement. However, because the baseline probability of making a forecast is lower among women (0.08% compared to 0.11% for men), the relative impact is larger for women. This pattern contrasts with what we observe in the effects on registrations.

Furthermore, we find that individuals aged 64 and younger respond more strongly to the annual pension statement, showing a higher likelihood of making a forecast than older individuals. A plausible explanation is that those who have not yet reached standard retirement age may perceive the information as more relevant and timely, which could motivate them to engage in active retirement planning.

Across education categories, we find no substantial differences in the effect of the pension statement on the probability of making a forecast. The relative impact is slightly smaller

Figure 6: Heterogeneous effects of the annual pension statement on pension dashboard forecasts



Notes: This figure shows heterogeneous effects on users' probability of making a forecast on the pension dashboard in response to the annual pension statement. Each point represents the coefficient for week 0 for a different subgroup, obtained by means of the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

among highly educated individuals, reflecting their higher baseline levels of forecasting activity. In the income groups, we observe a modest socioeconomic gradient: The absolute effects increase with income, but in relative terms, low-income individuals are more affected than those with medium or high incomes since baseline engagement rises with income.

In summary, we find only modest differences in how the annual pension statement affects heterogeneous users' likelihood of registering and making a forecast. The clearest heterogeneity emerges by age, with older individuals responding less strongly. Importantly, individuals across all socioeconomic groups react strongly to the statement: Those with lower education or income levels respond almost as much as—in relative terms, sometimes even more than—groups with higher socioeconomic status. This highlights the broad reach of the intervention and its ability to engage groups typically less active in retirement planning.

5.3 Interpreting the Effect Size

To estimate the share of pension dashboard activity attributable to the annual pension statement, we use the event-study coefficients for weeks 0, 1, 2, and 3. Specifically, we

Table 1: Share of engagement attributable to the annual pension statement

	All years	2019	2020	2021	2022	2023	2024
Registrations	0.219	0.223	0.175	0.198	0.303	.	.
Probability of forecast	0.072	0.053	0.058	0.050	0.089	0.089	0.092

Notes: This table reports the estimated share of total engagement on the pension dashboard attributable to receipt of the annual pension statement. Estimates are based on summing the event-study coefficients for weeks 0, 1, 2, and 3, multiplied by the average number of individuals. The denominator includes total observed engagement over the respective period. All years refers to 2019–2022 for registrations and 2019–2024 for the forecast probability.

calculate the share of engagement caused by the annual pension statement as:

$$\text{Share Attributable to Pension Statement} = \frac{\sum_{t=0}^{3} \hat{\beta}_t \cdot \bar{N}}{\text{Total Engagement}}, \tag{2}$$

where $\hat{\beta}_t$ denotes the event-study coefficient for week t relative to the statement week and $\bar{N}$ is the average number of individuals in our sample during the analysis period. The denominator reflects the total number of observed activities (registrations or forecasts) over the relevant period. We compute these shares for both the full period and for each year individually because the effects might have changed over time. For the latter, the event-study coefficients (β_t) are based on separate estimations restricted to data from the respective year only. This approach provides a simple and interpretable measure of how much of the platform activity can be directly linked to receipt of the annual pension statement.

The results are presented in Table 1. For the full period (2019–2022), approximately 22% of the registrations are attributable to the annual pension statement. This implies that, among the individuals in our sample classified as active users of the pension dashboard in 2023 and who registered during this period, more than one in five did so as a direct result of receiving the annual pension statement. The impact is most pronounced when we focus on those who registered in 2022, for whom the corresponding share rises to more than 30%.

The annual pension statement's contribution to the overall forecast activity is somewhat smaller, but still substantial. Over the full period (2019–2024), the annual pension statement accounts for approximately 7% of the likelihood of a user making a forecast. For 2024, the corresponding share is slightly higher at approximately 9%.

Are the observed effects a temporal shift or genuine additional engagement? A key identifying assumption underlying this approach is that the observed spike in activity

reflects genuinely new engagement, rather than mere temporal shifting, that is, users advancing or delaying actions that would have occurred in adjacent weeks. If the annual pension statement simply redistributes engagement across time rather than increasing it overall, our estimates may overstate the true effect. Empirically assessing whether such shifting explains our findings is challenging given the continuous nature of the treatment.

To address this concern, we compare engagement between users who responded to the annual pension statement and those who did not. We define a pension statement user as someone who made a forecast during a week the annual pension statement was sent out or in the three weeks thereafter and a nonuser as someone who did not.[21] The results are shown in Figure 7. Pension statement users exhibit higher overall engagement levels. Importantly, however, the engagement patterns in calendar weeks after the annual pension statement was sent out follow similar trajectories for both groups. The level differences between pension statement users and nonusers remain stable, suggesting that the engagement spike triggered by the statement does not come at the expense of future activity.

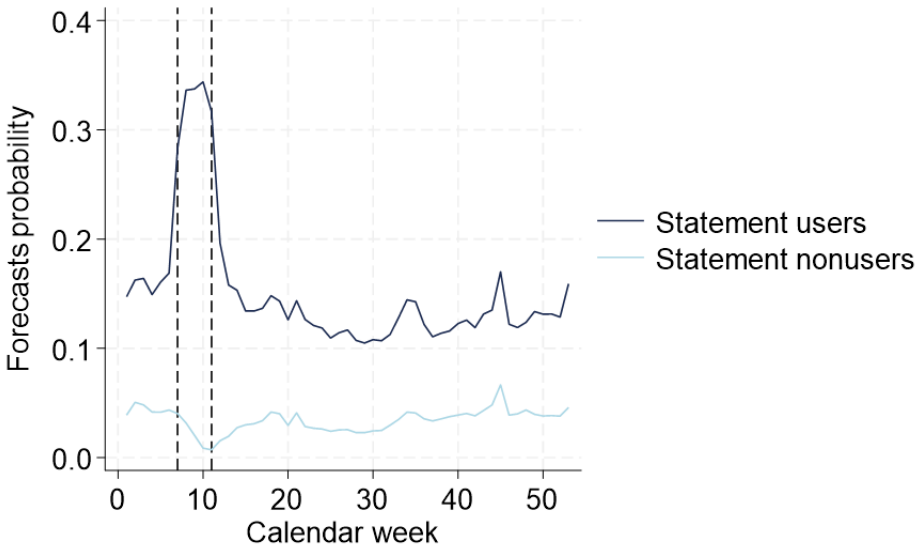
In sum, we conclude that the annual pension statement seems to account for a substantial share of engagement with the pension dashboard. In the absence of the annual pension statement, we would likely observe significantly lower activity levels—particularly in terms of registrations, for which total engagement may have been 20% to 30% lower.

5.4 Effects Over Time

An important question is whether the impact of the annual pension statement changes with repeated exposure. Since the same individuals receive the statement every year, this setting provides a unique opportunity to examine whether reminder effects persist or attenuate over time. Figure H.1 shows the probabilities of registering and making a forecast by calendar year for 2019–2024. The descriptive patterns show pronounced spikes in activity immediately after each mailing of the annual pension statement. These spikes appear to grow in magnitude over time, indicating that attention to the pension dashboard is repeatedly reactivated. At the same time, the baseline level of activity increases slightly across years. This partly reflects how we construct our sample, which we restrict to active users in 2023, thereby mechanically raising baseline engagement in later years. To account for changes in overall activity levels, we rely on the estimated share of excess engagement derived in the previous section. Table 1 presents these estimates at the yearly level, showing the proportion of total registrations and forecasts attributable to the pension statement. The results show that the reminder effect remains stable or even

[21] By construction, engagement among statement nonusers is very low in the calendar weeks shortly after the statements are received.

Figure 7: Engagement patterns for users of the annual pension statement and nonusers



Notes: The figure compares pension statement users' and nonusers' probability of making a forecast on the pension dashboard in a given week. A pension statement user is defined as someone who made a forecast during a week the annual pension statement was sent out or in the three weeks thereafter and a nonuser as someone who did not.

strengthens over time. The excess registration probability fluctuates around 0.20 across years and peaks at 0.30 in 2022. For forecast activity, the corresponding share increases gradually from approximately 0.05–0.06 in 2019–2021 to approximately 0.09 in 2022–2024.

In addition, we analyze whether it is the same individuals who respond to the annual pension statement every year. Table H.1 shows how many individuals who reacted to the pension statement in a given year also reacted to it in the following year. For example, of all the individuals who engaged with the pension dashboard in the weeks after the pension statement was received in 2019, 60% also engaged shortly after receiving the statement in 2024. The results show that approximately 70% of individuals respond at least two years in a row and reengagement remains high in subsequent years. Thus, repeated exposure does not lead to habituation or diminishing effects. Instead, the annual statement continues to trigger substantial engagement with the pension dashboard.

5.5 Effects on Simulated Retirement Ages

As discussed in Section 2.3, users of the pension dashboard can specify the age at which they intend to begin drawing on their public pension benefits (we refer to this age as the

simulated retirement age).[22] To examine whether the annual pension statement influences the simulated retirement age, we apply an empirical approach similar to that in the main analysis, with a few key modifications.

We impose three additional sample restrictions. First, we limit the analysis to forecasts made in 2024, as data on simulated retirement ages are available only for that year. Second, we restrict the sample to individuals aged 64 or younger who had not yet begun withdrawing their public pension. Third, we include only individual–week observations in which a forecast was made and a retirement age was reported.[23] When multiple forecasts are submitted by the same individual within a given week, we use the average simulated retirement age as the outcome variable.

The model is as follows:

$$\text{RetirementAge}_{irw} = \sum_{t=-6, t\neq -1}^{3} \beta_t \cdot \text{Statement}_{rw}^{t} + \gamma_r + \delta_w + \epsilon_{irw} \tag{3}$$

where $\text{RetirementAge}_{irw}$ is the simulated retirement age for individual i who made a forecast in region r in week w of 2024 and all other variables are defined as in Equation (1).

Figure 8a presents the average simulated retirement age by calendar week and region. A clear regional pattern emerges: Forecasts made in the week the annual pension statement is received reflect higher simulated retirement ages, suggesting that the pension statement prompts individuals to consider delaying retirement. The corresponding event-study estimates for the simulated retirement age, presented in Figure 8b, confirm these patterns. Specifically, we find that forecasts made in the week the annual pension statement is received reflect an average increase of 0.6 years in the simulated retirement age. This effect persists for several weeks, although its magnitude gradually diminishes. By the third week after the annual pension statement is received, the simulated retirement age remains only 0.2 years above its level prior to the annual pension statement.

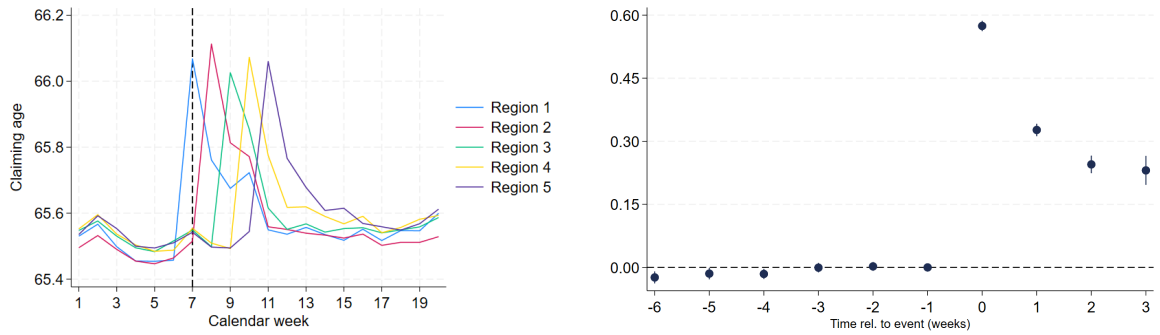
These findings suggest that receipt of the annual pension statement leads individuals to consider delaying their retirement, as measured by the simulated age at which the individual plans to withdraw her public pension. However, a key question is whether the observed increase in the simulated retirement age reflects a genuine shift in retirement preferences or is instead driven primarily by the way retirement forecasts are constructed. A likely mechanism behind the observed effect is namely the default assumptions regarding the retirement age embedded in the pension forecasting tools. In the weeks following the mailing of the annual pension statement, a larger share of users access the forecast service

[22] Note that in Sweden individuals can draw on a public pension and continue working.

[23] A retirement age is reported when an individual uses the default retirement age or when the individual chooses the same retirement age for all her pensions. If different retirement ages are chosen for different pensions, we are unable to observe the forecast retirement age.

Figure 8: Simulated retirement age

(a) Simulated retirement age, by region (b) Simulated retirement age (event study)



Notes: This figure shows the simulated retirement age per week among individuals born between 1959 and 1968 who were active pension dashboard users in 2023, who had not yet started claiming their pensions, and for whom at least one retirement age was reported in a given week for 2024. The dashed line in the figures on the left-hand side indicates receipt of the annual pension statement in the first region. The figure on the right-hand side is based on the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

via the Swedish Pensions Agency's website. This shift is primarily driven by the digital version of the annual pension statement, which is directly integrated with the pension dashboard's forecasting tool (see Figures B.3 and B.4). As shown in Figure I.1, the share of forecasts generated through the Swedish Pension Agency site rises from approximately 35% to 75% during this period. While this access route is always available, the annual pension statement prompts a temporary surge in traffic to the Swedish Pension Agency site, affecting user exposure to different default retirement ages. While the default retirement age on the pension dashboard is fixed at 65, the Swedish Pensions Agency applies a higher default age in its services, indexed to the so-called target retirement age (*riktålder*). The target retirement age is a benchmark retirement age that rises with life expectancy and determines when individuals can begin drawing their public pension without financial deductions (OECD 2023). It is therefore higher for younger cohorts. Users accessing the pension dashboard through the Swedish Pension Agency's website are therefore likelier to receive forecasts suggesting a later retirement age even if they do not actively adjust any settings.[24]

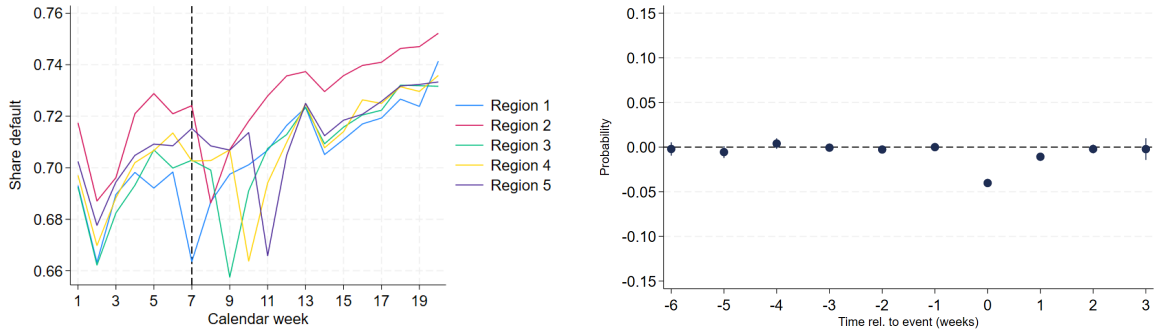
To examine whether individuals simply accept the suggested retirement age when

[24]In our sample, the target retirement age is 66 for those born in 1958–1959, 67 for those born in 1960–1966, and 68 for those born in 1967–1968. For individuals born before 1958, no formal target retirement age applies, and the default retirement age remains 65 in both the pension dashboard and the Swedish Pensions Agency's services.

Figure 9: Default share

(a) Default share by region

(b) Default share (event study)



Notes: This figure shows the share of forecasts using the default (Figures 9a and 9b). We use data for 2024 only and restrict the sample to the users who made at least one forecast in a given week.

making a pension forecast, we analyze the use of default values in retirement planning. Specifically, we reestimate our main model using indicators for whether individuals choose the default retirement age, select an age above it, or opt for an age below it. The results are presented in Figure 9. We find that prior to receipt of the annual pension statement, about 70% of users select the default retirement age when making a forecast (Panel (a)). However, this share drops by several percentage points in the week the statement is received, as shown in the event-study estimates (Panel (b)). Figure I.2 Panels (a) and (b) reveal that this shift is driven primarily by a higher share of users choosing a retirement age below the default. At the same time, as Panels (c) and (d) show, the share selecting an age above the default declines. This finding can likely be explained by users selecting a lower retirement age for their forecasts when confronted with a higher default age, thereby aligning more closely with current norms.

In sum, the approximate 0.6-year increase in the simulated retirement age during the statement week is driven largely by higher default assumptions in the forecasting tools—particularly those accessed via the Swedish Pensions Agency website. Although the intervention prompts more users to opt out of the default, as shown by a decline in default use, this rise in active decision-making is not sufficient to fully counteract the influence of the higher default. This pattern is consistent with findings in behavioral economics, which show that default options strongly influence individual decisions even when people can easily choose alternatives (Hagen et al. 2022). The effect may reflect passive acceptance, with users paying limited attention to the prefilled values in the forecast. Alternatively, it could signal a deeper shift in perceptions of what constitutes an appropriate retirement age. Whether such a shift in norms would indeed result from exposure to a higher default age remains an open question beyond the scope of this study.

6 Effects on Pension Claims and Pension Knowledge

In the previous sections, we demonstrated that the annual pension statement increases engagement with the pension dashboard and influences individuals' simulated retirement age. However, it remains unclear whether this increased engagement translates into actual changes in retirement behavior. In this section, we therefore shift our focus to actual pension-claiming decisions and pension-related knowledge. As the data from the pension dashboard do not allow analysis of these outcomes, we draw on two complementary data sources: aggregate administrative data on public pension claims (Section 6.1) and a separate survey capturing individual-level information on pension planning and knowledge (Section 6.2).

6.1 Effects on Pension Claims (Aggregated Data)

Since the pension dashboard data do not provide individual-level data on pension claims at the weekly level, we rely on aggregated data from the Swedish Pensions Agency to analyze the effect of the annual pension statement on recipients' likelihood of claiming a public pension. Specifically, we analyze the daily number of submitted public pension applications, disaggregated by gender, age group, calendar week, and region. The dataset spans 2019–2024 and enables us to investigate both temporal and regional patterns in claiming activity around the time the annual pension statement is received.[25] We compute changes in the number of applications submitted from one week to the next (week-to-week differences). Figure J.2 shows the week-to-week change in applications separately for the five regions. While the magnitude varies, all regions display a clear increase in claims during their respective pension statement receipt weeks.

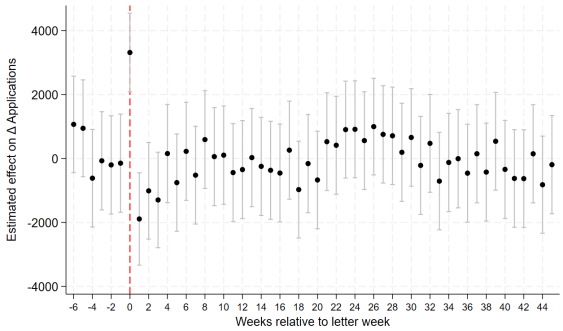
We align the data across years and regions by defining week 0 as the calendar week when the annual pension statement was sent in a given region and year, consistent with our main analyses. Figure 10 Panel (a) shows a pronounced increase in pension-claiming activity in week 0: Claims rise by approximately 3,500 over the weekly average of 10,500 during the study period (2019–2024). This spike is larger than any increase observed during the rest of the year, including the early January weeks, which typically see the highest claiming volumes. Panel (b) of Figure 10 indicates that the increase in pension claiming is driven by individuals aged 63–64.

Immediately following the week the annual pension statement is sent out, we observe a sharp decline in claims, of a similar magnitude to the spike in the prior week, relative

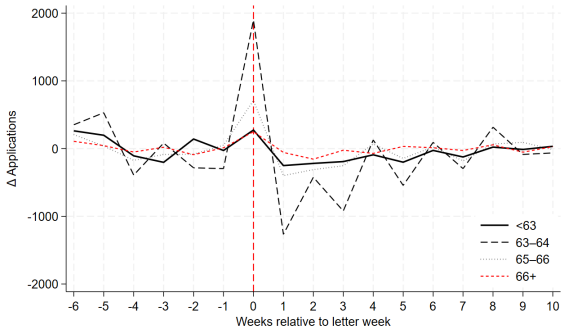
[25] Figure J.1 displays the number of pension claims by calendar week (pooled across all years from 2019 to 2024). It highlights the strong seasonal pattern in pension-claiming behavior, with elevated application volumes early and late in the year (the annual pension statements are sent out in calendar weeks 7–11).

Figure 10: Effects of the annual pension statement on pension claims

(a) All regions combined



(b) By age group



Notes: This figure shows week-to-week changes in submitted pension claims around the time the annual pension statement is received, as indicated by the dashed line. Figure 10a shows the change in aggregate pension claim applications across all regions, with 95% confidence intervals displayed. Figure 10b presents the change in pension claim submissions disaggregated by age groups: younger than 63, 63–64, 65–66, and older than 66.

to their levels in weeks prior to the sending. This drop may reflect a shift in timing: Individuals who would have submitted their application in the following weeks may have been nudged to act earlier in response to the annual pension statement. While we cannot determine from these data whether the claims submitted reflect earlier-than-planned or on-time retirement decisions or whether these individuals would have claimed later absent the annual pension statement, the pattern offers clear evidence that the annual pension statement influences pension-claiming behavior. The timing of claims thus seems responsive to the communication, suggesting that well-timed, low-cost interventions can nudge individuals into claiming their pension. This evidence that receipt of the annual pension statement impacts behavior is also in line with results from Malisa (n.d.), who shows that the annual pension statement affects trading behavior in the Swedish Premium Pension.[26]

6.2 Effects on Pension Knowledge (Survey Data)

Beyond increasing engagement with the pension dashboard and prompting more claims for public pensions, the annual pension statement may also influence individuals' knowledge about the pension system. In this section, we explore this question using survey evidence. Specifically, we examine whether individuals who interact more actively with these tools

[26]The Premium Pension is part of the Swedish public pension. For more details, see Appendix A.

tend to exhibit a greater understanding of the pension system.

The survey, *Ekonomi och pension 2017*, was administered to 12,000 randomly selected individuals aged 30–60 in late 2017. It includes detailed questions on retirement planning, knowledge of the pension system, and financial literacy. To assess knowledge, we rely on the pension knowledge index developed by Elinder et al. (2022), which is based on 16 factual questions covering the structure and functioning of the Swedish pension system.[27] The index captures both the breadth and depth of pension knowledge and is well suited for distinguishing more and less informed individuals.

For our purposes, we restrict the sample to respondents aged 51 to 60, in order to better align the survey population with the population used in our main analysis. Since the older age group was oversampled–individuals aged 51–60 were twice as likely to be selected as those aged 31–50–they make up around 60 percent of all survey respondents. After applying our age restriction, our analytical sample consists of 2,111 respondents.[28]

Before turning to pension knowledge, we use the survey data to emphasize the importance of the annual pension statement (*Orange Envelope*) and pension dashboard (*minPension*) and further support the behavioral mechanism identified in the administrative data, namely, that the statement prompts digital engagement with the pension dashboard. Table K.2 shows that 21% of respondents read the statement carefully, while two-thirds skim through the statement. Only 11% of respondents report not reading the statement. Similarly, regarding pension dashboard usage, we observe that the majority of respondents are aware of the dashboard. However, only 38% have made a forecast. Table K.3 shows that individuals who read the statement carefully are significantly likelier to have used the dashboard to generate a forecast, which reinforces the idea that the annual pension statement acts as a behavioral trigger for retirement planning.

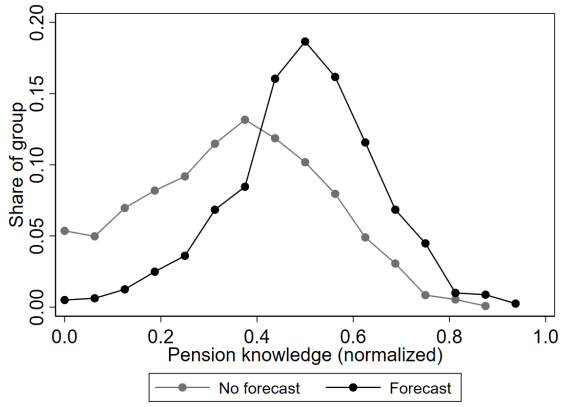
We proceed by examining whether engagement with the pension dashboard and the annual pension statement is associated with greater knowledge of the pension system. Figure 11 shows the distribution of the pension knowledge index by forecast behavior (Panel (a)) and by self-reported engagement with the annual pension statement (Panel (b)). In both cases, higher levels of engagement are clearly associated with higher pension knowledge. Users who generate forecasts on the pension dashboard and those who read the

[27]The original pension index in Elinder et al. (2022) is based on 19 factual questions. For this analysis, we exclude three questions that required individual pension capital data from the Swedish Pensions Agency, as these could only be answered accurately with register data. Of the remaining 16 questions, 10 cover knowledge of the public pension system, while six pertain to the occupational pension system. The pension knowledge index used in this paper is calculated as the share of correct answers on these 16 questions.

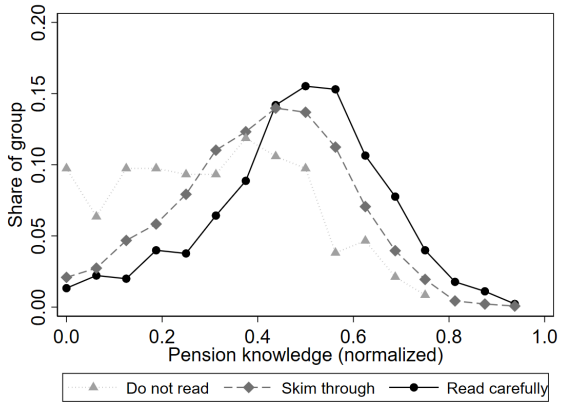
[28]Note that the survey population is likely more informed and knowledgeable than the general population. As shown in Table K.1, the survey respondents tend to be older and likelier to be female, married, employed, and more highly educated than the broader target population (Elinder et al. 2022).

Figure 11: Pension knowledge by engagement with the pension dashboard and annual pension statement

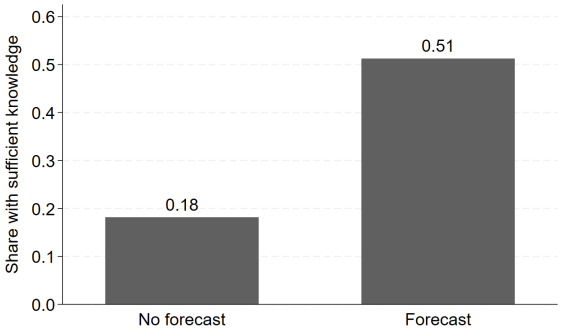
(a) Pension knowledge by dashboard forecast behavior



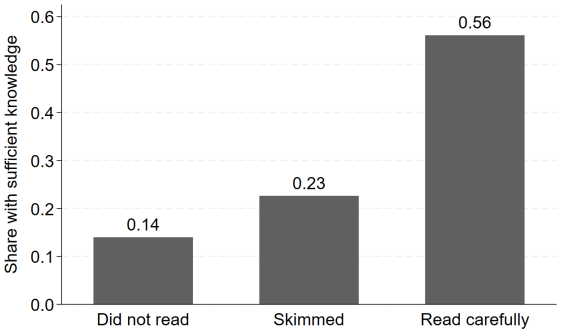
(b) Pension knowledge by engagement with the annual pension statement



(c) Share with sufficient knowledge by dashboard forecast behavior



(d) Share with sufficient knowledge by use of the annual pension statement



Notes: Panels (a) and (b) display distributions based on the pension knowledge index used in Elinder et al. (2022) and constructed from 16 factual questions covering the structure and functioning of the Swedish pension system. Panels (c) and (d) show the share of respondents who perceive themselves as sufficiently knowledgeable to understand how their choices affect their future pension, on the basis of a single self-assessment question.

annual pension statement carefully tend to score higher on the pension knowledge index, while nonusers and nonreaders are overrepresented at the lower end of the distribution.

Panels (c) and (d) in Figure 11 shift the focus from objective to subjective knowledge but follow the same approach, showing the share of respondents who feel they have sufficient knowledge by level of engagement. Specifically, they display the share of respondents who

answer "yes" to the question "Do you think you have sufficient knowledge to understand how your choices affect your future pension?" The results reinforce the findings from Panels (a) and (b). Among those who use the forecast tool, 51% feel they have sufficient knowledge, compared to only 18% of nonusers. Similarly, 56% of careful readers of the annual pension statement report sufficient knowledge, while only 23% of skimmers and 14% of nonreaders do. This alignment between perceived and actual knowledge further underscores the potential of these tools not simply to inform but also to empower individuals in their pension decision-making.

These findings highlight a strong association between use of the dashboard, engagement with the annual pension statement, and higher levels of pension knowledge, suggesting that communication tools can support learning. In particular, the annual delivery of the pension statement may serve as a recurring prompt, encouraging individuals to reflect on their retirement plans and potentially fostering greater awareness and knowledge accumulation over time. However, these associations should not be interpreted as evidence of a causal relationship. The link is likely endogenous: Individuals with more knowledge may be more inclined to engage with these tools, while engagement itself may also enhance understanding. Identifying the causal impact of such tools would require an alternative research design.

7 Conclusion

We study the behavioral effects of a large-scale, repeated, and personalized reminder. Causal effects are identified from the staggered regional rollout of Sweden's *Orange Envelope*, an annual statement sent to all individuals of working age that provides personalized information about their pension entitlements. A key novelty of this study is that we use detailed administrative data from the national pension dashboard, which capture real retirement planning activity. We also go beyond planning behavior to examine how the statement influences actual pension-claiming decisions.

Our results show that receiving the annual pension statement triggers a sharp and immediate increase in dashboard activity. New registrations rise by approximately 2 percentage points (a sixfold increase), while retirement forecasts increase fourfold, by 28 percentage points. These effects are short-lived, fading completely within approximately three weeks.

We observe remarkably consistent spikes in engagement following the statement's arrival each year over the six-year study period. We interpret this recurring pattern as evidence that the statement reactivates attention without inducing habituation. This persistence is consistent with models of bounded rationality and rational inattention, in which individuals rely on external cues rather than maintaining continuous internal

attention to low-frequency financial decisions. The persistence of these annual effects is likely amplified by the growing share of statements delivered digitally, which allow users to access the dashboard directly with a single click.

We also find that dashboard users are significantly less likely to retain the default age when making forecasts shortly after receiving the statement. While most users still rely on the default option, the temporary decline in default use indicates that the pension statement not only heightens attention but also weakens default inertia, prompting a subset of individuals to engage more actively with their choices instead of passively accepting preset options.

Additionally, we show that personalized information can do more than inform—it can directly prompt real financial actions with lasting consequences for individuals' retirement outcomes. Consistent with this, we find a clear and immediate 33% increase in pension claims during the week the statements are received.

The findings have clear policy implications. Personalized annual pension statements represent a low-cost nudge that effectively increases engagement with retirement planning and may enhance financial awareness and pension literacy. However, the resulting increase in attention and salience is temporary rather than transformative, a finding that underscores the need for recurring communication to sustain engagement over time. The stable impact of repeated statements further suggests that recurring information interventions can remain effective even when they are anticipated by many. Our results also highlight the growing importance of integrating personalized reminders with digital choice environments. Seamless links between the annual pension statement and the online dashboard appear to strengthen the behavioral responses by lowering access barriers and reducing the intention–action gap. The design of digital interfaces and choice architecture likewise plays a critical role. Because most engagements are brief and most users retain the default simulated retirement age, policymakers and platform designers should carefully consider the long-term implications of default settings, which may shape norms and expectations about when to retire.

Finally, while the statement increases participation across all groups, younger individuals respond more strongly than older ones. Importantly, lower-income and less-educated individuals react almost as much as—in relative terms, sometimes more than—higher-income and highly educated groups. This shows that simple, repeated communication can reach those typically less engaged in retirement planning.

This study has certain limitations and highlights several directions for future research. First, while our evidence suggests that the observed responses reflect new rather than shifted engagement, we cannot fully disentangle these effects since all pension savers receive the statement. Therefore, potential timing effects, while beyond the scope of this study, remain an important topic for future investigation. Future research should

also examine whether repeated reminders crowd out more substantive forms of pension engagement by creating a sense among recipients of having "done enough" after they take only brief, low-effort actions. Second, we cannot observe whether individuals receive the pension statement in physical or digital form. Future research should examine how the delivery mode influences engagement and whether the design of integrated digital reminders can enhance their effectiveness. Finally, because our setup relies on weekly variation, we are limited in our ability to examine behavioral adjustments measured at lower frequencies. Future research should therefore investigate additional real outcomes of repeated pension statements, such as effects on savings behavior, labor supply, and overall financial well-being.

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Appendix A The Swedish Public Pension System

The public pension comprises two components: the Income Pension and the Premium Pension. Contribution rates are uniform, with 16% of pensionable income allocated to the Income Pension and 2.5% to the Premium Pension. Pensionable income includes wages and social security payments. The Income Pension is a notional, pay-as-you-go, defined contribution scheme, where benefits are based on individual contributions plus a notional return tied to demographic and economic growth. The Premium Pension is a funded defined contribution scheme, allowing individuals to invest contributions in financial assets.[29] There is also a *guarantee pension* that ensures a basic pension for individuals with a low earnings-related pension. As of 2024, the maximum monthly guarantee pension is SEK 11,603 ($\approx$ 1,055 USD) for singles and SEK 10,505 ($\approx$ 956 USD) for married individuals.

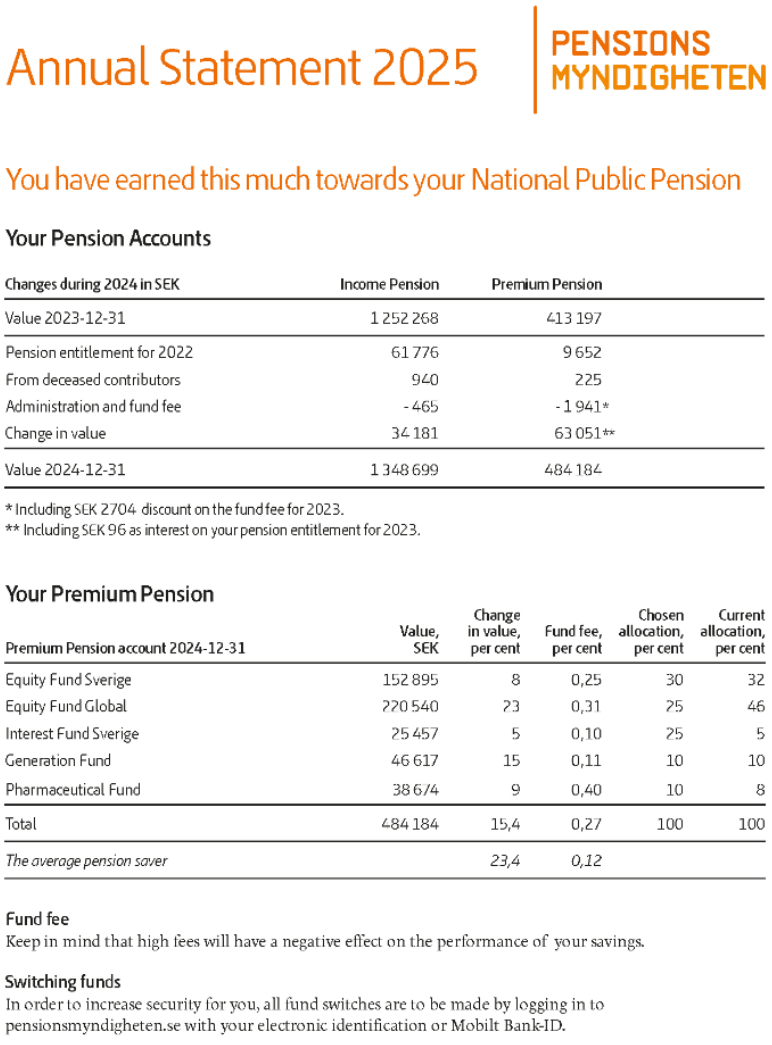
Upon first claiming, the accumulated pension capital is converted into an annuity. The system is broadly *actuarially fair*, meaning it does not create strong financial incentives to claim benefits at a specific age. The link between contributions and payouts is weakened by the guarantee pension, which provides a basic income for low earners, as well as by the income cap, which limits the earnings that count toward pension benefits. Three key age thresholds apply: the early claiming age, the minimum guarantee pension age, and the Employment Protection Act (LAS) age. The early claiming age, initially set at 61, was raised to 62 in 2021 and 63 in 2023. The minimum guarantee pension age determines eligibility for the guarantee pension and marks the end of certain social benefits, such as unemployment and sickness insurance. Initially 65, it was increased to 66 in 2023. The LAS age sets the upper limit for employment protection against involuntary termination. Before reaching the LAS age, layoffs must be justified and follow the "last-in, first-out" rule. After reaching this age, employers may terminate employment without cause with one month's notice. Initially 67, the LAS age was raised to 68 in 2021 and 69 in 2023.

Individuals can claim pension benefits while continuing to work. Combining work and pension income generally results in a higher total income but also a higher effective tax rate. From age 65 (raised to 66 after 2021), tax reductions apply to both labor and pension income, incentivizing work and delayed claiming.

[29] To encourage individuals to actively select their investment portfolios, the government launched a communication campaign that promoted engagement with over 450 government-approved funds. Initially, two-thirds of savers made an active fund choice. However, after several years, the government discontinued its efforts to promote active decision-making, and many early participants gradually became passive. As a result, default rates among new entrants steadily increased and now exceed 99 percent (Hagen and Malisa 2022; Cronqvist et al. 2018).

Appendix B Annual Pension Statement

Figure B.1: Annual pension statement (physical letter; front)



Annual Statement 2025

PENSIONS MYNDIGHETEN

You have earned this much towards your National Public Pension

Your Pension Accounts

Changes during 2024 in SEK	Income Pension	Premium Pension
Value 2023-12-31	1 252 268	413 197
Pension entitlement for 2022	61 776	9 652
From deceased contributors	940	225
Administration and fund fee	- 465	- 1 941*
Change in value	34 181	63 051**
Value 2024-12-31	1 348 699	484 184

* Including SEK 2704 discount on the fund fee for 2023.
** Including SEK 96 as interest on your pension entitlement for 2023.

Your Premium Pension

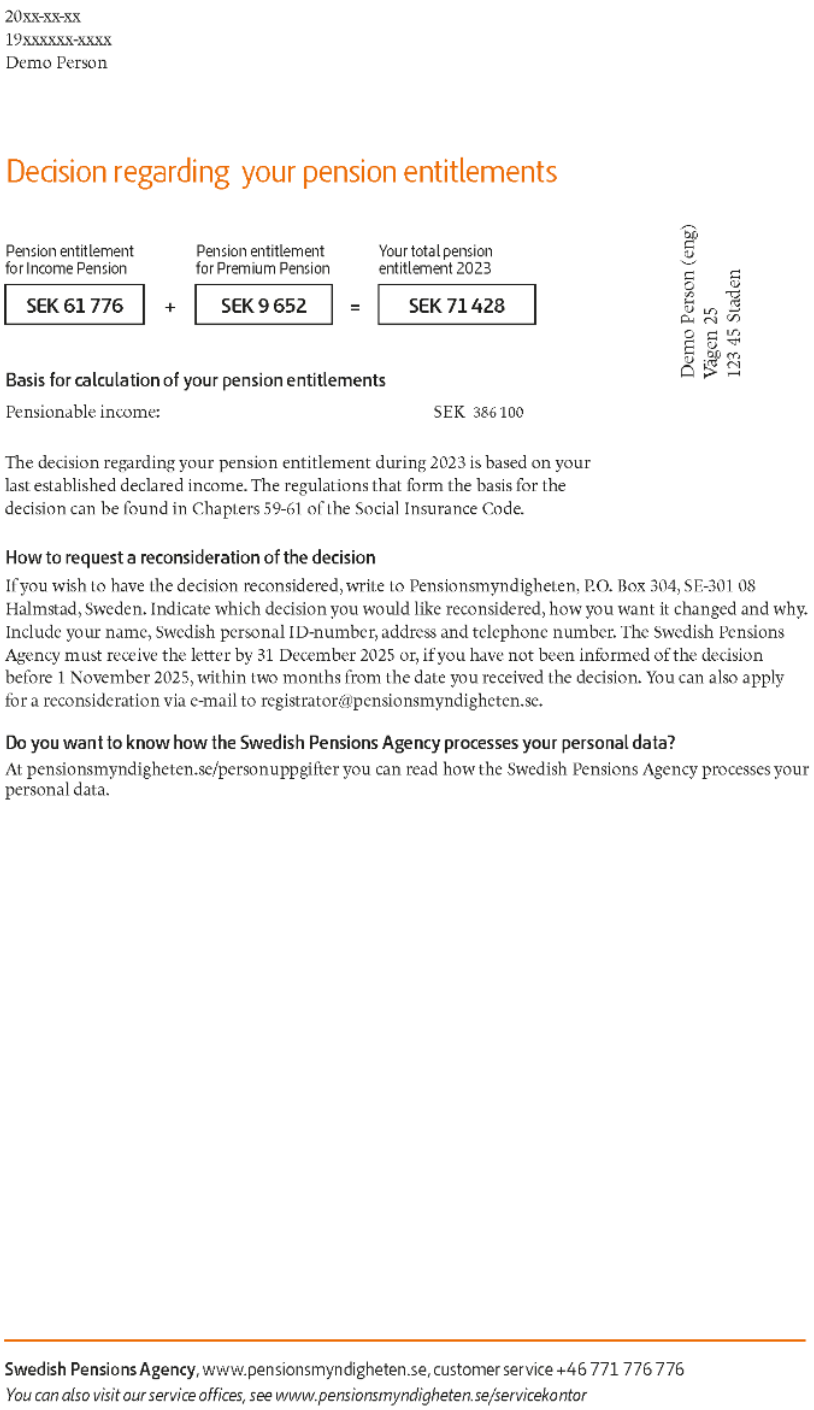
Premium Pension account 2024-12-31	Value, SEK	Change in value, per cent	Fund fee, per cent	Chosen allocation, per cent	Current allocation, per cent
Equity Fund Sverige	152 895	8	0,25	30	32
Equity Fund Global	220 540	23	0,31	25	46
Interest Fund Sverige	25 457	5	0,10	25	5
Generation Fund	46 617	15	0,11	10	10
Pharmaceutical Fund	38 674	9	0,40	10	8
Total	484 184	15,4	0,27	100	100
The average pension saver		*23,4*	*0,12*		

Fund fee
Keep in mind that high fees will have a negative effect on the performance of your savings.

Switching funds
In order to increase security for you, all fund switches are to be made by logging in to pensionsmyndigheten.se with your electronic identification or Mobilt Bank-ID.

Source: https://www.pensionsmyndigheten.se/other-languages/english-engelska/english-engelska/orange-envelope-annual-statement-for-your-national-public-pension

Figure B.2: Annual pension statement (physical letter; back)



20xx-xx-xx
19xxxxxx-xxxx
Demo Person

Decision regarding your pension entitlements

Demo Person (eng)
Vägen 25
123 45 Staden

Pension entitlement for Income Pension		Pension entitlement for Premium Pension		Your total pension entitlement 2023
SEK 61 776	+	SEK 9 652	=	SEK 71 428

Basis for calculation of your pension entitlements

Pensionable income: SEK 386 100

The decision regarding your pension entitlement during 2023 is based on your last established declared income. The regulations that form the basis for the decision can be found in Chapters 59-61 of the Social Insurance Code.

How to request a reconsideration of the decision

If you wish to have the decision reconsidered, write to Pensionsmyndigheten, P.O. Box 304, SE-301 08 Halmstad, Sweden. Indicate which decision you would like reconsidered, how you want it changed and why. Include your name, Swedish personal ID-number, address and telephone number. The Swedish Pensions Agency must receive the letter by 31 December 2025 or, if you have not been informed of the decision before 1 November 2025, within two months from the date you received the decision. You can also apply for a reconsideration via e-mail to registrator@pensionsmyndigheten.se.

Do you want to know how the Swedish Pensions Agency processes your personal data?

At pensionsmyndigheten.se/personuppgifter you can read how the Swedish Pensions Agency processes your personal data.

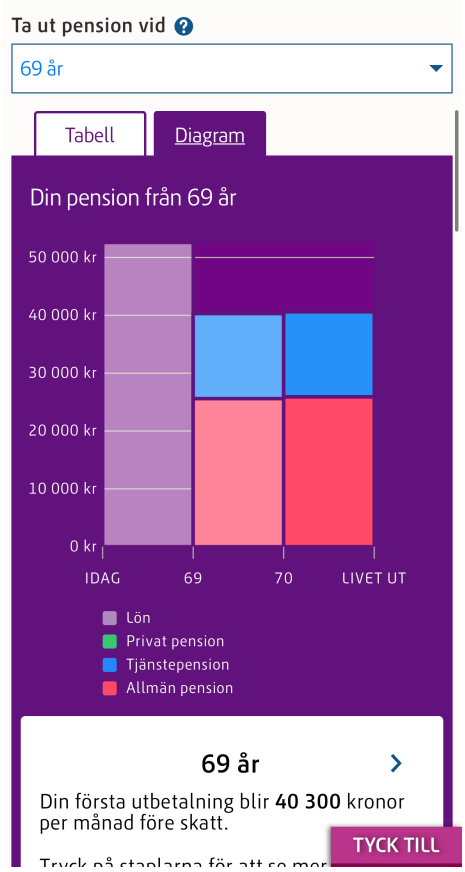
Swedish Pensions Agency, www.pensionsmyndigheten.se, customer service +46 771 776 776
You can also visit our service offices, see www.pensionsmyndigheten.se/servicekontor

Source: https://www.pensionsmyndigheten.se/other-languages/english-engelska/english-engelska/orange-envelope-annual-statement-for-your-national-public-pension

Figure B.3: Annual pension statement (digital)

Notes: This figure shows the digital Orange Envelope. The figure on the left introduces the Orange Envelope as a reminder and provides a brief explanation of how the pension system works. It also provides a direct link to generate a pension forecast (see also Figure B.4). The middle figure provides information on the public pension benefit entitlements and how these have developed since the previous year. The figure on the right provides information on the premium pension and how it has developed in relation to the population. It also includes a direct link to minPension, where users can receive more information about their occupational pension.

Figure B.4: Annual pension statement (digital): Integrated forecast



Notes: This figure shows the integrated pension forecast, which can be accessed with just one click from the digital version of the Orange Envelope (see also Figure B.3).

Appendix C Comparison of Regions

Table C.1: Distribution schedule of the annual pension statement by region, total number of statements and share of digital recipients in 2024

Region	Calendar Week	County	Number of Statements	Share Digital (in %)
1	Week 7	Västmanland Dalarna Gävleborg Västernorrland Jämtland Västerbotten Norrbotten	882,000	78.7
2	Week 8	Stockholm	1,313,000	84.4
3	Week 9	Uppsala Södermanland Östergötland Jönköping Kronoberg Kalmar	1,118,000	81.3
4	Week 10	Västra Götaland Värmland Örebro	1,247,000	80.9
5	Week 11	Skåne Blekinge Halland Gotland	1,024,000	81.7

Source: The Swedish Pensions Agency (2024)

Table C.2: Descriptive statistics by region

	(1) All	(2) Region 1	(3) Region 2	(4) Region 3	(5) Region 4	(6) Region 5
Age	58.70	58.69	58.62	58.75	58.74	58.69
Female	0.50	0.49	0.50	0.49	0.49	0.50
Divorced	0.20	0.19	0.22	0.19	0.20	0.21
Married	0.52	0.48	0.50	0.54	0.52	0.53
Single	0.26	0.31	0.25	0.25	0.26	0.23
Selfemployed	0.09	0.09	0.11	0.09	0.09	0.10
Disposable income, real	387,283	340,694	480,963	354,003	367,907	375,660
Employment income, real	369,568	346,780	430,831	351,112	358,008	350,114
Observations	1,576,218	274,832	352,713	297,833	356,276	294,564

Notes: This table presents mean values of demographic and socioeconomic characteristics of individuals in the five regions. The sample consists of all Swedish residents who were born before 1969 and who had not yet started claiming their public pensions.

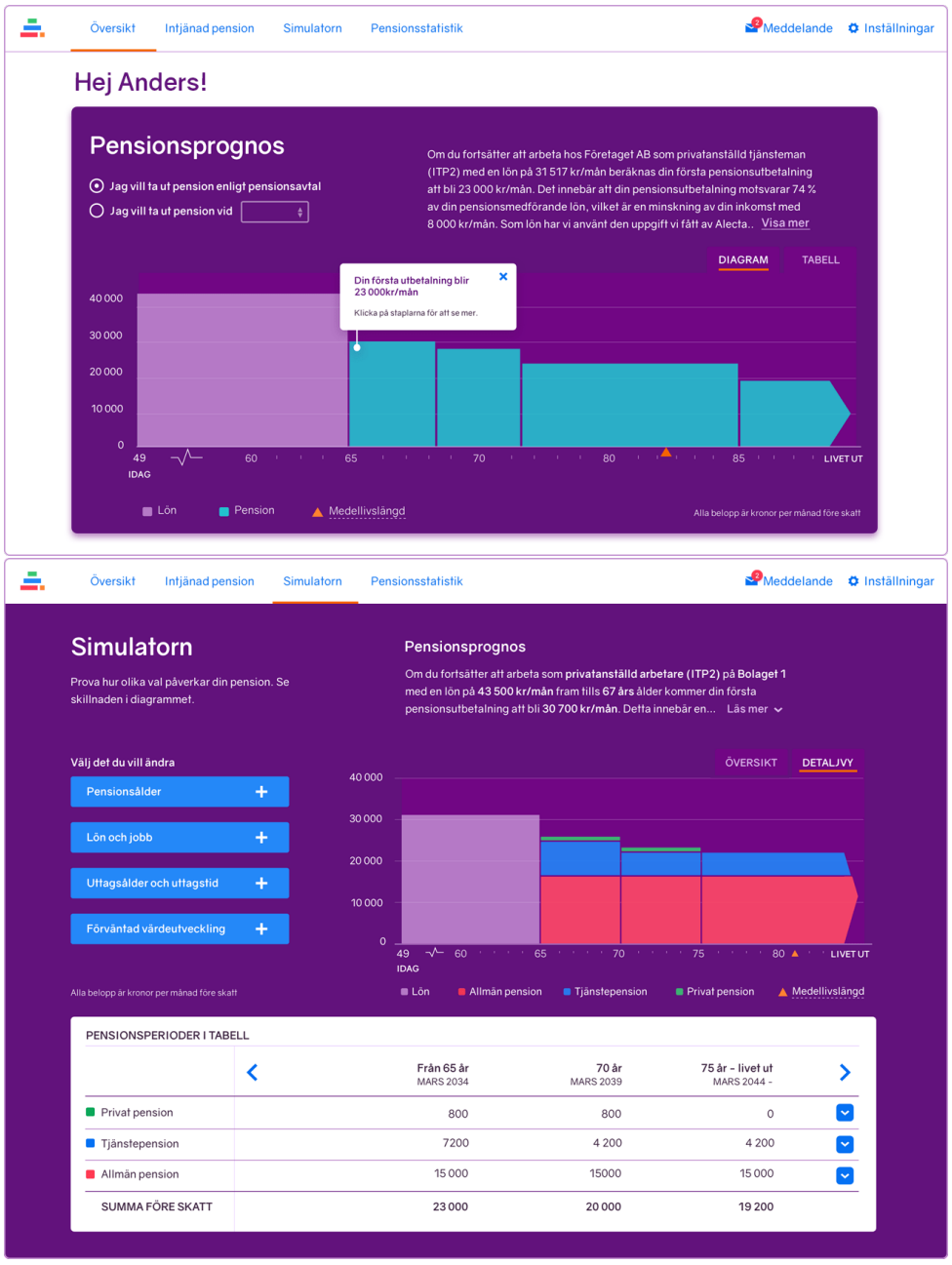
Table C.3: Descriptive statistics by region, users only

	(1) All	(2) Region 1	(3) Region 2	(4) Region 3	(5) Region 4	(6) Region 5
Age	59.12	59.16	58.99	59.20	59.18	59.11
Female	0.50	0.50	0.50	0.49	0.50	0.50
Divorced	0.20	0.19	0.22	0.18	0.20	0.21
Married	0.55	0.52	0.53	0.58	0.55	0.57
Single	0.23	0.27	0.23	0.22	0.23	0.21
Selfemployed	0.09	0.09	0.11	0.09	0.09	0.10
Disposable income, real	430,410	374,251	530,084	395,628	410,295	420,946
Employment income, real	425,567	391,173	499,262	403,322	412,695	405,841
Observations	1,056,219	187,258	240,262	195,580	237,580	195,539

Notes: This table presents mean values of demographic and socioeconomic characteristics of individuals in the five regions. The sample only includes active users.

Appendix D Pension Dashboard

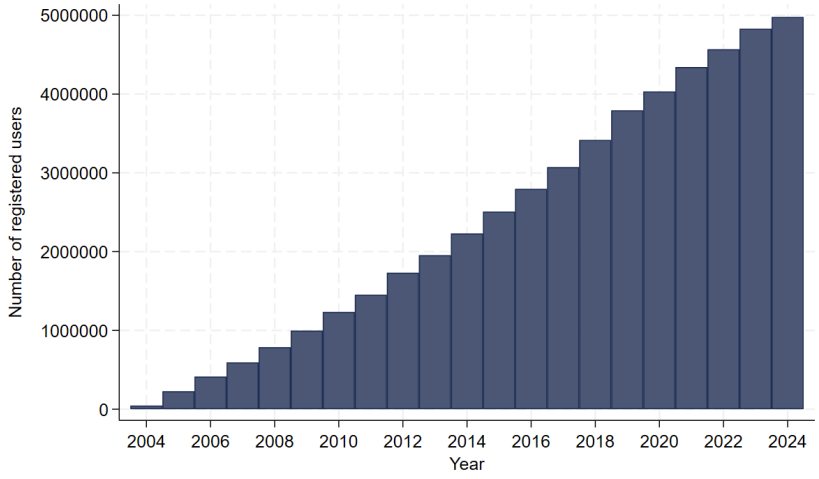
Figure D.1: The pension dashboard (minPension)



Notes: This figure shows the pension dashboard. The upper part shows a general overview. The lower part shows a simulator which provides information on pensions from each pillar separately and allows individuals to change various parameters, such as their expected retirement age.

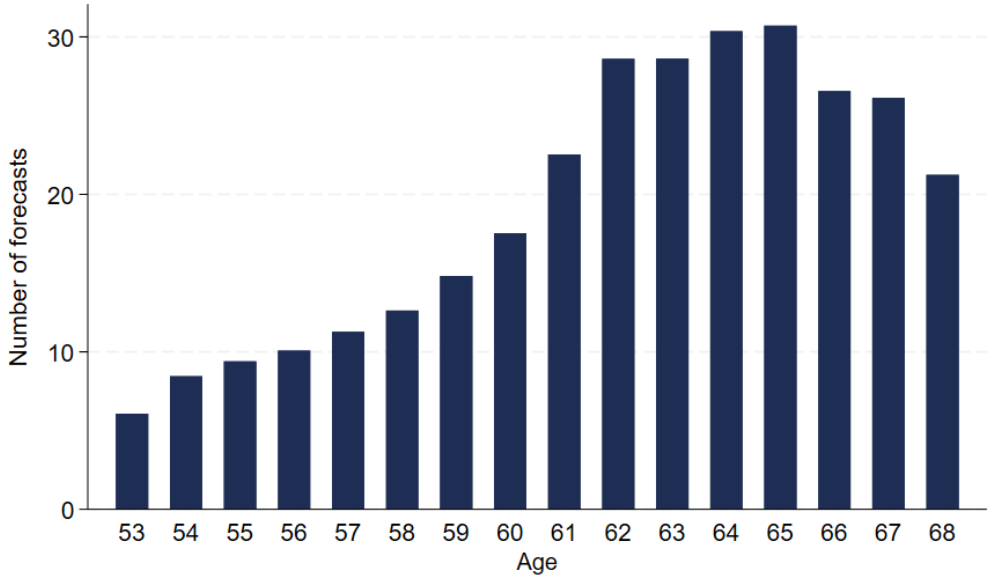
Source: https://www.minpension.se/allt-om-pensioner/pensionsprognos/se-vad-du-far-i-pension

Figure D.2: Number of registered users on the pension dashboard



Notes: This figure shows the total number of users who have registered on the platform since its establishment in 2004. These statistics were provided by minPension.

Figure D.3: Average number of forecasts made on the pension dashboard



Notes: This figure shows the average number of pension forecasts made in 2021 by age group. The sample includes all Swedish residents who were born before 1969, who had not yet started claiming their public pensions and were active dashboard users in 2023. We winsorize observations above the 99th percentile to the 99th percentile.

Appendix E Comparison of Users and Non-users

Table E.1 presents a comparison of nonusers, inactive users, and active dashboard users who were born before 1969 and who had not yet started claiming their public pensions. The outcomes are measured using LISA data from 2021, when these individuals were aged 53 and older.

On average, active dashboard users are slightly older, likelier to be married, and have significantly higher incomes than nonusers and inactive users. This suggests a clear socioeconomic gradient in platform use, where individuals with greater resources and stability are more engaged with the pension dashboard.[30]

Notably, active users stand out as the most socioeconomically advantaged group in the sample. Compared to inactive users, they are slightly older and have markedly higher levels of disposable income (SEK 430,410 vs. 369,855) and employment income (SEK 425,567 vs. 353,930). These differences suggest that active users not only have greater financial resources but also exhibit a stronger attachment to the labor market.

The fact that active users are less likely to be single and more likely to be married may reflect greater household stability, which in turn could influence both their interest in and capacity for long-term financial planning. Moreover, while the share of self-employed individuals is almost the same among active and non-users (9% and 8%), it is slightly higher among inactive users (11%).

Table E.1: Comparison of users and non-users

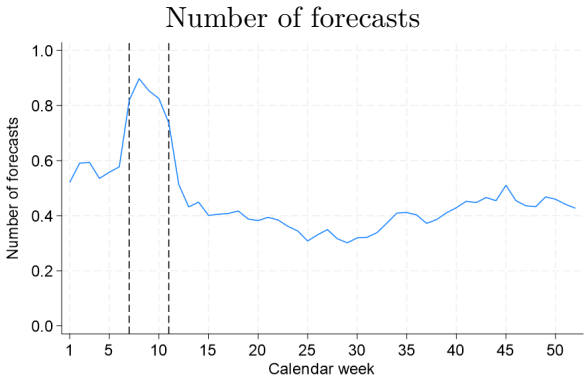
	(1) All mean	(2) Nonusers mean	(3) Inactive mean	(4) Active mean
Age	58.70	58.03	57.47	59.12
Female	0.50	0.49	0.50	0.50
Divorced	0.20	0.22	0.19	0.20
Married	0.52	0.43	0.49	0.55
Single	0.26	0.33	0.30	0.23
Selfemployed	0.09	0.08	0.11	0.09
Disposable income, real	387,283	261,921	369,855	430,410
Employment income, real	369,568	203,027	353,930	425,567
Observations	1,576,218	338,070	181,929	1,056,219

Notes: This table compares users and non-users of the pension dashboard. The sample includes all Swedish residents who were born before 1969 and who had not yet started claiming their public pensions. Disposable and labor income are reported in Swedish Krona (SEK), adjusted to 2021 price levels.

[30]These patterns are consistent with earlier findings by Hagen and Schneider (2024), who document similar disparities in user rates for the new retirement planning tool at the pension dashboard called *Uttagsplaneraren.*

Appendix F Results for Number of Forecasts

Figure F.1: Engagement with the pension dashboard by calendar week

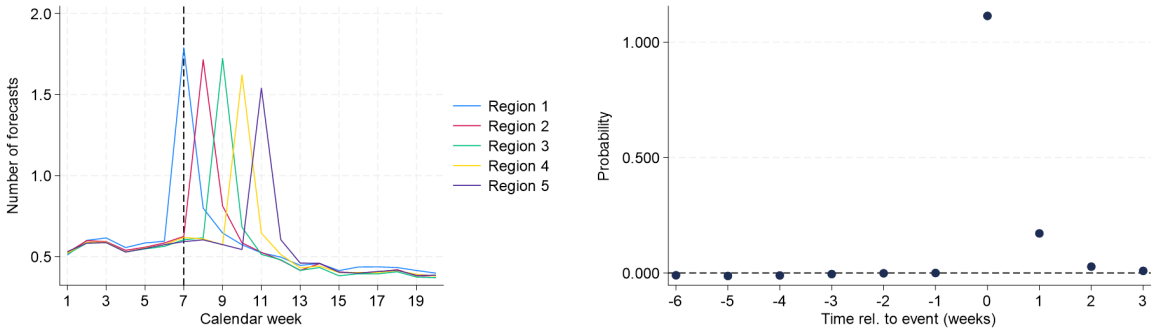


Notes: This figure shows the average number of forecasts per calendar week among active users in our sample. The dashed line indicates the receipt of the annual pension statement in the first region (week 7) and in the last region (week 11).

Figure F.2: Number of forecasts by region

(a) Number of forecasts by region

(b) Number of forecasts (event study)



Notes: This figure shows the average number of forecasts per week among individuals who were active pension dashboard users in 2023, who were born before 1969 and who had not yet started claiming their pensions, for the years 2019–2024. The dashed line in the figures on the left-hand side indicates receipt of the annual pension statement in the first region. The figures on the right-hand side is based on the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

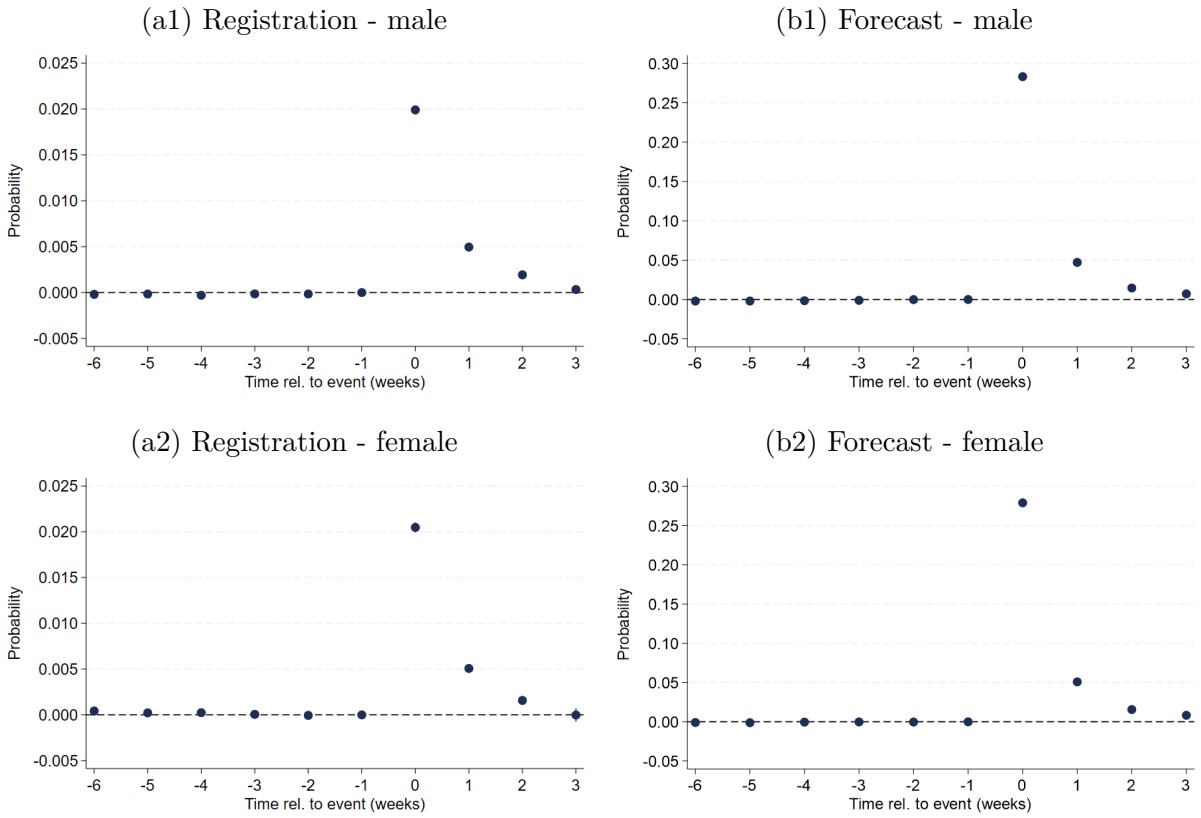
Appendix G Heterogeneity in Effects

Table G.1: Heterogeneous effects of the annual pension statement

	Registration			Forecast		
Group	$t = -1$	$t = 0$	Total-to-baseline	$t = -1$	$t = 0$	Total-to-baseline
Full sample	0.0040	0.0202	6.05	0.093	0.281	4.02
Female	0.0043	0.0205	5.77	0.081	0.279	4.44
Male	0.0037	0.0199	6.38	0.105	0.283	3.70
Age: below 60	0.0042	0.0248	6.90	0.071	0.283	4.99
Age: 60–64	0.0037	0.0158	5.27	0.110	0.296	3.69
Age: above 64	0.0043	0.0080	2.86	0.139	0.214	2.54
Educ: low	0.0046	0.0216	5.70	0.083	0.257	4.10
Educ: middle	0.0042	0.0219	6.21	0.089	0.290	4.26
Educ: high	0.0037	0.0178	5.81	0.100	0.277	3.77
Inc: low	0.0048	0.0251	6.23	0.065	0.244	4.75
Inc: middle	0.0043	0.0225	6.23	0.086	0.286	4.33
Inc: high	0.0034	0.0161	5.74	0.113	0.294	3.60

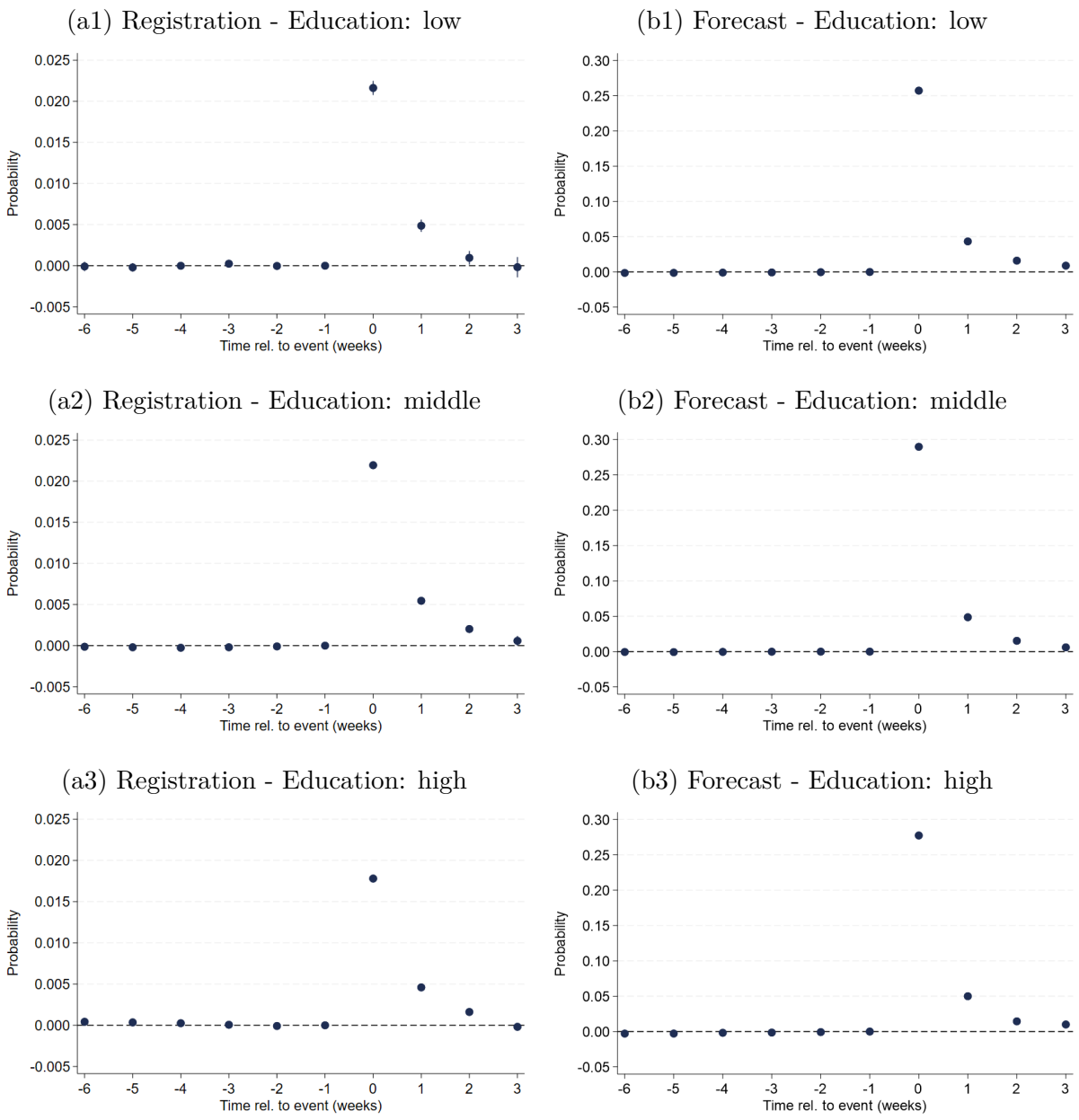
Notes: This table reports the probability of a user registering and making a forecast for different subgroups in the week before the statement is received ($t = -1$), together with the event-study estimate of the increase in activity during the week the statement arrives ($t = 0$). The total-to-baseline ratio—defined as the sum of of the event-study estimate and the baseline divided by the baseline—shows how much higher engagement is in the statement week than the week before.

Figure G.1: Registrations and forecast probability by gender



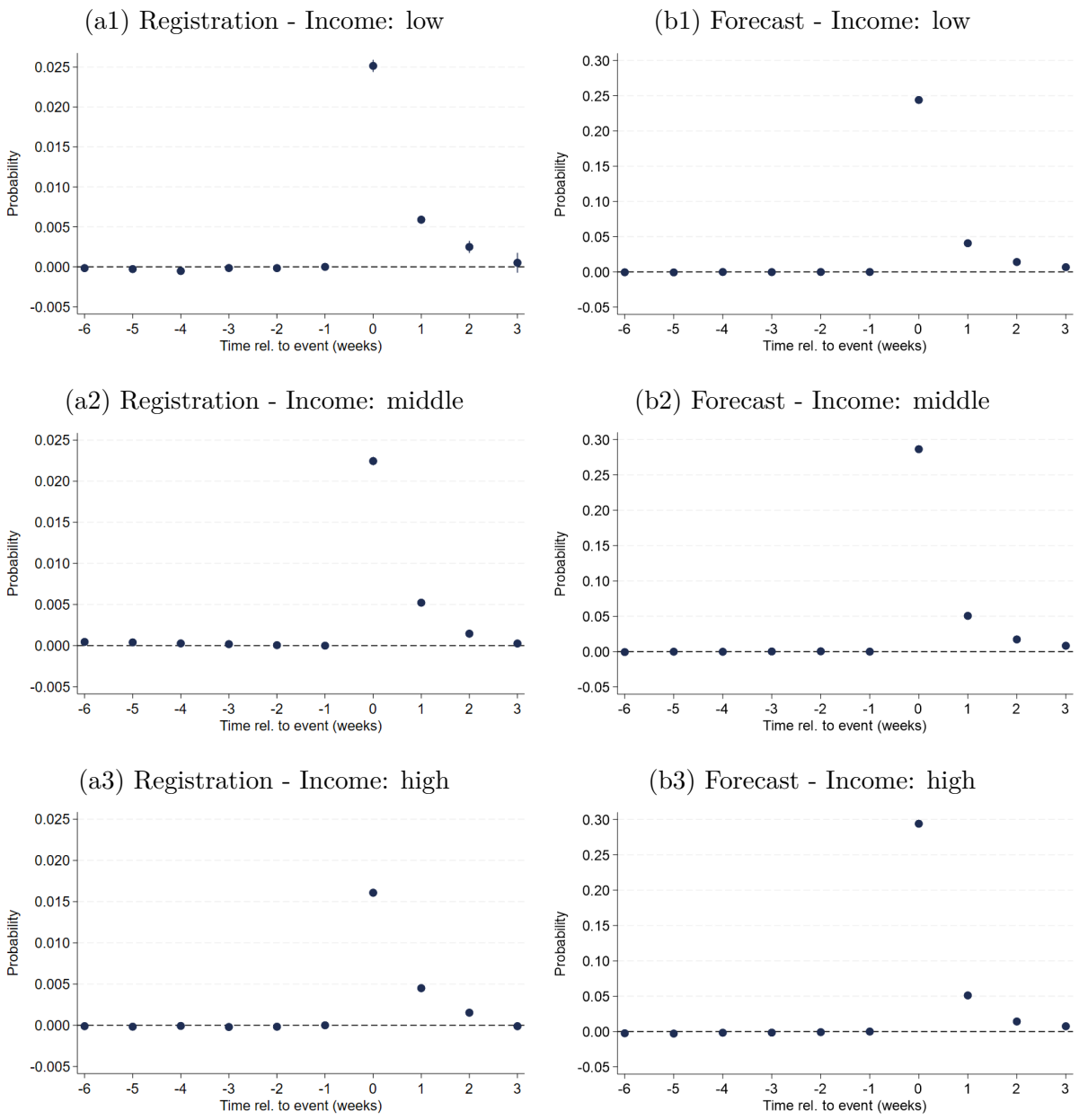
Notes: This figure shows the probability of a user registering (a) and the probability of a user making a forecast (b) per week among individuals who were active pension dashboard users in 2023, who were born before 1969 and who had not yet started claiming their pensions for the years 2019–2024 (2019–2022 for registration). The figures are based on the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

Figure G.2: Registrations and forecast probability by education



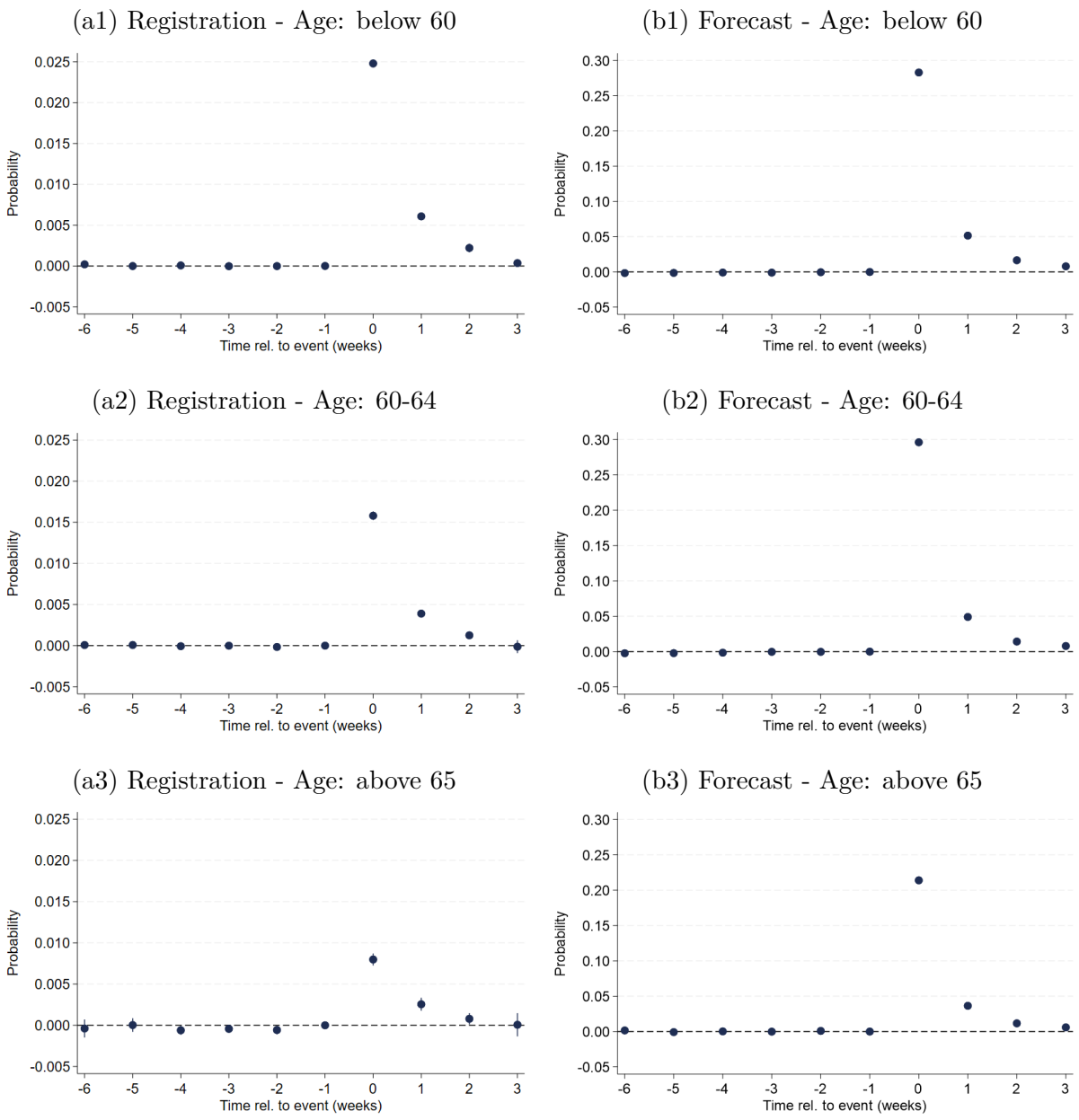
Notes: This figure shows the probability of a user registering (a) and the probability of a user making a forecast (b) per week among individuals who were active pension dashboard users in 2023, who were born before 1969 and who had not yet started claiming their pensions for the years 2019–2024 (2019–2022 for registration). The figures are based on the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

Figure G.3: Registrations and forecast probability by income



Notes: This figure shows the probability of a user registering (a) and the probability of a user making a forecast (b) per week among individuals who were active pension dashboard users in 2023, who were born before 1969 and who had not yet started claiming their pensions for the years 2019–2024 (2019–2022 for registration). The figures are based on the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

Figure G.4: Registrations and forecast probability by age

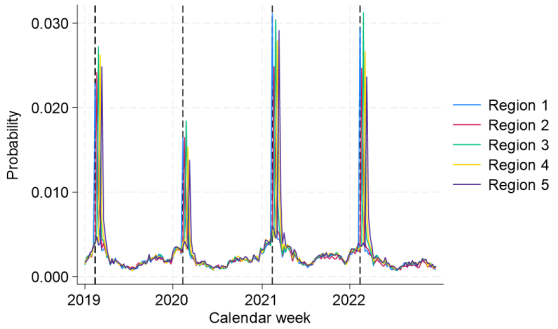


Notes: This figure shows the probability of a user registering (a) and the probability of a user making a forecast (b) per week among individuals who were active pension dashboard users in 2023, who were born before 1969 and who had not yet started claiming their pensions for the years 2019–2024 (2019–2022 for registration). The figures are based on the Sun and Abraham (2021) estimator, with standard errors clustered at the county level.

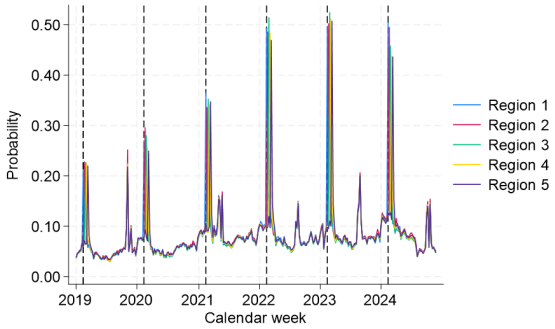
Appendix H Effects Over Time

Figure H.1: Effects on registrations and forecast probability per year

(a) Registration



(b) Forecast



Notes: This figure shows the probability of a user registering (a) and the probability of a user making a forecast (b) per week among individuals who were active pension dashboard users in 2023, who were born before 1969 and who had not yet started claiming their pensions for the years 2019–2024 (2019–2022 for registration). The dashed lines indicate the receipt of the annual pension statement in the first region.

Table H.1: Share of repeated statement users

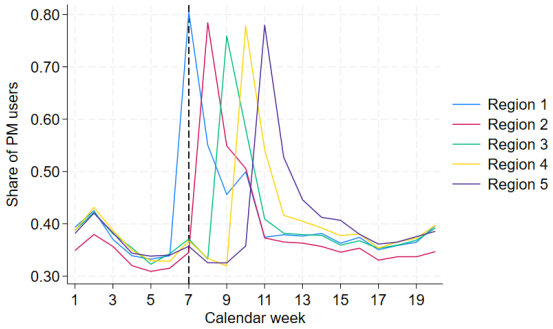
	2019	2020	2021	2022	2023	2024
2019	1.000	0.698	0.711	0.724	0.651	0.598
2020	.	1.000	0.716	0.733	0.657	0.603
2021	.	.	1.000	0.740	0.667	0.612
2022	.	.	.	1.000	0.719	0.655
2023	.	.	.	.	1.000	0.746
2024	.	.	.	.	.	1.000

Notes: The table shows the share of users that respond repeatedly to the annual pension statement, i.e. make a forecast in week 0, 1, 2, or 3 after the statement is received, conditional on having used the statement in the year indicated in the first column.

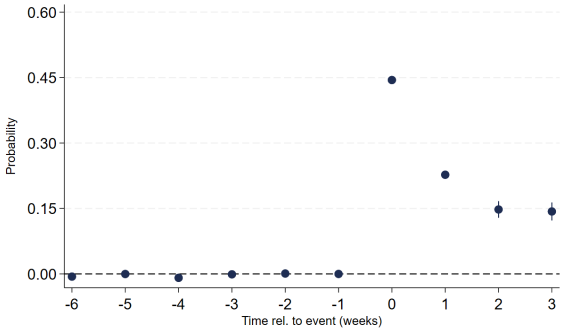
Appendix I Simulated Retirement Age

Figure I.1: Share of forecasts generated via the Swedish Pensions Agency's website by calendar week

(a) Share Pensions Agency by region



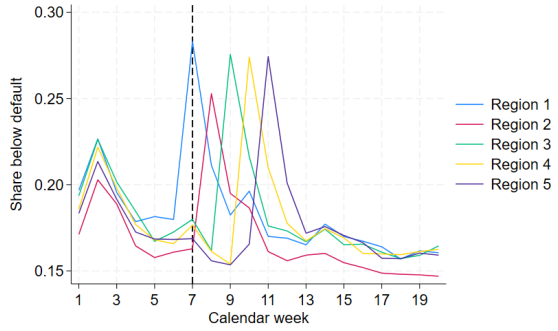
(b) Share Pensions Agency (event study)



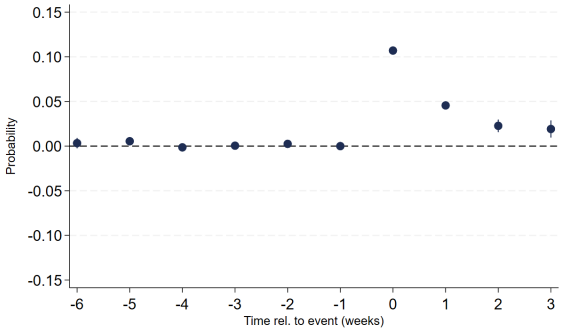
Notes: This figure shows the share of forecasts generated through the integration of the pension dashboard on the Swedish Pensions Agency's website. We use data for the year 2024 only and restrict the sample to users that have made at least one forecast in a given week.

Figure I.2: Share above/below default

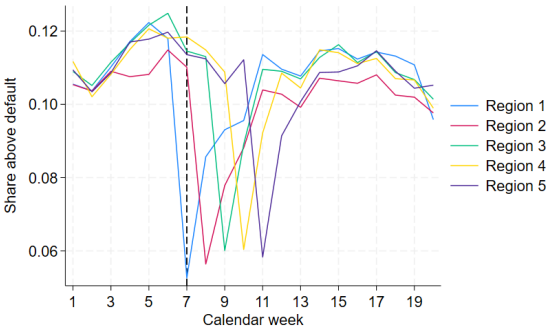
(a) Share below default by region



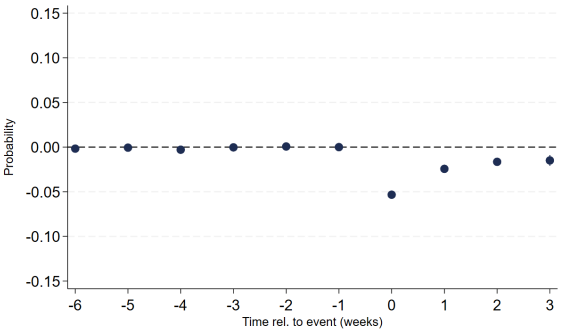
(b) Share below default (event study)



(c) Share above default by region



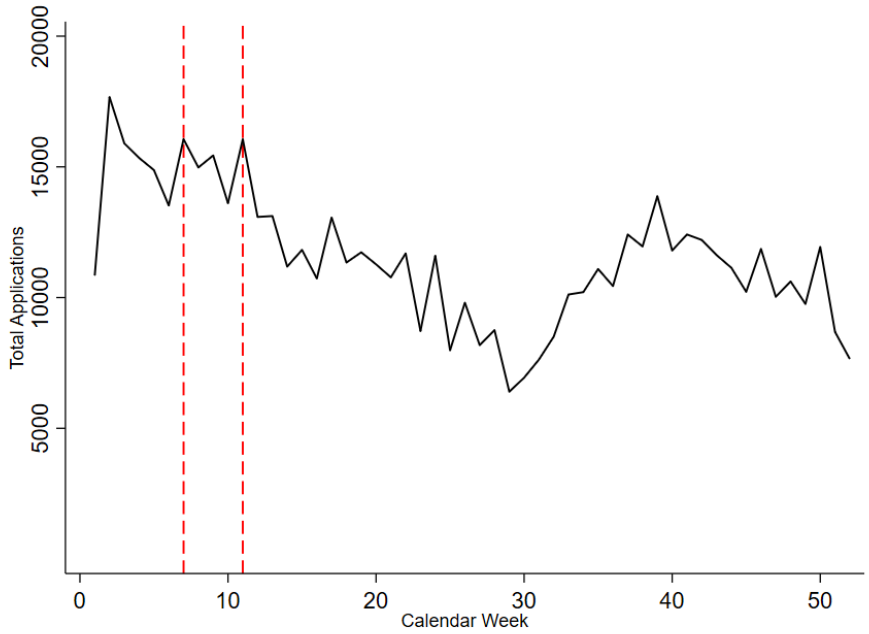
(d) Share above default (event study)



Notes: This figure shows the share of forecasts with a claim age below the default (Figures I.2a and I.2b) and the share of forecasts with a claim age above the default (Figures I.2c and I.2d). We use data for the year 2024 only and restrict the sample to users that have made at least one forecast in a given week.

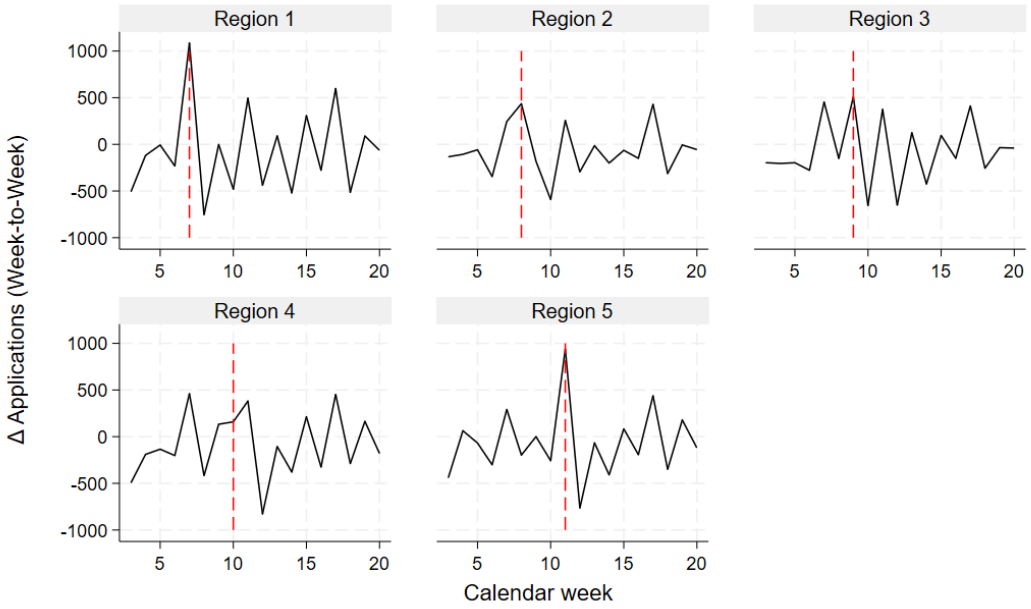
Appendix J Pension claims

Figure J.1: Total pension claim applications by calendar week, all regions combined (2019–2024)



Notes: This figure shows the total pension claim applications across all regions for the years 2019–2024, summed by calendar week. The dashed lines indicate the weeks in which the annual pension statement is received in the first and the last region, respectively.

Figure J.2: Week-to-week change in pension claims around the sending of the annual pension statement, by region (2019—2024 pooled)



Notes: This figure shows the weekly change in pension claims for the five regions. The dashed line indicates the week in which the annual pension statement is received in the respective region.

Appendix K Survey Results

Table K.1: Comparison of survey respondents to target population

	(1) Survey	(2) Population	(3) T-test of difference
Age 31–40	0.29	0.33	-0.046***
			(0.012)
Age 41–50	0.32	0.34	-0.025**
			(0.012)
Age 51–60	0.40	0.32	0.071***
			(0.011)
Female	0.51	0.49	0.017
			(0.012)
Single	0.36	0.38	-0.019*
			(0.012)
Married	0.52	0.48	0.039***
			(0.012)
Divorced	0.11	0.13	-0.018**
			(0.0071)
Widow/widower	0.0053	0.0067	-0.0014
			(0.0015)
Employed	0.87	0.80	0.077***
			(0.0078)
Self-employed	0.064	0.077	-0.013**
			(0.0057)
Not employed	0.062	0.13	-0.064***
			(0.0056)
Unemployed	0.059	0.087	-0.028***
			(0.0059)
Elementary education	0.042	0.11	-0.070***
			(0.0044)
High school	0.37	0.45	-0.079***
			(0.011)
Less than 3 years higher educ.	0.18	0.15	0.028***
			(0.0091)
At least 3 years higher educ.	0.41	0.29	0.12***
			(0.012)

Notes: This table compares the means of key register-based variables for survey respondents (Column 1) and the target population (Column 2), with the difference shown in Column 3. The target population includes all individuals in Sweden born 1957–1986. The table is replicated from Elinder et al. (2022). Robust standard errors are reported in parentheses. ***, *, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. The reported shares in Column 1 are weighted to account for the oversampling of individuals aged 51–60 in the survey design.

Table K.2: Survey responses on engagement with the annual pension statement (Orange Envelope) and the pension dashboard (minPension)

	Carefully	**Skim**	**Do not read**	**No answer**
Do you read the Orange Envelope?	21%	66%	11%	2%
	Yes	**No**	**Don't know**	**No answer**
Are you aware of minPension?	66%	32%	—	2%
Have you made a forecast?	38%	55%	5%	2%

Notes: The table presents summary statistics from the Ekonomi och pension 2017 survey, used in Elinder et al. (2022). The survey was administered to a random sample of 12,000 individuals in Sweden aged 30–60, with a response rate of approximately 30%. Our analysis sample is restricted to the 2,111 respondents aged 51 and older. The table presents the distribution of responses to three separate survey questions: whether respondents read the annual pension statement (Orange Envelope), whether they are aware of the pension dashboard (minPension), and whether they have generated a pension forecast on the pension dashboard.

Table K.3: Distribution of minPension forecast outcomes by Orange Envelope reading behavior

	Forecast	**No forecast**	**Don't know**	**No answer**	**Individuals**
Read carefully	65%	31%	2%	1%	451
Skimmed	34%	60%	5%	1%	1,388
Did not read	15%	74%	10%	2%	236
No answer	17%	36%	6%	42%	36

Notes: Respondents were first categorized based on how carefully they read the Orange Envelope (carefully, skim, do not read, or no answer) and then grouped according to whether they had generated a pension forecast using the minPension dashboard, in order to capture how different levels of engagement with the Orange Envelope relate to the likelihood of using the digital forecast tool.