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Johannes Hagen* Øystein Hernæs† Alireza Khoshghadam‡ Stefanie König§

Abstract

We study a reform that raised the earliest eligibility age for public pensions from 61 to 62. Using rich Swedish administrative data and a difference-in-differences design that compares adjacent age groups differentially affected by the new threshold, we assess the reform's effects on pension claiming, labor supply, social insurance benefit receipt, and disposable income. Prior to the reform, around 10% of individuals claimed their public pension at age 61. The reform mechanically reduced this share to zero, but also induced delayed claiming beyond the new threshold, including postponed occupational and private pension claims. Employment increased by up to 1.3 percentage points, and sickness and unemployment benefit receipt rose by 0.6–0.9 and 0.1–0.2 percentage points, respectively. These responses were concentrated among low-income individuals who were already working. For this group, increased work offset the delayed pension access and left disposable income largely unchanged. In contrast, non-working low-income individuals and the self-employed experienced a substantial short-term decline in disposable income, ranging from 7 to 10%. Our findings point to liquidity constraints and behavioral responses as key mechanisms in eligibility age reforms within a flexible, actuarially neutral pension system where work and pension claiming are decoupled. Overall, the reform had a modest yet positive net fiscal impact.

Keywords: Retirement age, Claiming age, Pension reform, Labor supply, Distributional effects
JEL Classification: H55, H75, J22, J26

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1 Introduction

Increasing longevity is leading to longer retirement periods and a rise in old-age dependency ratios. To address these challenges, many countries have introduced longevity adjustments in public pension systems.[1] However, if people do not compensate for the longevity adjustments by working longer, public pension levels may decrease. One way to prevent such a decrease is to complement longevity adjustments with increases in the statutory retirement age.[2]

In Sweden, public pension replacement rates have fallen over the last two decades. The main reason is that the average claiming age has remained roughly constant while life expectancy has increased substantially (Pensionsmyndigheten, 2021; Hagen, 2022). Consequently, Sweden initiated a series of retirement age increases, starting in 2020 with the early eligibility age, rising from 61 to 62.[3] In this paper, we evaluate the labor market effects of this reform.

Our identification strategy involves examining outcomes before and after the 2020 reform, which raised the early eligibility age from 61 to 62, using a Difference-in-Differences (DiD) approach. We leverage comprehensive population-wide administrative data spanning 2015 to 2021 for individuals aged 61 to 63. Individuals aged 61 in 2020, as well as those aged 61 and 62 in 2021, were directly affected by the reform, while 63-year-olds remained unaffected. Consequently, we use 63-year-olds as the comparison group. We assess the reform's effects across various outcomes, including pension claims, labor supply measures and disposable income. In addition, we examine receipt of social insurance benefits to capture potential spillover effects.

A notable feature of the Swedish pension system—with important implications for how the reform may affect pension claiming and labor supply—is its flexibility. Claiming public pensions and exiting the labor market are formally decoupled, allowing individuals to draw a pension while continuing to work. As a result, many Swedes work while receiving pensions, especially at younger ages. Once individuals reach the early eligibility age, they can claim benefits at any time, subject to actuarial adjustments and without an explicit upper age limit. This flexibility points to two main

[1] In Defined Benefit (DB) plans, life expectancy coefficients can be incorporated into the pension formula, as seen in Finland and Germany. For Defined Contribution (DC) systems, pension capital at retirement can be adjusted by an annuity divisor to account for longevity changes.

[2] Several countries—including the Netherlands, Italy, Greece, Cyprus, Portugal, Slovakia, Denmark, Sweden, Estonia, and the UK—have linked statutory retirement ages to life expectancy. (Finnish Centre for Pensions, 2024).

[3] In 2023, the lower claiming age increased to 63. It will be tied to life expectancy from 2026, which is expected to lead to a lower claiming age of 64, after which the threshold will increase in smaller steps. The early eligibility age is sometimes referred to as the *early claiming age*.

mechanisms through which raising the early eligibility age may affect behavior: liquidity constraints and behavioral responses. Lower-income individuals, more dependent on public pensions, may experience financial strain from delayed access, unlike higher-income individuals who can rely on savings or continued earnings. In parallel, individuals may interpret the new eligibility age as a government signal or shift in social norms (Cribb et al., 2016; Gruber et al., 2022; Seibold, 2021; Lalive et al., 2023), prompting them to revise their retirement expectations.[4]

We begin by analyzing the reform's impact on the likelihood of claiming a public pension. In 2019, before the reform, approximately 10% of 61-year-olds claimed their public pension. With the increase in the early eligibility age from 61 to 62 in 2020, the share of individuals claiming at age 61 dropped mechanically to zero. By 2021, one year after the reform, only 6% of 62-year-olds had claimed their public pension, indicating that the remaining 4% opted to delay claiming beyond the new early eligibility age of 62. We interpret this postponement of claims beyond age 62 as a behavioral response.

Turning to labor supply, we observe a 1.3 percentage point increase in the employment rate at age 62, from a baseline of approximately 80%. This increase is primarily driven by low-income individuals who were employed at age 60, among whom employment rose by 4 percentage points and labor income by 8 percent. Complementary analysis of monthly earnings data confirms that the reform kept individuals employed until reaching age 62, but did not lead to extended employment beyond that age.

Next, we examine whether the reform induced spillover effects, specifically whether individuals shifted reliance to other income sources such as occupational or private pensions (hereafter referred to jointly as *other pensions*) or social insurance benefits. A priori, the direction of these effects is unclear. On one hand, individuals might seek alternative sources of income when public pensions are no longer accessible. On the other hand, if individuals prefer to coordinate their retirement income streams, they might also delay claiming other pensions in response to the reform. Furthermore, if public pension is delayed, social insurance benefits may represent a short-term income source to bridge the gap until they can access their pension.

[4] Coile et al. (2025) highlight three additional mechanisms through which increases in the early eligibility age may affect labor market outcomes: marginal financial incentives, pension wealth effects and employer influence. Given the lack of strong financial incentives or disincentives tied to a particular claiming age, the reform is unlikely to influence labor market behavior through changes in *marginal financial incentives* or *wealth effects*. Employer influence is also likely to be minimal, given that Sweden's mandatory retirement age was relatively high at 68 in 2020.

The results suggest a mix of responses. While some individuals postponed other types of pension claims in line with the delayed public pension, others temporarily turned to social insurance benefits. Specifically, the likelihood of claiming other pensions at age 61 declined by approximately 3 percentage points, down from a pre-reform baseline of 17%. In contrast, we observe an increase in social insurance benefit receipt. Particularly, sickness insurance receipt rose by 0.6-0.9 percentage points from a baseline of 14-15%, and unemployment insurance receipt increased by 0.1-0.2 percentage points from a baseline of 4.3%, both largely driven by increased inflow into the respective social insurances.

Lastly, we examine the effects on disposable income (income after tax and transfers) to provide a comprehensive picture of the reform's impact on financial well-being. On average, disposable income declines by nearly 2% from a baseline of approximately SEK 410,000, indicating that the loss of public pension income due to delayed claiming outweighs the positive effects from increased labor income and social insurance benefits. For individuals in the lowest quartile of disposable income at age 61—who rely more heavily on public pensions and of whom only less than half are working at age 60—the reduction in disposable income at age 61 is notably larger, around 8%. However, within the low-income group, those who were still working at age 60 saw their disposable income remain largely unaffected, suggesting that they were able to compensate for the delayed pension income by working more or by increasing reliance on social insurance benefits. Self-employed individuals were also disproportionately affected, with disposable income falling by 7–10%, reflecting their higher initial propensity to claim at the early eligibility age and limited adjustment through higher earnings.

Overall, we estimate that the reform had a net positive fiscal impact. While some substitution toward social insurance benefits occurred, these increases were not large enough to offset the fiscal gains from higher tax revenues due to increased labor supply (see Section D).

This paper contributes to the literature on the labor market effects of increasing statutory retirement ages, including both early eligibility age reforms (Rabaté and Rochut, 2020; Geyer et al., 2020; Geyer and Welteke, 2021; Riphahn and Schrader, 2023; Manoli and Weber, 2016; Staubli and Zweimüller, 2013; Nakazawa, 2025) and changes to the normal retirement age (Soosaar et al., 2021; Regeringskansliet, 2017; Rabaté and Rochut, 2020; Lalive et al., 2023; Hagen, 2018; Nivalainen and Ilmakunnas, 2025). While such reforms generally raise employment rates, the magnitude

varies across contexts. In a recent review, Rabaté et al. (2024) report estimated employment effects of raising the early eligibility age ranging from 6.1 percentage points (Cribb et al., 2016) to 20.9 percentage points (Rabaté and Rochut, 2020), and emphasize that these employment effects depend crucially on pre-reform employment rates and the retirement hazard at the affected age. In Sweden, employment rates among older workers are high by international standards (see Figure B1), suggesting potential for sizable effects. However, the retirement hazard at the former early eligibility age of 61 was relatively low: over 80% of individuals remained employed, and only about 10% claimed their public pension at that age—most of whom continued working. Consistent with this low baseline, we estimate that raising the early eligibility age increased employment by just 1.3 percentage points, placing Sweden at the lower end of international estimates. We also attribute the modest employment response to the high degree of flexibility in the Swedish pension system, where pension claiming and labor market exit are formally decoupled and benefits are actuarially neutral. This flexibility—common in many recent pension reforms (OECD, 2017; Giupponi and Seibold, 2024)—grants individuals greater autonomy over retirement timing, but also reduces policymakers' ability to influence labor market behavior through statutory age thresholds.[5]

We also contribute to the research on behavioral responses to retirement policy, such as perceptions of appropriate retirement ages (Cribb et al., 2016), relabeling of thresholds (Gruber et al., 2022; Kanabar et al., 2024), and reference points (Lalive et al., 2023), by showing that raising the early eligibility age not only delays claims by one year, but also leads some to postpone claiming beyond the new threshold.

Finally, we contribute to the literature on the spillover effects of statutory retirement age reforms on other social insurance benefits (Rabaté and Rochut, 2020; Johnsen et al., 2022; Geyer and Welteke, 2021; Staubli and Zweimüller, 2013; Rabaté et al., 2024; Vestad, 2013; Hernæs et al., 2016, 2024). We find evidence of substitution into sickness and unemployment benefits, primarily driven by increased inflows into these social insurances following the reform. However, individuals do not appear to compensate for the loss of early public pension access by increasing their reliance on other pensions. Instead, they tend to postpone claiming these pensions as well, suggesting a preference to coordinate the timing of different pension income sources.

[5] A key institutional innovation in this context is the notional defined contribution (NDC) system, first implemented by Sweden in the late 1990s and later adopted by countries such as Norway, Italy, Latvia, and Poland.

2 Institutional background

2.1 The Swedish pension system

Similar to many other countries, the Swedish pension system is composed of three pillars: public pensions, occupational pensions, and private pensions. The public pension in Sweden is available to all individuals who have worked and paid taxes in the country, as well as to legal residents. The occupational pension system covers approximately 90 % of the workforce, through plans negotiated in union-employer organization bargaining (Hagen, 2017). Finally, private pensions consist of voluntary, individually managed pension insurance savings.[6]

The public pension itself consists of two main earnings-related components and one means-tested component. The Income Pension (*Inkomstpension*) is a notional defined contribution scheme, financed on a pay-as-you-go basis. Contributions amount to 16% of pensionable income, which includes both wages and social insurance benefits. Balances grow at a notional rate tied to average wage growth, and upon claiming are converted into an annuity. The Premium Pension (*Premiepension*) is a funded defined contribution scheme, with 2.5% of pensionable income invested in financial assets; individuals may choose how their contributions are allocated across a wide range of funds. Individuals with low lifetime earnings are entitled to the Guarantee pension (*Garantipension*), which provides a minimum income floor by supplementing low Income Pensions (Hagen et al., 2022).[7]

To understand retirement behavior and responses to the reform under study, three institutional features of the Swedish public pension system are particularly important: flexible claiming ages, broad actuarial fairness, and the decoupling of pension claiming from labor force exit.

First, *flexible claiming ages* mean that individuals can choose when to begin drawing their public pension, subject to two statutory age thresholds. The *early eligibility age* is the minimum age at which individuals can start drawing their earnings-related pension; this threshold was set at 61 until 2019, raised to 62 in 2020, and to 63 in 2023. The *guarantee pension age* is the minimum age for

[6] Contributions to private pension insurance schemes were tax-deductible until 2016, when the deduction was abolished for employees. It still applies for the self-employed without access to occupational pensions, with a maximum yearly deduction of 35% of business income up to 10 times the price base amount–SEK 573,000 in 2024.

[7] In the calculation of the Guarantee Pension, the Income Pension includes a value *corresponding* to the Premium Pension. However, this value does not take into account the investment returns of the funds in which the Premium Pension has been placed. As of 2025, the maximum monthly Guarantee pension is SEK 11,907 for single individuals and SEK 10,708 for married individuals.

claiming the Guarantee pension (*Garantipension*) for those with no, or low, Income Pension. It also marks the transition from working-age benefits—such as unemployment, sickness, and disability insurance—to the pension system. The guarantee pension age was 65 until 2022 and increased to 66 in 2023, when it became tied to the reference age (Riktålder).[8] To be able to claim the public pension before the Guarantee pension age, one must have worked and paid taxes in Sweden. There is no upper age limit for claiming public pensions.

Second, the pension system is broadly *actuarially fair*, meaning that the timing of pension claiming does not substantially affect the expected present value of lifetime benefits. Claiming earlier results in lower monthly benefits, while deferring increases them, leaving lifetime benefits roughly unchanged on average. While the system is designed to be actuarially fair, low-income earners receive additional support through the Guarantee pension. This element weakens the strict link between contributions and benefits. Importantly, the Guarantee pension is calculated as if the Income Pension were first claimed at the Guarantee pension age, regardless of the actual claiming age. This rule prevents individuals from increasing their Guarantee pension entitlement by claiming the Income Pension early, thereby preserving neutrality in the timing of claims of the earnings-related components.

Third, the *decoupling of claiming and retirement decisions* allows individuals to draw their public pension while remaining in the labor force, as there is no earnings test restricting work after claiming. This makes it possible to combine pension benefits with earnings, resulting in higher total income but also a higher effective tax burden. To counteract this, the tax system provides additional incentives for older workers. From the year a person turns 66, they receive both a higher basic allowance on pension income (*förhöjt grundavdrag*) and an enhanced earned income tax credit on labor income (*förstärkt jobbskatteavdrag*).[9] Thus, while the pension formula is actuarially neutral in gross terms, the tax reductions available from age 66 imply that neutrality does not hold after taxes. In practice, these provisions tilt incentives toward later claiming and continued work.

Sweden's employment rate among older workers is high compared to other European countries. According to the SHARE data (Survey of Health, Aging, and Retirement in Europe), shown in

[8] In addition, the Employment Protection Act (LAS) age sets the upper limit for statutory employment protection against involuntary dismissal. Before reaching this age, dismissals must be justified and follow seniority rules, but after reaching it employers may terminate employment without cause, provided one month's notice is given. While this age is relevant for labor market exit, it does not directly restrict pension claiming. The LAS age was 67 until 2019, raised to 68 in 2020, and to 69 in 2023.

[9] From 2023, the threshold was raised to 67 in line with the increase in the Guarantee pension age.

Figure B1 in the appendix, employment rates for both men and women in Sweden remain elevated from ages 55 to 64, with a marked drop at age 65.

2.2 The 2020 retirement age reform

Increasing life expectancy, and consequently, stronger longevity adjustment of public pension benefits, has led to concerns that the pension-claiming age has not kept pace. To address this issue, the Swedish Parliament (Riksdagen) decided in 2017 on a series of reforms aimed at extending individuals' working lives.

The reform introduced a three-step, phased increase in age thresholds. In the first step, implemented in 2020, the early eligibility age was raised from 61 to 62, and the LAS age was increased from 67 to 68 (ISF, 2023; Saez et al., 2023). In the second step, which took place in 2023, the early eligibility age was raised from 62 to 63, the LAS age from 68 to 69, and the guarantee pension age from 65 to 66. The third step is planned for 2026, when the early eligibility age is set to increase from 63 to 64, and the guarantee pension age will be linked to a reference age tied to life expectancy (Riktålder) (Regeringskansliet, 2017). This paper studies the increase in early eligibility age from 61 to 62 in 2020.

We anticipate several responses to the increase in the early eligibility age from 61 to 62. First, we expect a mechanical shift in the claiming age, with more individuals claiming at 62. Some may delay even further, prompted by greater awareness that deferring claims results in higher pension benefits. The expected effect on occupational and private pensions is ambiguous. Some individuals may use these pensions to bridge the gap until they reach the new early eligibility age, while others may postpone other pension claims together with delayed claiming of public pensions.

Regarding labor supply, individuals with lower liquidity are likely to continue working until the new minimum age, increasing employment rates among affected groups, while those with higher liquidity may rely on savings and other income sources to bridge the gap. In Sweden, it is relatively uncommon for individuals to claim the public pension early and fully retire from the labor market. In fact, most early claimants continue to work at least part-time. This implies that any labor supply response to the pension reform is likely to come both from individuals who would not have worked at all and from those who would otherwise claim benefits and remain employed.

Finally, we anticipate that some individuals turn to social insurance benefits as temporary

income sources until they regain access to public pensions. This may occur through two channels: individuals entering these social insurances to replace the lost pension income, or remaining on them longer if already enrolled. In the analysis, we therefore examine both inflows to and outflows from social insurance benefits to distinguish between these mechanisms.

3 Data

We use Swedish administrative data from the Longitudinal Integration Database for Health Insurance and Labor Market Studies (LISA), provided by Statistics Sweden. LISA covers all individuals registered in Sweden who are 16 years or older and provides rich demographic and socioeconomic information on an annual basis.

We sample individuals aged 61 to 63 and track them from 2015 to 2021, resulting in a sample of 1,024,975 individuals and 2,374,923 individual-year observations. We apply two restrictions to the data. First, we limit the sample to individuals who were registered as residents of Sweden on December 31 of the year they turned 60. Second, we include only individuals who had pensionable income between the ages of 38 and 60. These criteria ensure that the analysis focuses on individuals eligible to claim a public pension in Sweden. In addition, to mitigate the influence of extreme outliers, we winsorize disposable income and labor income at the 99.9th percentile within each year. After applying these restrictions, the sample size is reduced to 998,494 individuals and 2,317,395 individual-year observations.

We analyze eight main outcomes: claiming of public pensions, claiming of private or occupational pensions (*other pensions*), employment, labor income, disposable income, and receipt of sickness, disability, and unemployment benefits. Among these, labor income and disposable income are continuous variables measured annually in Swedish Krona at constant 2023 prices, while the remaining variables are binary.

Specifically, claiming public pension is coded as 1 if an individual receives benefits from the public pension system. Similarly, claiming other pension is coded as 1 if an individual receives either occupational or private pension benefits. Occupational pensions refer to second-pillar pensions provided through collectively agreed employer-based schemes, while private pension benefits denote payouts from individual pension insurance savings.

Employment is defined as having positive labor income, indicating active labor market par-

ticipation. Labor income includes earnings from employment and self-employment.[10] Disposable income is defined as the sum of all taxable and tax-exempt income minus taxes and other negative transfers. It includes capital gains and losses, such as those arising from the sale of assets like stocks, mutual funds, or real estate.

Receipt of sickness benefits is recorded as 1 if an individual receives sickness benefits, which are provided when work capacity is reduced by at least 25% due to illness, following the initial 14-day employer-provided benefit period. Receipt of disability benefits is coded as 1 if an individual transitions to disability benefits, typically in cases where work incapacity is deemed permanent. Finally, receipt of unemployment benefits takes the value of 1 for individuals actively seeking employment while receiving unemployment benefits.

4 Descriptive statistics

Table 1 presents descriptive statistics for the main outcome variables, as well as for key characteristics including age, gender, immigration background, self-employment, annual public pension, annual public pension conditional on claiming, and the share simultaneously working and claiming public pension.

The first two columns present statistics for the last pre-reform year (2019), while the last two columns cover the entire period from 2015 to 2021 for individuals aged 61 to 63.[11]

In 2019, 18% of individuals aged 61–63 claim their public pension. The average (annual) public pension is SEK 21,089, while those who claim receive an average of SEK 114,668. Additionally, 22% of individuals claim an occupational or private pension, and 13% receive their public pension while still working.

The employment rate among individuals in their early 60s is high, with around 80% employed, dropping from 83% at age 61 to 75% at age 63 (see Table C.1). Average annual labor income amounts to SEK 368,830, corresponding to roughly EUR 2,800 per month. The majority of those who claim their public pension early–around 70%–continue to work.[12]

[10] *Förvärvsinkomst*, as measured by the variable *ForvInk* in the LISA database.

[11] Table C.1 in the Appendix presents descriptive statistics for each age group, from 61 to 63, across both pre- and post-reform years.

[12] Appendix A provides further details on the distribution of working–claiming pension combinations over time (Figure A1) as well as descriptive statistics comparing individuals who combine work and pension claiming with the full sample (Table A1). Compared to the average individual, those who combine work and pension claims are more likely to draw other pensions, have somewhat lower labor earnings, and rely less on social insurance benefits. They

In terms of receipt of social insurance benefits, 4% of individuals receive unemployment benefits, 13% receive sickness benefits, and 13% receive disability benefits. The average age of the sample is, by construction, 62 years. Women make up 50% of the sample, 20% are foreign-born, and 10% are self-employed, primarily earning self-employment income. A comparison of the first two columns with the last two columns shows that the characteristics of individuals in the year prior to the reform closely resemble those observed in the full sample spanning 2015–2021.

Table 1: Descriptive statistics

	Year 2019		Full sample	
Claiming public pension	0.18	(0.39)	0.17	(0.37)
Public pension (SEK)	21,089	(52,759)	19,464	(51,330)
Public pension conditional on claiming	114,668	(66,364)	116,868	(66,602.81)
Receiving private pension and/or occupation pension	0.22	(0.41)	0.22	(0.41)
Claiming public pension and working	0.13	(0.33)	0.12	(0.32)
Employment (earnings>0)	0.80	(0.40)	0.79	(0.41)
Labor income (SEK)	368,830	(317,258)	363,050	(317,576)
Disposable income (SEK)	404,254	(417,671)	408,034	(446,961)
Receiving unemployment benefit (UI)	0.04	(0.20)	0.04	(0.20)
Receiving sickness benefit (SI)	0.13	(0.34)	0.14	(0.35)
Receiving disability insurance (DI)	0.13	(0.34)	0.14	(0.35)
Age	62	(0.82)	62	(0.82)
Female	0.50	(0.50)	0.50	(0.50)
Immigrant	0.20	(0.40)	0.19	(0.40)
Self-employed	0.10	(0.30)	0.10	(0.30)
Observations	333,786		2,317,395	

Note: This table presents descriptive statistics for the full sample, which includes the entire Swedish population aged 61–63 from 2015 to 2021, subject to two restrictions: individuals must have been registered as residents of Sweden at age 60 and must have had pensionable income between ages 38 and 60. A comparison is provided with a subsample of individuals in 2019, one year prior to the implementation of the early eligibility age reform. Standard deviations are presented in parentheses. Income variables are measured in Swedish Krona (SEK) at constant 2023 prices.

Figure 1 presents the average values of key variables along with their 95% confidence intervals across age and year. The age-year groups impacted by the reform—namely, 61-year-olds in 2020 and 2021 and 62-year-olds in 2021—are highlighted in red.

Panel (a) shows that prior to the 2020 reform, the probability of individuals aged 61 claiming a public pension was steady at around 10%. The employment rate remained consistent for 61-year-olds in the years leading up to the reform. Following the 2020 reform, however, the probability of public pension claims among 61-year-olds dropped from 0.10 to 0, reflecting the increase in the minimum public pension claiming age from 61 to 62. In 2021, the share of public pension claims

are also somewhat more often self-employed and less likely to be immigrants. Despite their lower labor income, their disposable income is higher on average, reflecting the additional pension income.

among 62-year-olds declined from approximately 17% to 13%.

Panel (b) illustrates trends in the probability of claiming other pensions . Across all ages, the probability of claiming other pensions consistently surpasses that of public pensions by approximately 2 to 5 percentage points, suggesting that some individuals choose to claim only their other pensions without claiming public pensions. Following the 2020 reform, the trend in claiming other pensions mirrors that of public pension claims–the probability of claiming other pensions among 61-year-olds declined by a few percentage points in both 2020 and 2021. This pattern suggests that individuals tend to delay claiming their other pensions when unable to claim their public pension, likely due to a preference for claiming all pensions simultaneously. Moreover, mirroring the trend in public pension claims, the share of individuals claiming other pensions at age 62 also declined in 2021.

Panels (c) and (d) illustrate employment and labor income trends. Panel (c) reveals that the average employment rate is approximately 80% for 61-year-olds, declining to around 75% for 63-year-olds. Panel (c) also shows that the reform did not affect employment rates for 61-year-olds in 2020. However, in 2021, employment rates rose for 62-year-olds, relative to prior years and to unaffected 63-year-olds. This increase is similarly reflected in Panel (d) with labor income trends: labor income for 62-year-olds in 2021 is higher than in previous years and compared to unaffected 63-year-olds.

Panels (f)–(h) show increases in unemployment, sickness, and disability benefit receipt across all age groups after 2020, likely influenced by the COVID-19 pandemic. In 2021, receipt among 62-year-olds exceeds both pre-reform levels and the rate for 63-year-olds, suggesting that the reform may have increased reliance on social insurance benefits.

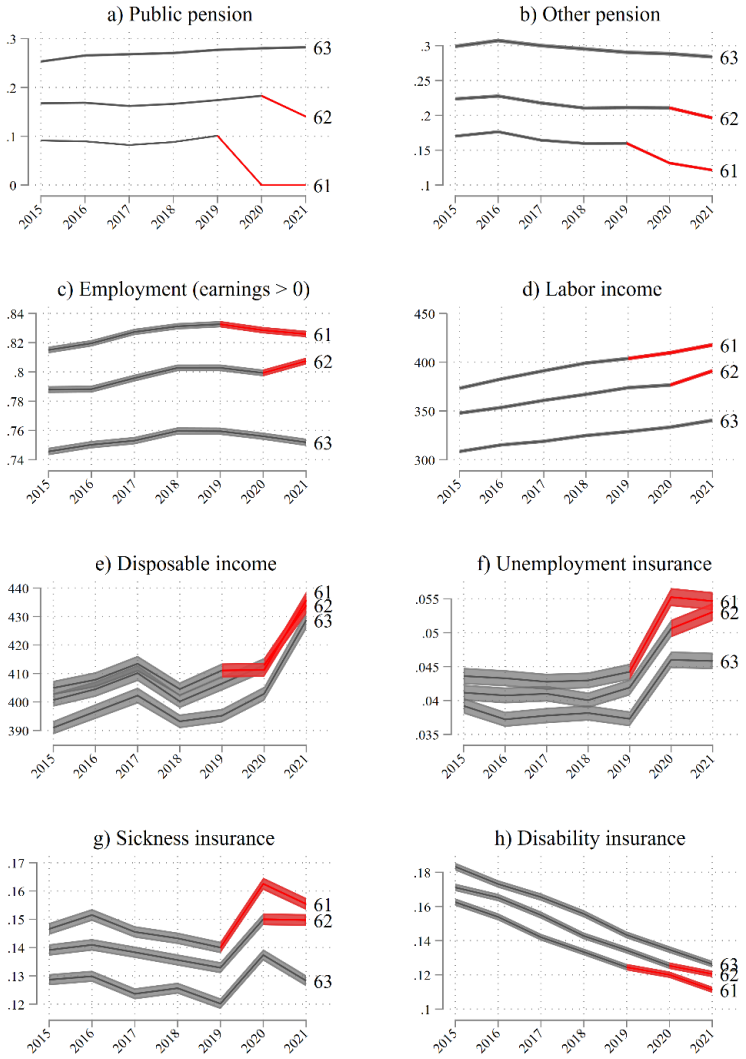
Panel (e) illustrates that disposable income increases across all age groups in 2021. This rise is attributed to several policies implemented to mitigate the economic effects of COVID-19, which collectively contributed to higher disposable incomes in 2021.[13] Comparing trends across age groups, a convergence in disposable income is observed for 61-year-olds after 2020 and for 62-year-olds after 2021, bringing their levels closer to those of 63-year-olds. However, the panel does not clearly reveal any distinct impact of the reform on disposable income.

While Figure 1 provides preliminary evidence of the reform's impact by illustrating changes

[13]These measures included a temporary tax reduction of up to SEK 1,500 per person in 2021, enhanced unemployment benefits, and an increased housing allowance for families with children (Angelov and Waldenström, 2023).

among affected individuals—specifically, 61-year-olds after 2020 and 62-year-olds after 2021—in comparison to unaffected 63-year-olds, the subsequent section employs a regression approach to quantify the reform's effects.

Figure 1: Trends in outcome variables before and after the 2020 reform



Note: This figure shows the average value along with the 95% confidence interval of the main outcome variables: claiming public pension, claiming other pensions, employment, labor income, disposable income, receipt of sickness benefits, receipt of disability benefits, and receipt of unemployment benefits. Labor income and disposable income are measured in 1000s of Swedish Krona (1 EUR ≈ 11 SEK) at an annual frequency. The age-year groups impacted by the reform—61-year-olds in 2020 and 2021 and 62-year-olds in 2021—are highlighted in red.

5 Empirical framework

We employ a difference-in-differences (DiD) approach to estimate the impact of the reform, which increased the early eligibility age for public pensions from 61 to 62, on key outcome variables. The study period spans 2015–2021, during which individuals aged 63 were unaffected by the reform and therefore serve as the comparison group. The two treatment groups consist of individuals aged 61 and 62, who were impacted by the reform starting in 2020 and 2021, respectively.

The model is specified as follows:

$$Y_{iat} = \alpha + \gamma_a + \gamma_t + \sum_{\substack{t=2015 \\ t\neq 2019}}^{2021} \sum_{\substack{a=61 \\ a\neq 63}}^{63} \beta_{at}(D_a \times D_t) + \theta Gend_i + \eta Immig_i + \epsilon_{iat} \tag{1}$$

where Y_{iat} denotes the outcome variable for individual i of age a in year t, γ_a represents age fixed effects and capture level differences for 61 and 62-year-olds relative to 63-year-olds, and γ_t denotes year fixed effects that capture level differences over time relative to 2019.

Our main coefficient of interest is β_{at}, which captures the interaction effects between specific years and age groups. The term $D_a \times D_t$ represents the interaction between age- and year-specific dummy variables. Each β_{at} coefficient measures the differential impact of being in age group a in year t on the outcome variable Y_{iat}, relative to the baseline of age 63 and year 2019. Sixty-one-year-olds should be affected in 2020 and 2021, while 62-year-olds should be affected in 2021. $Gend_i$ and $Immig_i$ are dummy variables that denote gender and being born in a country other than Sweden, respectively.

We estimate Equation (1) by ordinary least squares (OLS) for binary outcomes and Poisson regression for labor income and disposable income. We cluster standard errors at the individual level. Continuous income variables are often log- or IHS-transformed when percentage rather than absolute changes are assumed to evolve in parallel over time. Yet such transformations depend on the units of measurement (Chen and Roth, 2024), which matters when effects arise at the extensive margin (e.g., shifts from 0 to 1). In this case, the implied valuation of changes is unit-dependent. Poisson regression circumvents this by not defining percentage changes at the individual level, instead focusing on the treatment group level, where the outcome is never zero. The coefficients from Poisson regression can still be interpreted similarly to those from a log-based model—i.e., as approximate percentage changes—albeit at the group level rather than for individual observations.

For a causal interpretation, the parallel trends assumption must hold; that is, the outcome variables for the affected groups (individuals aged 61 and 62) and the comparison group (individuals aged 63) would have developed in parallel in the absence of the reform. Figure 2 and Table 2 support this assumption, showing that the estimated β coefficients, which capture the differences between the affected groups and the comparison group across various years relative to 2019, are not statistically significant from 2015 to 2019.

A potential concern for identification is that the estimated effect in Equation (1) may partly reflect cohort differences rather than the reform itself. To assess this, Figure B2 plots labor income, employment, and public pension claiming by age across cohorts. For labor income in Panel (a), the upward shifts reflect real income growth, with each successive cohort earning more at a given age than earlier ones. The age profiles do not exhibit substantial cohort breaks among unaffected cohorts or among affected cohorts at ages below 61. The potential effect of the reform is reflected in the endpoints of the 1959 and 1960 cohort lines, which decline less sharply at ages 61–62 than would be expected based on earlier cohorts. For employment in Panel (b), levels and trends appear broadly similar across cohorts. However, the 1959-1961 cohorts—those affected by the reform—deviate slightly from the expected trajectory, exhibiting a somewhat steeper decline before age 61. These minor deviations suggest a potential downward bias in the estimated employment effect in Equation (1), implying that the true impact of the reform on employment may be larger than estimated. Finally, Panel (c) shows that both the levels and trends in public pension claiming among unaffected cohorts are relatively stable, indicating consistent preferences for the timing of claiming across birth cohorts.

6 Main results

Figure 2 and Table 2 present the estimated effect of the reform obtained from Equation (1) on the key outcome variables.

6.1 Pension claims

Panel (a) shows that, from the reform year 2020, the share of individuals claiming their public pension at age 61 decreased by 10 percentage points. This reduction reflects the reform's mechanical impact, as the 10 percent of individuals who would have claimed their pension at age 61 became

ineligible. Moreover, the share of individuals claiming their pension at age 62 also decreased, by 4 percentage points. Thus, not all individuals who become ineligible to claim at age 61 choose to claim at 62; instead, approximately 40% of those who would have claimed at 61 postpone claiming beyond the new early eligibility age of 62.

While the individual-level micro data on pension claiming in this study is limited to 2021, we utilize aggregated data from the Swedish Pension Agency on public pension claims up to 2023 to examine how long the postponement of public pensions persists. In the Appendix, Figure B2, we plot the share of public pension claims by age (61 to 64) and birth cohort (1956 to 1961). The figure illustrates that while the share of claims at age 62 is lower for the two treated cohorts (1959 and 1960), reflecting the spillover effect to age 62, the shares almost converge at age 63. This suggests that most individuals who postponed claiming beyond age 62 end up claiming in the year they turn 63.

Panel (b) displays the estimated effects on the probability of claiming other types of pensions, including occupational and private pensions. While individuals may tap into these pensions to offset the financial impact of delayed public pension eligibility, they may also postpone these pensions if they prefer to claim all their pensions simultaneously. We document an almost 3 percentage point reduction ($\approx 16\%$) in claiming other pensions among 61-year-olds in 2020 and 2021 and a 0.8 percentage points ($\approx 4\%$) decrease among 62-year-olds in 2021. These results suggest that at least a subset of individuals coordinates the timing of various pension benefits, potentially seeking to maintain a single retirement date. Moreover, the results highlight that changes in public pension rules can spill over into private retirement decisions.

6.2 Labor supply and disposable income

Panels (c) and (d) show the effects of the reform on employment and labor income. In Panel (c), there is no employment effect at age 61; however, at age 62 in 2021, there is a positive effect of 1.3 percentage points ($\approx 16\%$). Similarly, Panel (d) shows that while there are no statistically significant effects on labor income at age 61, there is a positive effect of around 1 percent for individuals aged 62 in 2021.

Panel (e) shows that disposable income fell by nearly 2%, relative to a baseline of about SEK 410,000. This decline suggests that the negative impact of postponing public pension benefits

exceeds any financial gains from increased labor earnings and higher receipt of social insurance benefits.

6.3 Social insurance benefits

Turning to the effects of the reform on receipt of social insurance benefits in panels (f) and (g), Panel (f) shows that the receipt of unemployment benefits increased by around 0.2 percentage points ($\approx 4\%$) at both ages 61 and 62 following the reform. Panel (g) shows that the share of individuals receiving sickness benefits rose by 0.6 percentage points ($\approx 4\%$) at age 61 and by 0.8 percentage points ($\approx 4\%$) at age 62. Finally, while the effect of the reform on disability benefits receipt is not statistically significant, the point estimates suggest a small increase of approximately 0.3 percentage points.

Although these increases in receipt of social insurance benefits may partly reflect the effects of the COVID-19 pandemic, the results for 62-year-olds point more strongly to a reform-driven effect. For all three outcomes, in 2020, when the pandemic began, there was no increase for 62-year-olds—yet a clear uptick appeared in 2021, precisely as this age group became subject to the reform, suggesting that the reform was the primary driver.

Figure B5 breaks down the effects of the reform on the inflows and outflows of social insurance benefits, as illustrated in panels (f)–(h) of Figure 2. Inflows are defined as a dummy variable equal to one if an individual receives a benefit in year t but not in $t-1$. The inflow analysis sample is restricted to individuals who did not receive the benefit in $t-1$, ensuring that we capture only new entrants to the social insurance rather than ongoing recipients. Outflows are defined as having no benefit in year t, conditional on having received the benefit in $t-1$. For the outflow analysis, the sample is restricted to those with positive income from the benefit in $t-1$, allowing us to track exits from the social insurance while excluding individuals who may have already discontinued their participation before the observation period.

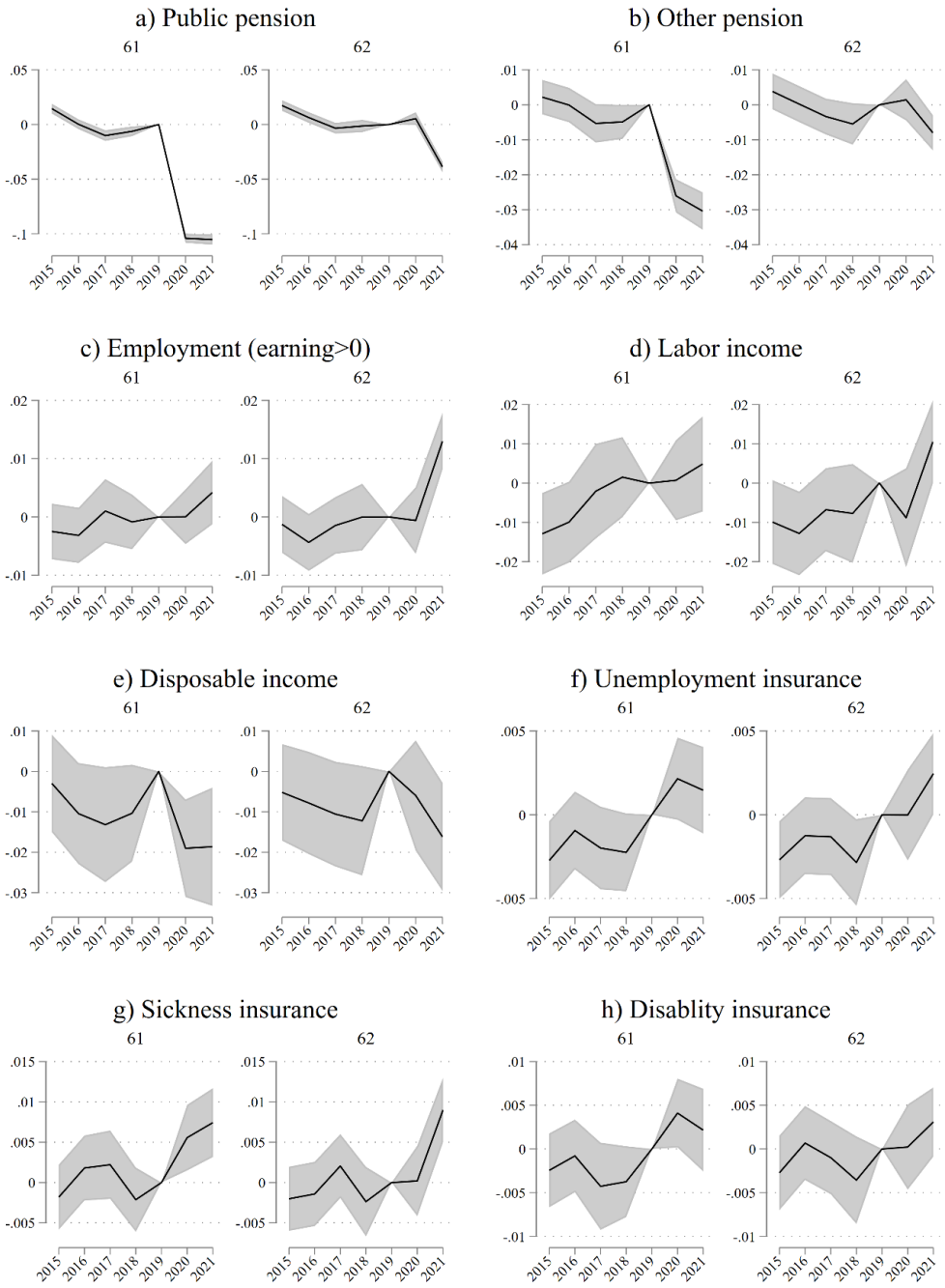
The results show that the increase in unemployment benefits at age 61, illustrated in Figure 2, is driven by an increased inflow, while there is no significant effect on reduced outflows. The findings for sickness benefits indicate an increased inflow at age 61 in both 2020 and 2021, as well as at age 62 in 2021. Additionally, this social insurance creates a negative and significant effect on outflows. These results suggest that the increase in the early eligibility age generated

both a mechanical effect–longer duration on unemployment and sickness benefits due to reduced outflows–and a substitution effect through increased inflows.

The estimates for disability benefits are overall insignificant except for age 62 in 2021, where a marginally *lower* inflow to disability benefits is observed. Due to the more permanent nature of disability benefits, the flows in and out of the social insurance are at much lower levels compared to sickness benefits, making interpretations more challenging.

The increased inflows to sickness benefits and unemployment insurance may partly reflect the absence of retirement as an option for individuals who become unemployed or ill. Before the reform, some may have opted for early pension claiming instead of applying for sickness or unemployment benefits, even if the latter were financially more advantageous. By making early public pension access unavailable at 61, the reform directly changed incentives, forcing individuals to consider alternative income sources. However, it may have also influenced behavior—raising awareness of social insurance benefits, increasing application efforts, or shifting perceptions of these benefits as a viable alternative. Because these changes occurred simultaneously, it is difficult to disentangle whether the rise in social insurance benefit receipt was driven primarily by financial incentives, increased application effort, heightened awareness, or other behavioral responses.

Figure 2: Effects of the 2020 early eligibility age reform



Note: This figure shows estimation results from Equation (1), examining the impact of the 2020 early eligibility age reform on: (a) public pension claiming, (b) other pension claiming, (c) employment, (d) labor income, (e) disposable income, (f) sickness benefit receipt, (g) disability benefit receipt, and (h) unemployment benefit receipt. OLS is applied to binary outcomes and Poisson regression to continuous outcomes, respectively. Robust standard errors are clustered at the individual level.

Table 2: Effect of the 2020 early eligibility age reform

	(1) Public pension		(2) Other pension		(3) Employment (earnings>0)		(4) Labor income		(5) Disposable income		(6) Unemployment insurance		(7) Sickness insurance		(8) Disability insurance	
Age=61	-0.176***	(0.00162)	-0.130***	(0.00175)	0.0746***	(0.00169)	0.208***	(0.00366)	0.0412***	(0.00433)	0.00674***	(0.000838)	0.0200***	(0.00142)	-0.0195***	(0.00143)
Age=62	-0.103***	(0.00176)	-0.0789***	(0.00182)	0.0443***	(0.00174)	0.131***	(0.00377)	0.0302***	(0.00436)	0.00452***	(0.000826)	0.0126***	(0.00141)	-0.00962***	(0.00146)
year=2015	-0.0252***	(0.00188)	0.00669***	(0.00194)	-0.0176***	(0.00183)	9.141***	(0.00406)	9.195***	(0.00433)	0.00246**	(0.000818)	0.00815***	(0.00141)	0.0416***	(0.00156)
year=2016	-0.0125***	(0.00189)	0.0153***	(0.00194)	-0.0123***	(0.00182)	-0.0467***	(0.00403)	0.0000914	(0.00453)	0.000362	(0.000806)	0.00942***	(0.00141)	0.0312***	(0.00154)
year=2017	-0.00938***	(0.00190)	0.00905***	(0.00195)	-0.00763***	(0.00183)	-0.0318***	(0.00403)	0.0169***	(0.00469)	0.000681	(0.000814)	0.00329*	(0.00140)	0.0225***	(0.00154)
year=2018	-0.00678***	(0.00190)	0.00447*	(0.00193)	-0.000962	(0.00181)	-0.0131**	(0.00400)	-0.00547	(0.00439)	0.00106	(0.000812)	0.00521***	(0.00140)	0.0126***	(0.00151)
year=2020	0.00353	(0.00190)	-0.00156	(0.00192)	-0.00254	(0.00181)	0.0163***	(0.00399)	0.0214***	(0.00440)	0.00865***	(0.000848)	0.0171***	(0.00142)	-0.00928***	(0.00146)
year=2021	0.00582**	(0.00191)	-0.00580**	(0.00192)	-0.00636***	(0.00182)	0.0368***	(0.00402)	0.0834***	(0.00487)	0.00838***	(0.000849)	0.00813***	(0.00140)	-0.0178***	(0.00144)
Age=61 × year=2015	0.0145***	(0.00226)	0.00221	(0.00250)	-0.00249	(0.00243)	-0.0128*	(0.00529)	-0.00301	(0.00614)	-0.00273*	(0.00120)	-0.00180	(0.00205)	-0.00245	(0.00215)
Age=61 × year=2016	0.000200	(0.00226)	-0.0000709	(0.00251)	-0.00316	(0.00242)	-0.00982	(0.00525)	-0.0105	(0.00638)	-0.000939	(0.00118)	0.00181	(0.00205)	-0.000795	(0.00212)
Age=61 × year=2017	-0.0101***	(0.00247)	-0.00530	(0.00280)	0.00102	(0.00279)	-0.00220	(0.00615)	-0.0132	(0.00726)	-0.00198	(0.00126)	0.00221	(0.00216)	-0.00427	(0.00254)
Age=61 × year=2018	-0.00623**	(0.00226)	-0.00490*	(0.00248)	-0.000851	(0.00239)	0.00157	(0.00520)	-0.0104	(0.00611)	-0.00224	(0.00118)	-0.00212	(0.00203)	-0.00374	(0.00206)
Age=61 × year=2020	-0.104***	(0.00210)	-0.0260***	(0.00243)	0.0000332	(0.00239)	0.000644	(0.00520)	-0.0191**	(0.00615)	0.00215	(0.00125)	0.00557**	(0.00207)	0.00410*	(0.00201)
Age=61 × year=2021	-0.105***	(0.00239)	-0.0304***	(0.00272)	0.00420	(0.00278)	0.00527	(0.00617)	-0.0188*	(0.00745)	0.00146	(0.00132)	0.00743***	(0.00217)	0.00215	(0.00241)
Age=62 × year=2015	0.0174***	(0.00246)	0.00383	(0.00261)	-0.00126	(0.00249)	-0.0101	(0.00544)	-0.00519	(0.00609)	-0.00269*	(0.00118)	-0.00201	(0.00202)	-0.00273	(0.00217)
Age=62 × year=2016	0.00638*	(0.00248)	0.000208	(0.00262)	-0.00436	(0.00249)	-0.0128*	(0.00543)	-0.00786	(0.00646)	-0.00125	(0.00117)	-0.00141	(0.00203)	0.000678	(0.00216)
Age=62 × year=2017	-0.00342	(0.00248)	-0.00336	(0.00261)	-0.00145	(0.00249)	-0.00695	(0.00540)	-0.0105	(0.00661)	-0.00131	(0.00117)	0.00205	(0.00202)	-0.000996	(0.00214)
Age=62 × year=2018	-0.00135	(0.00287)	-0.00547	(0.00302)	-0.0000126	(0.00291)	-0.00791	(0.00642)	-0.0122	(0.00690)	-0.00285*	(0.00132)	-0.00236	(0.00220)	-0.00357	(0.00255)
Age=62 × year=2020	0.00543	(0.00290)	0.00143	(0.00301)	-0.000605	(0.00291)	-0.00906	(0.00643)	-0.00596	(0.00696)	-0.0000155	(0.00138)	0.000202	(0.00223)	0.000223	(0.00248)
Age=62 × year=2021	-0.0387***	(0.00245)	-0.00800**	(0.00256)	0.0130***	(0.00246)	0.0104	(0.00538)	-0.0162*	(0.00682)	0.00245*	(0.00124)	0.00898***	(0.00203)	0.00310	(0.00201)
Female	-0.0185***	(0.000674)	-0.00835***	(0.000778)	-0.00806***	(0.000790)	-0.225***	(0.00303)	-0.235***	(0.00343)	-0.0110***	(0.000355)	0.0438***	(0.000570)	0.0651***	(0.000735)
Immigrant	-0.0506***	(0.000788)	-0.0717***	(0.000909)	-0.141***	(0.00114)	-0.255***	(0.00504)	-0.195***	(0.00487)	0.0188***	(0.000500)	-0.00682***	(0.000720)	0.0707***	(0.00103)
Constant	0.296***	(0.00140)	0.309***	(0.00143)	0.791***	(0.00134)	12.85***	(0.00320)	13.03***	(0.00352)	0.0391***	(0.000601)	0.0997***	(0.00101)	0.0973***	(0.00109)
Observations	2,317,395		2,317,395		2,317,395		2,317,395		2,317,395		2,317,395		2,317,395		2,317,395	

Note: This table presents estimation results from Equation (1), examining the impact of the 2020 early eligibility age reform. Column (1) reports the probability of receiving a public pension in a given year, while Column (2) shows the probability of receiving other pensions. Column (3) presents employment, defined as having positive labor income. Column (4) reports labor income, and Column (5) covers disposable income. Columns (6), (7), and (8) display the probability of receiving unemployment benefits, sickness benefits, and disability benefits, respectively. OLS is used for binary outcomes, while Poisson regression is used for continuous outcomes. Robust standard errors are clustered at the individual level. The sample includes individuals aged 61–63 during 2015–2021.

7 Heterogeneous effects

In this section, we examine whether the reform affected different groups differently. Specifically, we study heterogeneity by disposable income at age 60, propensity to claim the public pension at the earliest age, gender, self-employment status, and immigration background. These estimations disaggregate the average effects shown in the previous section to shed light on the mechanisms underlying the reform's impact.

7.1 Effects by disposable income quartiles at age 60

Table 3 presents the estimates from Equation (1) when the sample is divided by quartiles of disposable income at age 60. To aid readability, only the estimated coefficients for the post-reform years–2020 and 2021–are included in the table, see Figure B3 for a plot of the coefficients for all years.

The findings in Table 3 show that the reform's effect on public pension claims is more pronounced among individuals in the first and second disposable income quartiles. These groups are also more likely to postpone claiming other pensions compared to higher-income groups. Overall, the results suggest that neither low- nor high-income individuals compensate for the higher claiming age by drawing on private pensions.

The reform's effects on employment and social insurance benefit receipts are statistically significant only among individuals in the two middle-income quartiles, while they remain insignificant for those in the lowest and highest quartiles. For high-income individuals, the weak response is likely due to limited reliance on public pensions at these ages; they tend to continue working regardless of changes to the early eligibility age, and thus neither their employment nor their benefit receipt is affected. Among low-income individuals, the absence of significant effects may reflect pre-existing labor market conditions. Many in this group are already out of the labor force, working marginal hours, or receiving social insurance benefits, leaving limited scope to adjust their labor supply or receipt of social insurance benefits in response to the reform.[14]

To better understand these dynamics, we re-estimate the effects on employment and labor income after excluding individuals who were not working at age 60. We then re-rank the remaining

[14]Table C.4 shows that only 44% of individuals in the lowest income quartile had positive labor income at age 60, compared to more than 95% in the three upper quartiles.

sample into income quartiles based on disposable income. The results, presented in Figure B6 and Table C.4, show that once non-working individuals are excluded, the reform's labor supply effects are concentrated in the two lowest income quartiles. In particular, among individuals in the bottom quartile, employment increases by 4 percentage points and labor income rises by 7 percent. These results suggest that liquidity constraints may have led low-income individuals who were still attached to the labor market to work more or delay retirement in response to the reform.

The reform's impact on disposable income is most pronounced among individuals in the lowest income quartile, who experience a reduction of approximately 8% in disposable income at age 61. This decline reflects the loss of public pension income without an offsetting increase in employment or a substantial rise in social insurance benefit receipt. Consequently, low-income individuals may face financial strain due to the reform, potentially having to rely on private savings or other informal support to bridge the gap until they reach the new early eligibility age.

Moreover, once the non-working population is excluded, the effect of the reform on disposable income in the lowest quartile becomes statistically insignificant (see Table C.4). This suggests that individuals with some attachment to the labor market were able to offset the reduction in public pension income at age 61—either by increasing their labor supply or by relying more on social insurance or unemployment benefits—leaving their disposable income largely unaffected. In contrast, among those not working prior to the reform, disposable income declined significantly, reflecting limited capacity to adjust through work or benefit receipt.

Table 3: Effects by disposable income quartiles at age 60

	Q1	Q2	Q3	Q4
a) Public pension				
Age=61 × year=2020	-0.163*** (0.004)	-0.105*** (0.004)	-0.069*** (0.004)	-0.080*** (0.004)
Age=61 × year=2021	-0.167*** (0.005)	-0.107*** (0.005)	-0.075*** (0.005)	-0.072*** (0.005)
Age=62 × year=2020	0.002 (0.006)	0.010 (0.006)	0.012* (0.006)	-0.003 (0.006)
Age=62 × year=2021	-0.052*** (0.005)	-0.037*** (0.005)	-0.029*** (0.005)	-0.039*** (0.005)
b) Other pension				
Age=61 × year=2020	-0.048*** (0.005)	-0.028*** (0.005)	-0.017*** (0.005)	-0.011* (0.005)
Age=61 × year=2021	-0.047*** (0.005)	-0.037*** (0.005)	-0.026*** (0.005)	-0.012* (0.006)
Age=62 × year=2020	-0.011 (0.006)	0.013* (0.006)	0.006 (0.006)	-0.002 (0.006)
Age=62 × year=2021	-0.017** (0.005)	-0.002 (0.005)	-0.006 (0.005)	-0.007 (0.005)
c) Employment (Earnings> 0**)**				
Age=61 × year=2020	-0.003 (0.006)	-0.001 (0.004)	0.000 (0.003)	0.003 (0.003)
Age=61 × year=2021	0.002 (0.007)	0.007 (0.004)	0.005 (0.003)	-0.007 (0.004)
Age=62 × year=2020	0.007 (0.007)	-0.003 (0.005)	-0.002 (0.003)	0.000 (0.004)
Age=62 × year=2021	0.012* (0.006)	0.020*** (0.004)	0.014*** (0.003)	0.005 (0.003)
d) Labor income				
Age=61 × year=2020	0.019 (0.021)	0.005 (0.006)	-0.000 (0.005)	-0.002 (0.008)
Age=61 × year=2021	0.001 (0.024)	0.013 (0.007)	0.010 (0.005)	-0.015 (0.009)
Age=62 × year=2020	0.024 (0.026)	-0.010 (0.008)	-0.015* (0.006)	-0.001 (0.009)
Age=62 × year=2021	0.032 (0.021)	0.020** (0.007)	0.010 (0.005)	0.003 (0.008)
e) Disposable income				
Age=61 × year=2020	-0.025 (0.014)	-0.016* (0.007)	-0.003 (0.006)	-0.028* (0.012)
Age=61 × year=2021	-0.077*** (0.016)	-0.012 (0.008)	-0.001 (0.007)	-0.027 (0.014)
Age=62 × year=2020	0.002 (0.015)	0.004 (0.008)	0.002 (0.007)	-0.011 (0.013)
Age=62 × year=2021	-0.053** (0.015)	-0.009 (0.008)	-0.006 (0.007)	-0.015 (0.013)
f) Unemployment insurance				
Age=61 × year=2020	-0.001 (0.003)	0.010** (0.003)	-0.000 (0.002)	-0.001 (0.002)
Age=61 × year=2021	0.004 (0.003)	0.002 (0.003)	-0.001 (0.002)	0.002 (0.002)
Age=62 × year=2020	-0.003 (0.003)	0.003 (0.003)	0.000 (0.003)	-0.001 (0.002)
Age=62 × year=2021	0.002 (0.003)	0.005 (0.003)	-0.000 (0.002)	0.002 (0.002)
g) Sickness insurance				
Age=61 × year=2020	0.001 (0.004)	0.010* (0.005)	0.009* (0.004)	0.002 (0.003)
Age=61 × year=2021	0.004 (0.004)	0.010* (0.005)	0.011* (0.005)	0.004 (0.004)
Age=62 × year=2020	-0.003 (0.004)	0.002 (0.005)	0.005 (0.005)	-0.004 (0.004)
Age=62 × year=2021	0.005 (0.004)	0.013** (0.005)	0.013** (0.004)	0.004 (0.003)
h) Disability insurance				
Age=61 × year=2020	0.004 (0.006)	0.012** (0.004)	0.003 (0.002)	-0.002 (0.002)
Age=61 × year=2021	-0.001 (0.007)	0.014** (0.004)	0.004 (0.002)	-0.001 (0.002)
Age=62 × year=2020	-0.005 (0.007)	0.001 (0.004)	0.002 (0.002)	-0.001 (0.002)
Age=62 × year=2021	0.002 (0.006)	0.010** (0.004)	0.003 (0.002)	-0.002 (0.002)
Observations	570,920	581,455	582,933	582,087

Note: This table presents the estimated effects of the 2020 early eligibility age reform on key outcome variables stratified by quartiles of disposable income at age 60. The coefficients are obtained from Equation (1), with each subsample covering individuals from 2015 to 2021. OLS is used for binary outcomes, while Poisson regression is used for continuous outcomes. Robust standard errors are clustered at the individual level. Statistical significance is denoted by * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

7.2 Effects by early claiming propensity quartiles

To focus on individuals most likely to be affected by the reform–those intending to claim at age 61–we model the probability of claiming the public pension at 61 using covariates measured at age 60. Specifically, we restrict the sample to individuals who turned 61 in pre-reform years and estimate this probability with the following logistic regression model:

$$P_{it} = \alpha + X_{it}\beta + u_{it}, \tag{2}$$

where P_{it} is the probability of individual i claiming public pension at age 61 in year t and X_{it} includes covariates measured at age 60, including gender, deciles of disposable income, self-employment status, region, marital status, education level, immigration status, and year.

Table C.2 presents the average marginal effects. These results show that the probability of claiming public pension is 5–10 percentage points lower for individuals in the lowest income decile compared to the other deciles. The relationship between income and early claiming is not linear: individuals in the top decile are about as likely to claim at 61 as those in the middle deciles. We also find that the propensity to claim at age 61 is higher among self-employed individuals, natives, married, those living in smaller regions, and those with lower education levels. These patterns align with (ISF, 2023), which found that although early claiming more often occurs among socioeconomically disadvantaged groups, such as those with low income, low education, or working in less skilled and manual jobs, there are some high-income individuals, particularly those in managerial roles within the top income decile, also tend to claim early.

We used the estimated model to predict the propensity to claim public pension at age 61 for individuals turning 61 in 2020 and 2021. For each combination of age and year, the predicted probabilities were grouped into quartiles. R1 denotes the quartile with the lowest predicted propensity to claim public pension at 61, while R4 denotes the group with the highest.

Table 4 presents the estimation results of Eq. (1) for the post-reform years (2020 and 2021), complemented by Figure B4 showing coefficients for all years. The findings indicate that the reform's impact on both public and other pension claims becomes progressively stronger across higher propensity subgroups, with the most pronounced effects observed in the subgroup with the highest propensity to claim public pension benefits (R4).

The reform's effects on employment and labor income are strongest in the highest propensity

quartile (R4), suggesting that individuals in this group were most likely to adjust their labor market participation in response to the reform, while this adjustment was less evident in lower-propensity groups.

The impact on disposable income similarly becomes more pronounced across propensity subgroups. There is no statistically significant effect in R1 and R2, while disposable income falls by 4% in R3 and by 5–6% in R4. This pattern is consistent with the stronger reductions in both public and other pension claims observed among higher-propensity individuals, who are therefore more exposed to income losses when early access to public pensions is delayed

Receipt of social insurance benefits, particularly for sickness, and disability benefits, suggests some substitution effects. Higher-propensity groups (R3 and R4) show increased reliance on these social insurances, indicating that individuals who might have claimed pensions early instead turned to social insurance when the claiming age was raised.

Table 4: Effects by early claiming propensity quartiles

	R1	R2	R3	R4
a) Public pension				
Age=61 × year=2020	-0.058*** (0.004)	-0.077*** (0.004)	-0.106*** (0.004)	-0.175*** (0.005)
Age=61 × year=2021	-0.059*** (0.004)	-0.079*** (0.005)	-0.102*** (0.005)	-0.184*** (0.005)
Age=62 × year=2020	0.001 (0.005)	0.009 (0.006)	-0.005 (0.006)	0.017** (0.007)
Age=62 × year=2021	-0.029*** (0.004)	-0.031*** (0.005)	-0.041*** (0.005)	-0.054*** (0.005)
b) Other pension				
Age=61 × year=2020	-0.014** (0.005)	-0.017*** (0.005)	-0.031*** (0.005)	-0.043*** (0.005)
Age=61 × year=2021	-0.025*** (0.005)	-0.023*** (0.005)	-0.031*** (0.006)	-0.043*** (0.006)
Age=62 × year=2020	0.003 (0.006)	0.010 (0.006)	-0.001 (0.006)	-0.007 (0.006)
Age=62 × year=2021	-0.011* (0.005)	0.000 (0.005)	-0.008 (0.005)	-0.014** (0.005)
c) Employment (Earnings>0**)**				
Age=61 × year=2020	-0.003 (0.004)	0.005 (0.004)	-0.014** (0.005)	0.009 (0.006)
Age=61 × year=2021	-0.001 (0.004)	0.009 (0.005)	-0.005 (0.005)	0.022** (0.007)
Age=62 × year=2020	-0.004 (0.005)	0.004 (0.005)	-0.014* (0.006)	0.008 (0.007)
Age=62 × year=2021	0.001 (0.004)	0.021*** (0.004)	0.001 (0.005)	0.026*** (0.006)
d) Labor income				
Age=61 × year=2020	-0.011 (0.008)	0.009 (0.008)	-0.015 (0.011)	0.032* (0.014)
Age=61 × year=2021	-0.004 (0.009)	0.025** (0.009)	0.003 (0.013)	0.046** (0.016)
Age=62 × year=2020	-0.023* (0.009)	-0.005 (0.009)	-0.016 (0.014)	0.002 (0.017)
Age=62 × year=2021	-0.006 (0.008)	0.020* (0.008)	-0.004 (0.012)	0.046** (0.014)
e) Disposable income				
Age=61 × year=2020	-0.002 (0.009)	-0.007 (0.009)	-0.039** (0.014)	-0.046** (0.018)
Age=61 × year=2021	0.002 (0.011)	0.003 (0.011)	-0.026 (0.017)	-0.054* (0.021)
Age=62 × year=2020	-0.003 (0.010)	-0.004 (0.010)	-0.017 (0.016)	-0.012 (0.020)
Age=62 × year=2021	0.017 (0.011)	-0.005 (0.010)	-0.042** (0.015)	-0.056** (0.019)
f) Unemployment insurance				
Age=61 × year=2020	0.002 (0.002)	0.002 (0.003)	0.005* (0.003)	-0.001 (0.003)
Age=61 × year=2021	0.000 (0.003)	0.002 (0.003)	0.001 (0.003)	0.001 (0.003)
Age=62 × year=2020	-0.001 (0.003)	0.005 (0.003)	0.001 (0.003)	-0.006* (0.003)
Age=62 × year=2021	-0.000 (0.002)	0.005 (0.003)	0.002 (0.003)	0.003 (0.003)
g) Sickness insurance				
Age=61 × year=2020	0.003 (0.004)	0.009* (0.004)	0.005 (0.004)	0.004 (0.004)
Age=61 × year=2021	0.009* (0.004)	0.005 (0.004)	0.006 (0.005)	0.008 (0.004)
Age=62 × year=2020	0.002 (0.005)	-0.001 (0.005)	-0.003 (0.005)	0.002 (0.004)
Age=62 × year=2021	0.010* (0.004)	0.008* (0.004)	0.005 (0.004)	0.011** (0.004)
h) Disability insurance				
Age=61 × year=2020	0.003 (0.003)	0.001 (0.004)	0.020*** (0.004)	-0.008 (0.005)
Age=61 × year=2021	0.000 (0.004)	0.001 (0.004)	0.008 (0.005)	-0.007 (0.006)
Age=62 × year=2020	0.004 (0.004)	-0.004 (0.004)	0.017** (0.005)	-0.015* (0.006)
Age=62 × year=2021	0.005 (0.003)	-0.002 (0.004)	0.018*** (0.004)	-0.009 (0.005)
Observations	580,860	581,837	576,981	577,717

Note: This table presents the estimated effects of the 2020 early eligibility age reform for subsamples categorized by the propensity to claim a public pension at age 61. The coefficients are obtained from Equation (1) for each subsample. OLS is used for binary outcomes, while Poisson regression is used for continuous outcomes. The analysis covers the period from 2015 to 2021. Robust standard errors are clustered at the individual level. Statistical significance is denoted by * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

7.3 Effects by gender, self-employment, and immigration background

Table 5 presents the effects of the reform by gender, self-employment status, and immigration background.

Comparing the first two columns, the reform's impact on the probability of claiming public pensions at age 61 is about 2 percentage points larger for men than for women, reflecting slightly higher pre-reform claiming rates among men. For other pensions, gender differences are negligible: the decline at age 61 is identical in 2020 and only marginally larger for men in 2021.

For employment, there is no significant change at age 61 for either gender, but at age 62 in 2021, employment increases by 1.36 percentage points for men and 1.10 percentage points for women. In terms of disposable income, men experience a 2.7% reduction at age 61 in 2020, while the smaller decline for women in that year is not statistically significant. In 2021, disposable income falls by 2.1% for men and 2.6% for women, with both effects significant. The reform's effects on labor income, unemployment benefits, and disability benefits are small and generally not statistically significant across genders. In contrast, the effect on sickness benefits is positive and statistically significant for both men and women, with similar magnitudes (around 0.8 percentage points in 2021).

The third and fourth columns compare self-employed individuals, who make up about 10% of the sample, with wage-employed individuals (90%). Before the reform, around 19% of the self-employed and 10% of the wage-employed claimed public pensions at age 61; following the reform, this fell to zero in both groups.

For other pensions, the reduction is more pronounced among the self-employed. At age 61, their likelihood of claiming falls by 2.2–3.7 percentage points, compared to 2.5–3.1 percentage points for wage earners. At age 62, wage earners show no significant response, whereas the self-employed experience a decline of about 2 percentage points.

Employment responses are also somewhat stronger among the self-employed, with increases of 1.05–1.99 percentage points versus 1.12 percentage points for the wage-employed at age 62 in 2021.

The reform reduced disposable income in both groups, but the decline is much larger for the self-employed–between 7.0% and 10.0%–compared with 1.3–1.7% for the wage-employed. This likely reflects the sharper drop in both public and other pension claiming among the self-employed. No statistically significant effects are observed for labor income or unemployment benefit receipt in

either group. In contrast, the impact on sickness and disability benefits is positive and statistically significant only among the wage-employed, suggesting that the self-employed do not rely on these social insurances to offset the loss of early public pension access.

No statistically significant effects are observed for labor income, or unemployment benefit receipt in either group. However, the reform's impact on sickness and disability benefits is positive and significant only among wage-employed individuals, suggesting that self-employed individuals do not rely on social insurance benefits to compensate for delayed public pension access.

The last two columns compare immigrants, who constitute approximately 20% of the sample, with non-immigrants. The reduction in public pension claiming at age 61 is about 2 percentage points smaller for immigrants than for non-immigrants. For other pensions, the decline is also smaller among immigrants–ranging from 1.5 to 3.2 percentage points compared to 2.96 to 3.17 percentage points for non-immigrants.

The reform did not significantly affect employment rates among immigrants, whereas non-immigrants experienced a 1.6 percentage point increase at age 62 in 2021. While the reform had no measurable effect on the disposable income of immigrants, non-immigrants experienced a reduction of approximately 2.5%. No statistically significant effects are observed for labor income or unemployment benefit receipt in either group.

There are indications that the reform led to an increase in disability benefit receipt among immigrants (1.03–1.58 percentage points), while effects for non-immigrants are close to zero and generally not significant. In contrast, sickness benefit receipt increased among non-immigrants (around 1.07 percentage points at age 62 in 2021) but showed no significant change for immigrants.

Table 5: Effects by gender, employment type, and immigration background

	Male	Female	Self-Employed	Wage-employed	Immigrant	Non-immigrant
a) Public pension						
Age=61 × year=2020	-.114*** (.003)	-.094*** (.0029)	-.1856*** (.0076)	-.0957*** (.0022)	-.0885*** (.0043)	-.1091*** (.0024)
Age=61 × year=2021	-.1143*** (.0034)	-.096*** (.0033)	-.1867*** (.0088)	-.0968*** (.0025)	-.0945*** (.0049)	-.1105*** (.0027)
Age=62 × year=2020	.0066 (.0042)	.0042 (.004)	.014 (.0107)	.0039 (.003)	.0062 (.0059)	.0049 (.0033)
Age=62 × year=2021	-.0431*** (.0035)	-.0344*** (.0034)	-.0757*** (.0088)	-.0353*** (.0025)	-.0354*** (.0049)	-.0403*** (.0028)
b) Other pension						
Age=61 × year=2020	-.0264*** (.0035)	-.0257*** (.0034)	-.0372*** (.0082)	-.0249*** (.0025)	-.0153** (.0048)	-.0296*** (.0028)
Age=61 × year=2021	-.0316*** (.0039)	-.0291*** (.0038)	-.0224* (.0094)	-.0313*** (.0028)	-.0316*** (.0054)	-.0317*** (.0031)
Age=62 × year=2020	.0043 (.0043)	-.0015 (.0042)	-.0225* (.0102)	.0039 (.0031)	.0133* (.006)	-.0019 (.0034)
Age=62 × year=2021	-.0096** (.0036)	-.0065 (.0036)	-.0217* (.0085)	-.0067* (.0027)	-.0073 (.005)	-.0087** (.0029)
c) Employment (Earnings>0)						
Age=61 × year=2020	.0005 (.0034)	-.0004 (.0034)	.0105 (.0072)	-.0012 (.0025)	-.0062 (.0062)	.0017 (.0026)
Age=61 × year=2021	.0048 (.0039)	.0036 (.004)	.0132 (.0082)	.0033 (.0029)	-.0089 (.0071)	.0078** (.003)
Age=62 × year=2020	.0009 (.0041)	-.0021 (.0042)	.0152 (.0088)	-.0026 (.0031)	-.0015 (.0075)	-.0003 (.0031)
Age=62 × year=2021	.0137*** (.0034)	.0123*** (.0035)	.0199** (.0074)	.0121*** (.0026)	.0028 (.0062)	.0157*** (.0026)
d) Labor income						
Age=61 × year=2020	.0006 (.0075)	.001 (.0071)	-.0005 (.0173)	.002 (.0054)	-.0046 (.0147)	.002 (.0055)
Age=61 × year=2021	.0112 (.0089)	-.002 (.0084)	.0016 (.0203)	.0066 (.0065)	-.0077 (.0173)	.0086 (.0065)
Age=62 × year=2020	-.0139 (.0092)	-.0026 (.0088)	.0006 (.0215)	-.0088 (.0067)	-.0175 (.0182)	-.0071 (.0068)
Age=62 × year=2021	.0144 (.0077)	.0059 (.0073)	.0094 (.018)	.012* (.0056)	.0079 (.015)	.0111 (.0057)
e) Disposable income						
Age=61 × year=2020	-.0267** (.0093)	-.0097 (.0075)	-.0796** (.027)	-.0121* (.0059)	.0095 (.0149)	-.0253*** (.0068)
Age=61 × year=2021	-.0155 (.0112)	-.0228* (.009)	-.0682* (.0318)	-.012 (.0072)	.0125 (.0174)	-.0243** (.0082)
Age=62 × year=2020	-.0109 (.0105)	.0002 (.0084)	-.034 (.0307)	-.0035 (.0067)	-.0023 (.0172)	-.0068 (.0076)
Age=62 × year=2021	-.0194 (.0102)	-.0123 (.0085)	-.0989*** (.0293)	-.0057 (.0065)	.0262 (.0162)	-.0251*** (.0075)
f) Unemployment insurance						
Age=61 × year=2020	.0003 (.0018)	.0041* (.0017)	.0058* (.0029)	.0019 (.0013)	.0016 (.0032)	.0022 (.0013)
Age=61 × year=2021	.0002 (.0019)	.0027 (.0018)	.0084** (.003)	.0008 (.0014)	.0004 (.0034)	.0013 (.0014)
Age=62 × year=2020	-.0015 (.002)	.0015 (.0019)	-.0005 (.0032)	.0002 (.0015)	.0023 (.0036)	-.0006 (.0015)
Age=62 × year=2021	.0029 (.0018)	.0021 (.0017)	.0029 (.0028)	.0026 (.0013)	.0003 (.0032)	.0029* (.0013)
g) Sickness insurance						
Age=61 × year=2020	.0059* (.0027)	.0053 (.0031)	.0048 (.006)	.0058** (.0022)	-.0004 (.0046)	.007** (.0023)
Age=61 × year=2021	.0079** (.0029)	.0069* (.0033)	.0083 (.0063)	.0074** (.0023)	.0064 (.0047)	.0076** (.0024)
Age=62 × year=2020	-.0001 (.0029)	.0005 (.0034)	.0045 (.0065)	-.0002 (.0024)	-.0062 (.005)	.0018 (.0025)
Age=62 × year=2021	.0078** (.0027)	.0102*** (.0031)	.0074 (.0058)	.0093*** (.0022)	.0025 (.0045)	.0107*** (.0023)
h) Disability insurance						
Age=61 × year=2020	.0048 (.0025)	.0034 (.0031)	-.0081 (.0048)	.0056** (.0022)	.0103* (.0051)	.003 (.0022)
Age=61 × year=2021	.0039 (.003)	.0004 (.0038)	-.0008 (.0058)	.0025 (.0026)	.0158** (.006)	.0001 (.0026)
Age=62 × year=2020	.0022 (.0031)	-.0019 (.0038)	-.0054 (.0062)	.0012 (.0027)	.0007 (.0063)	.0002 (.0027)
Age=62 × year=2021	.0032 (.0025)	.0029 (.0031)	-.0088 (.0049)	.0046* (.0022)	.0107* (.0051)	.0016 (.0022)
Observations	1,162,275	1,155,120	225,926	2,091,469	451,278	1,866,117

Note: This table presents estimation results from Equation (1) for subsamples defined by gender, self-employment status, and immigration background. The analysis covers the period from 2015 to 2021. OLS is used for binary outcomes, while Poisson regression is used for continuous outcomes. Robust standard errors are clustered at the individual level. Statistical significance is denoted by * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

8 Additional analyses

8.1 Distributional analysis

In this section, we apply an unconditional quantile regression analysis to explore the distributional effects of the early eligibility age reform. This allows us to assess the reform's impact across the entire distribution of labor income and disposable income, rather than just at the mean. By estimating the effect of the reform on a range of quantiles of the outcome distribution, we investigate whether the reform's impacts are uniformly distributed or if there are differential effects along the

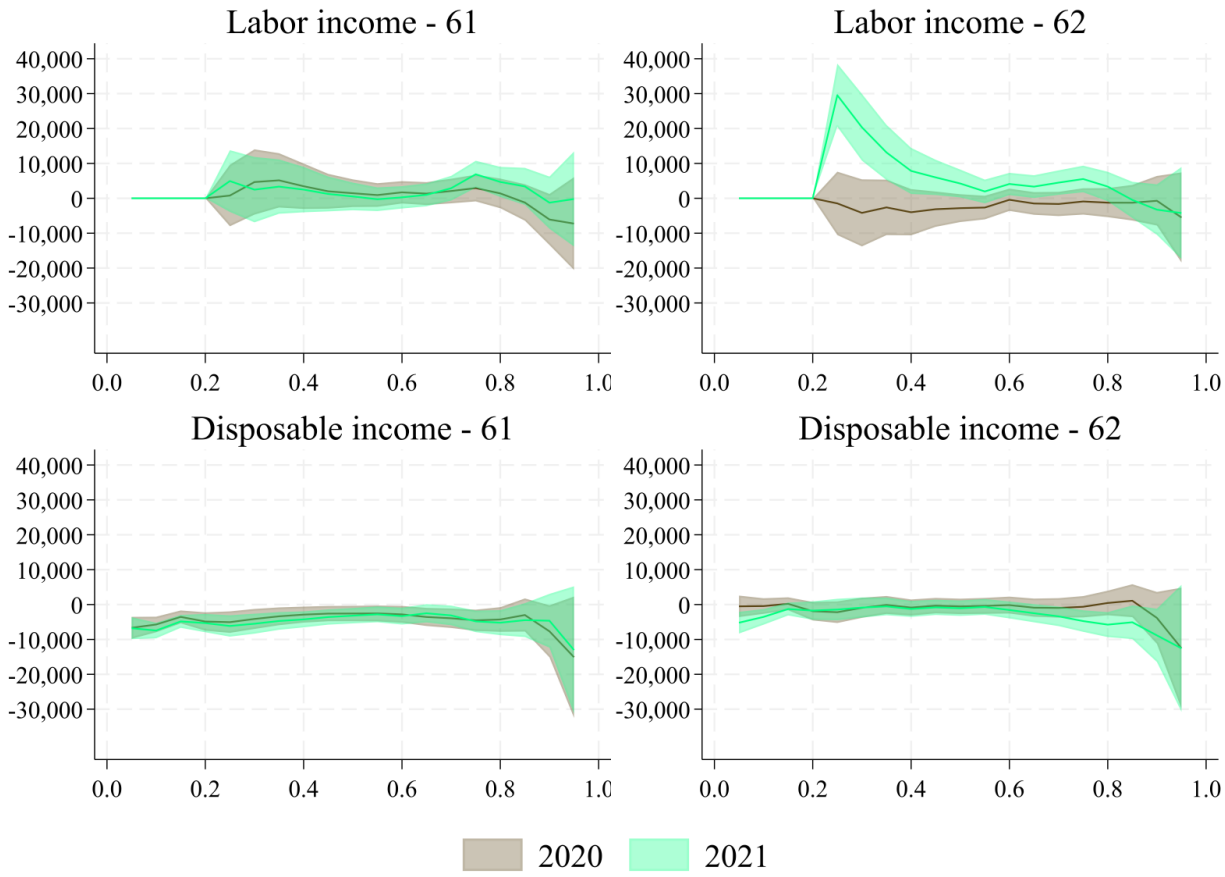
income distribution. We follow the recentered influence function approach of Firpo et al. (2009) to estimate unconditional quantile effects at the 5th, 10th, ..., and 95th percentiles of the labor income and disposable income distributions.

For each quantile, we estimate the probability of an individual being on or above that quantile in the distribution using our baseline difference-in-differences model set out in Equation 1. In this setting, the parallel trends assumption is that, without the early eligibility age reform, the differences in population shares at all considered quantiles between the treatment groups (61– and 62-year-olds) and the comparison group (63-year-olds) would have remained constant over time. We convert these estimates into monetary amounts by dividing by a kernel density estimate of the slope of the CDF of the distribution at each particular quantile. Intuitively, this can be seen as "inverting" the estimate. The results are provided in Figure 3.

We find that there are hardly any effects on labor income for 61-year-olds. For 62-year-olds, on the other hand, there are substantial effects in the lower half of the labor income distribution in 2021, which is when 62-year-olds start to be affected by the reform. At the 25th percentile, earnings are almost SEK 30,000 larger, which amounts to around 30% of the level at the 25th percentile.

The results for disposable income tell a very different story–as 61-year-olds had to postpone claiming public pension, there is a fairly uniform negative effect of a few thousand SEK across most of the distribution for 61-year-olds. There are signs that the absolute value of these effects is somewhat larger at the lowest end of the disposable income distribution, consistent with the results that the effect on pension claiming was largest among the lowest-income group. Naturally, the income drop at the lower end of the distribution constitutes a much bigger relative decline in disposable income than at the higher end. Last, there is only a small or no effect on disposable income at age 62. We see that the average value of disposable income in the quantile analysis is around - SEK 5,000 for 61-year-olds. Which, compared to the disposable income level of around SEK 420,000, is about -1%, consistent with the negative point estimates in Figure 2.e and Table 2.

Figure 3: Distributional effects of the 2020 early eligibility age reform on labor income and disposable income



Note: This figure presents the unconditional quantile effects of the 2020 early eligibility age reform on labor income and disposable income at ages 61 and 62. The estimates are obtained using the recentered influence function (RIF) regression approach following Firpo et al. (2009) to estimate unconditional quantile effects at the 5th, 10th, ..., and 95th percentiles of the labor income and disposable income distributions. It applies a difference-in-differences (DiD) framework that compares 61- and 62-year-olds affected by the reform to 63-year-olds as a comparison group. Robust standard errors are clustered at the individual level.

8.2 Effects on labor supply using monthly data

The findings presented in Section 6 indicate that the reform has led to an increase in individuals' labor supply the year they turn 62. However, the annual format of the data limits the main empirical strategy in identifying the exact age at which the increase in labor supply occurs. Since age in these analyses is defined as age at the end of the calendar year, an individual who is, e.g., considered 61 years old in 2019 could be 60 years (and 11 months) old if born in January or 61 years old if born in December. This section aims to shed more light on the specific age driving the

reform effect by leveraging monthly data, which are available for parts of the sample.

The monthly data cover labor income for all individuals from 2019 to 2021. Prior to 2019, labor market data were based on annual income statements (KU) submitted by employers or self-employed individuals to the Swedish Tax Agency. However, starting in January 2019, all employers have been required to report employment and salary data monthly through the employer declaration for individuals (AGI). The monthly measure includes both salary and employer-provided benefit payments.[15] Unfortunately, since the monthly data are only available from 2019 onward, we are not able to examine pre-trends.

The sample consists of 801,153 individuals aged 60–64 observed between 2019 and 2021. Although the monthly data cover the entire Swedish population, information on birth month is only available through the intergenerational register. Therefore, the birth month data is only available for individuals with at least one child older than 15. Consequently, the sample shrinks to 81%, including all individuals with at least one child older than 15 in 2019–2021. The resulting analysis sample consists of 645,917 individuals and 13,504,577 individual-month observations. Summary statistics are provided in Table C.3 in the Appendix.

We formulate the following model to evaluate the effect of the reform at different monthly ages:

$$Y_{iat} = \alpha + \lambda_a + v_t + \sum_{t \neq 2019}^{t=2020,2021} \sum_{\substack{a=60\times12 \\ a \neq 731}}^{63\times12} \gamma_{at}(A_{at} \times D_t) + \epsilon_{iat} \tag{3}$$

where Y_{iat} represents the outcome variable for individual i of age a in terms of the number of months in year t. The term $A_a \times D_t$ denotes the interaction between age and year-specific dummy variables, where D_t is a dummy variable that equals 1 if year t is equal to t and 0 otherwise. The gamma (γ) coefficients, therefore, represent the interaction effects between specific years and age groups. We use 2019 as the reference year and age 60 years and 11 months (731 months) as the reference age. Thus, each γ_{at} coefficient corresponds to the interaction effect of a specific year t (other than the reference year 2019) and a specific age a (other than the omitted age category of 60 years and 11 months). This means the coefficient measures the differential impact of the year k on the outcome variable Y_{iat} for individuals of age a compared to the baseline (year 2019 and age 731 months). Similar to Equation 1, we use ordinary least squares (OLS) for employment and the

[15] Self-employment income is only available at the annual level and is evenly distributed across the calendar year by dividing by twelve.

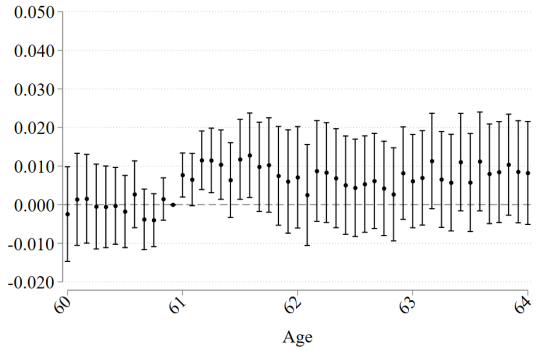
Poisson regression for labor income. Robust standard errors are clustered at the individual level.

Figure 4 presents the estimates from Equation (3), with monthly labor income as the dependent variable in Panels (a) and (b), and employment in Panels (c) and (d). Employment is defined as having positive labor income in a given month. Panel (a) shows that in 2020, labor income for individuals younger than 61 did not differ significantly from 2019, the year before the reform. However, the labor income of individuals past the age of 61 starts to increase, highlighting the reform's impact on the intensive margin of labor supply. The effect is less pronounced for those close to age 62, who only need to wait a few more months to be eligible to claim their public pension.

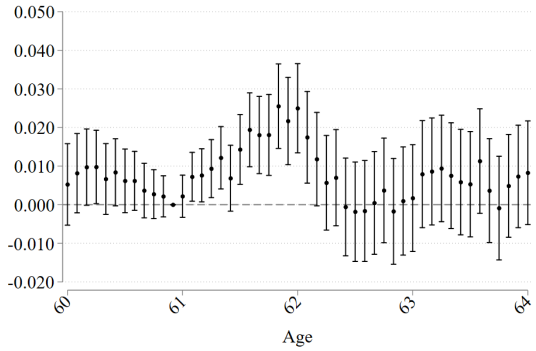
Panel (b) compares the labor income of individuals in 2021, a year after the introduction of the reform in 2020, with the labor income of individuals in 2019. In 2021, both 61 and 62-year-old individuals were affected by the reform. Those aged 61 were directly affected by the reform since they could not claim their public pension and had to wait until age 62. Those aged 62 years old in 2021 had already been affected by the reform in the previous year. Similar to Panel (a), the reform's effects become statistically significant past age 61, particularly for those who are close to age 62. This trend reflects that young 61-year-old individuals in 2020 who could not claim their public pension continued working until age 62 in 2021, therefore, the effect is stronger among individuals who were almost 62 in 2021.

Panels (c) and (d) mirror the observed effects in Panels (a) and (b), indicating that the reform also affected the extensive margin of labor supply or employment, keeping them in their jobs until reaching 62. Furthermore, Figure 4 shows that the effect of the reform does not persist after age 62, and it does not lead employees to continue working after age 62.

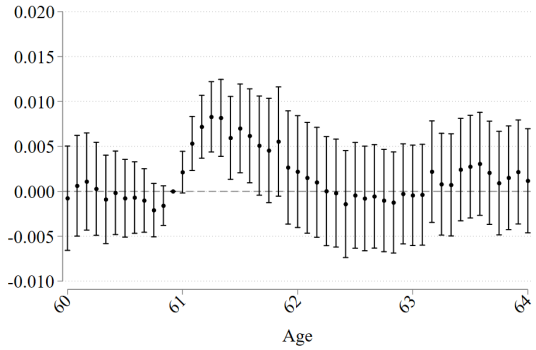
Figure 4: Effect of the 2020 early eligibility age reform using monthly data



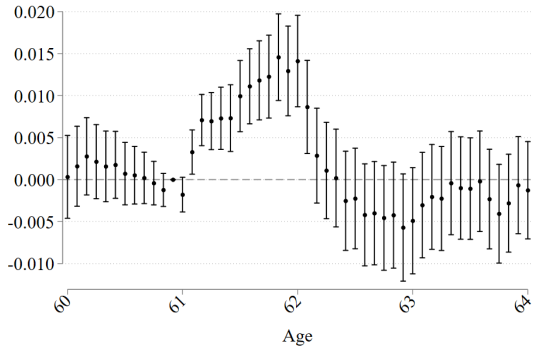
(a) Labor income, 2020 vs. 2019



(b) Labor income, 2021 vs. 2019



(c) Employment, 2020 vs. 2019



(d) Employment, 2021 vs. 2019

Note: This figure presents the estimated effects of the 2020 early eligibility age reform on labor income and employment using Equation (3) and monthly data from 2019 to 2021. Panels (a) and (b) show the estimated impact on labor income, comparing 2020 and 2021 to the pre-reform year 2019, respectively. Panels (c) and (d) illustrate the effects on employment, defined as having positive labor income in a given month, for 2020 and 2021, respectively. Ordinary least squares (OLS) regression is used for employment, while Poisson regression is applied to labor income. Robust standard errors are clustered at the individual level.

9 Conclusions

We evaluated the impact of a 2020 reform in Sweden that raised the early eligibility age for public pensions from 61 to 62 on pension claiming, labor supply, disposable income, and receipt of social insurance benefits. We used population register data from 2015 to 2021 and a difference-in-differences approach with unaffected 63-year-olds as the comparison group.

The observed decrease in public pension claims at age 61, beginning in 2020 and continuing into 2021, is a direct consequence of the reform that prevented pension claims at this age. In addition, the effect observed at age 62 in 2021 suggests a trend towards postponing claims beyond

the new early eligibility age, possibly reflecting changing perceptions of appropriate retirement timing. This highlights an important behavioral aspect of retirement decision-making: statutory pension eligibility ages serve not only as legal constraints, but also as implicit reference points that shape individual choices. In addition, we found no evidence that individuals compensated for the delayed public pension access by drawing on private or occupational pensions; instead, they postponed claiming these benefits as well. This suggests a strong tendency to coordinate pension claims across income sources, reinforcing the view that pension eligibility ages appear to act as behavioral anchors.

While the reform led to an increase in employment among the affected cohorts, the effects did not extend beyond the new claiming age of 62. Given that the Swedish pension system formally separates pension claiming from labor supply decisions, standard economic models might predict that such reforms would have limited effects on employment. However, our findings indicate a significant link between pension eligibility and labor supply, particularly for lower-income individuals and those with a high predicted probability of early claiming. These results align with recent literature emphasizing liquidity constraints as a key driver of retirement behavior (e.g., Sæverud, 2024; Coile et al., 2025), reinforcing the view that pension eligibility thresholds play a critical role in labor supply decisions, even in flexible DC systems with actuarially fair adjustments. This has important policy implications: even in systems designed to promote individual flexibility, statutory age thresholds remain salient decision points that influence retirement behavior.

Although the actuarial neutrality of the Swedish pension system ensures that delayed claiming does not result in financial losses over the life cycle, our findings point to important short-term distributional effects. The reform disproportionately affected lower-income individuals, who were more likely to rely on public pensions to transition into retirement. As a result, this group experienced a decline in disposable income at age 61 of approximately 8 percent. This reduction was driven primarily by individuals who were already out of the labor force at age 60 and had limited ability to adjust. In contrast, low-income individuals who were still working at age 60 were able to offset the delayed access to pensions—either by increasing their labor supply or by drawing more heavily on social insurance benefits—leaving their disposable income largely unaffected. Self-employed individuals were also strongly affected, with disposable income falling by 7–10 percent, reflecting their higher initial propensity to claim at the early eligibility age and the fact that they

did not substantially increase their earnings in response.

One might worry that the reform could have regressive effects in the long run if those who would have claimed early also tend to have shorter lifespans. As in many other countries, the income gradient in mortality in Sweden has widened in recent decades, with the gap in remaining life expectancy at age 40 now reaching 11 years between the top and bottom income percentiles for men and 8 years for women (Hagen et al., 2025). However, recent evidence from Pensionsmyndigheten (2024) indicates that early pension claiming is not correlated with higher mortality; in fact, the mortality rate among early claimants was slightly lower than average. This suggests that even for would-be early claimants, the short-term income loss from postponed pension claiming will be compensated by higher annual pension benefits later.

Finally, we estimate that the reform generated a net positive fiscal impact on government finances. While the reform led to some social insurances substitution—most notably increased inflows to sickness benefits and unemployment insurance—these effects were not large enough to offset the additional tax revenue generated by higher labor supply. A simple back-of-the-envelope calculation, detailed in Appendix Section D, based on estimated behavioral responses, suggests a positive net fiscal effect of SEK 547 million in 2020 and SEK 1.1 billion in 2021. These correspond to approximately 0.011% and 0.021% of Sweden's GDP in 2020 and 2021 (measured in 2019 price levels), and about 0.08% and 0.17% of total direct income tax revenue.[16]

[16]These estimates are somewhat lower than the government's own projections for 2020 prior to implementation, partly due to slightly smaller observed labor supply responses than anticipated (Prop. 2018/19:133).

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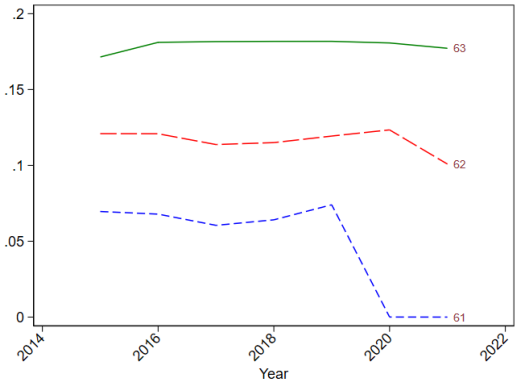
Appendices

A Combining work and public pension

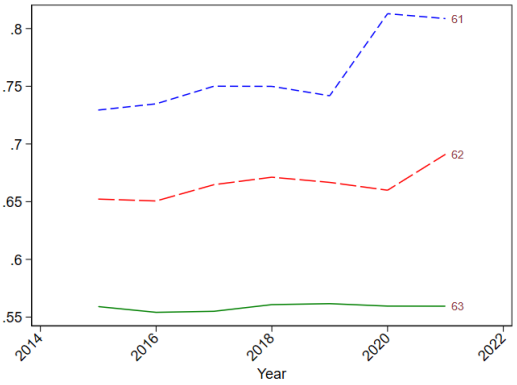
Given that the majority of individuals who claim public pension early also work to some extent, it is likely that any potential labor supply effect stems from individuals who would have otherwise claimed and worked simultaneously. To explore this, Figure A1 plots the evolution of combinations of work and public pension income. In 2019, approximately 7% of 61-year-olds received both work and pension income, while a little over 2% relied solely on public pension income without work income. The majority of 61-year-olds, 74%, had work income only. The remaining 16% had neither work nor pension income, likely drawing income from other sources such as disability benefits, occupational pensions, or unemployment benefits. After the reform, the increase in the share of individuals who work without claiming public pension is roughly offset by a decrease in the share of individuals who both work and claim public pension. At age 62, however, the increase in the share of individuals working without claiming is somewhat larger than the decrease among those claiming without working. The figure also shows that the share of individuals who neither work nor claim public pension – a group potentially responsive to the reform by entering employment – increased by 3–4 percentage points.

Figure A1: Work and public pension claiming patterns over time

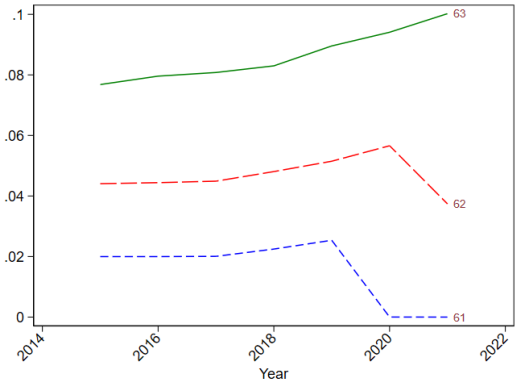
(a) Working and claiming public pension



(b) Working without claiming public pension



(c) Claiming public pension without working



(d) Neither working nor claiming public pension

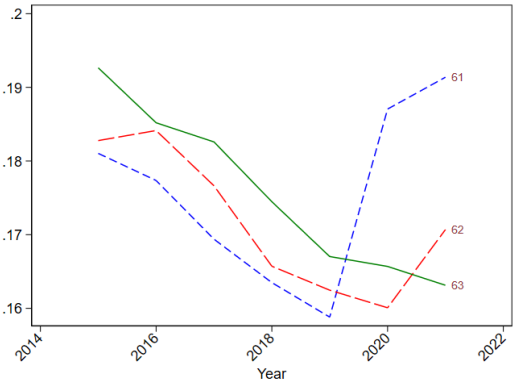


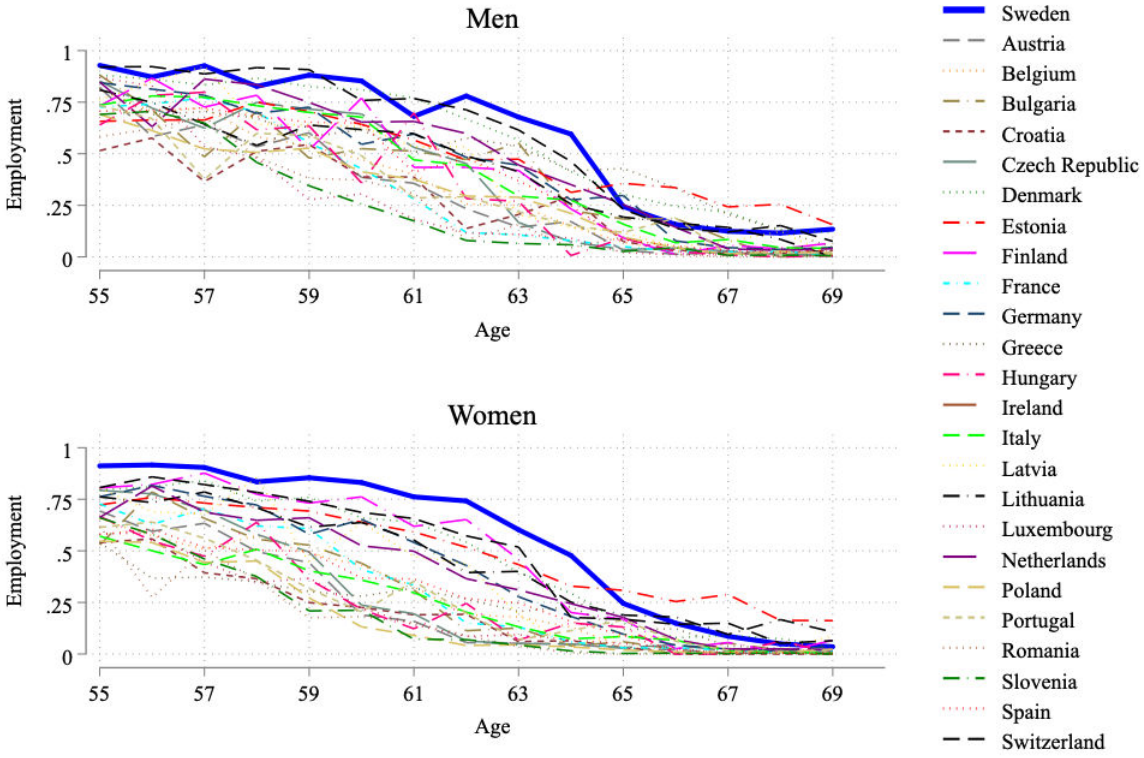
Table A1: Descriptive statistics: Working and claiming vs. full sample

	Working and claiming			Full sample		
	61	62	63	61	62	63
Claiming public pension	1	1	1	0.08	0.17	0.27
	(0)	(0)	(0)	(0.26)	(0.38)	(0.44)
Public pension (SEK)	67,496	112,230	122,447	5,146	19,960	34,846
	(48,771)	(64,420)	(66,555)	(22,524)	(51,354)	(66,853)
Public pension conditional on claiming (SEK)	67,496	112,230	122,447	68,441	117,232	129,440
	(48,771)	(64,420)	(66,555)	(49,136)	(63,921)	(66,012)
Receiving private pension and/or occupation pension	0.47	0.50	0.56	0.16	0.22	0.30
	(0.50)	(0.50)	(0.50)	(0.37)	(0.41)	(0.46)
Claiming public pension and working	1	1	1	0.06	0.12	0.18
	(0)	(0)	(0)	(0.23)	(0.33)	(0.39)
Employment	1	1	1	0.83	0.80	0.75
	(0)	(0)	(0)	(0.38)	(0.40)	(0.43)
Labor income (SEK)	320,378	306,063	282,206	393,384	363,336	321,629
	(234,758)	(237,773)	(228,240)	(317,995)	(313,751)	(307,307)
Disposable income (SEK))	440,188	456,321	440,937	408,864	405,804	396,840
	(520,754)	(507,465)	(459,564)	(433,740)	(434,451)	(425,233)
Receiving unemployment benefit (UI)	0.05	0.04	0.03	0.05	0.04	0.04
	(0.21)	(0.19)	(0.17)	(0.21)	(0.20)	(0.19)
Receiving sickness benefit (SI)	0.18	0.15	0.14	0.15	0.14	0.13
	(0.38)	(0.36)	(0.35)	(0.36)	(0.35)	(0.33)
Receiving disability insurance (DI)	0.05	0.04	0.04	0.14	0.15	0.16
	(0.21)	(0.21)	(0.21)	(0.35)	(0.36)	(0.37)
Age	61	62	63	61	62	63
	(0)	(0)	(0)	(0)	(0)	(0)
Female	0.46	0.47	0.48	0.50	0.50	0.50
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
Immigrant	0.14	0.13	0.12	0.20	0.19	0.18
	(0.34)	(0.34)	(0.32)	(0.40)	(0.39)	(0.39)
Self-employed	0.18	0.18	0.16	0.10	0.10	0.10
	(0.38)	(0.38)	(0.37)	(0.30)	(0.30)	(0.31)
Observations	38,150	80,490	120,733	667,380	661,739	655,552

Note: This table reports descriptive statistics for individuals who claim their public pension while working ("working and claiming") and, for comparison, the full sample. Columns 2–4 summarize the working-and-claiming group; columns 5–7 summarize the full sample. The sample comprises individuals aged 61–63 during 2015–2019, i.e., prior to the reform in 2020. Two additional restrictions apply: individuals must have been registered residents of Sweden at age 60 and must have had pensionable income between ages 38 and 60. Standard deviations are in parentheses. Income variables are measured in Swedish kronor (SEK) at constant 2023 prices.

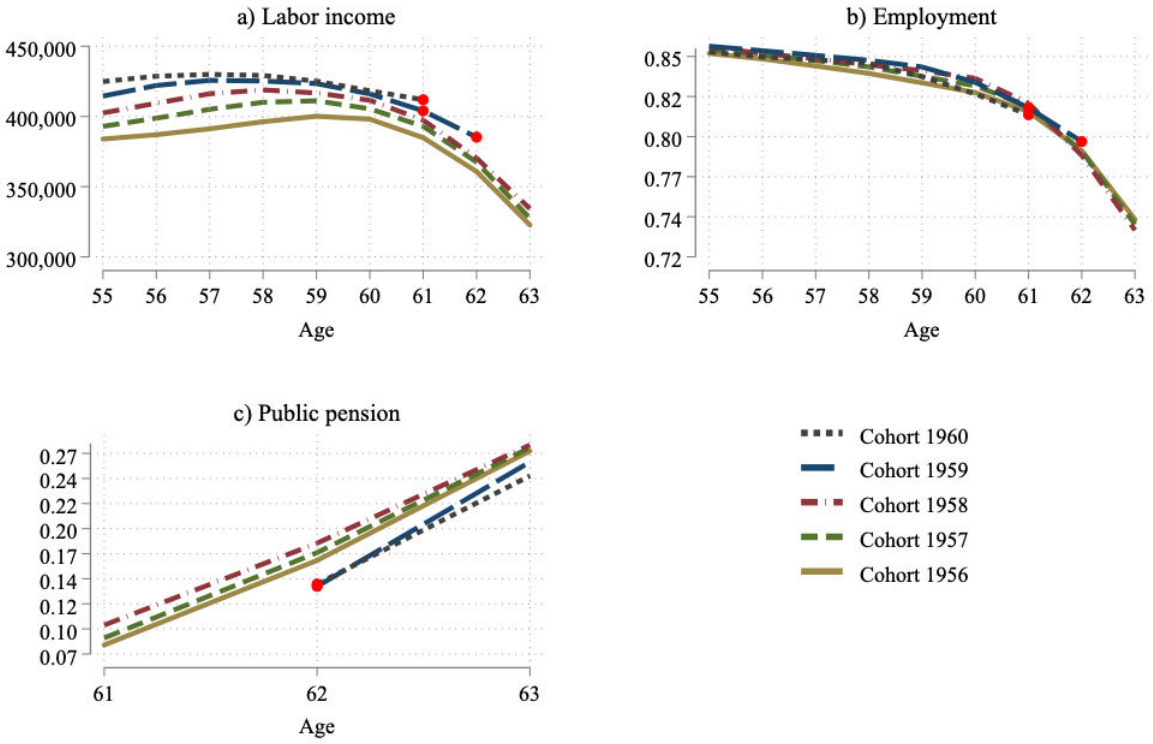
B Figures

Figure B1: Employment rate by age, country, and gender



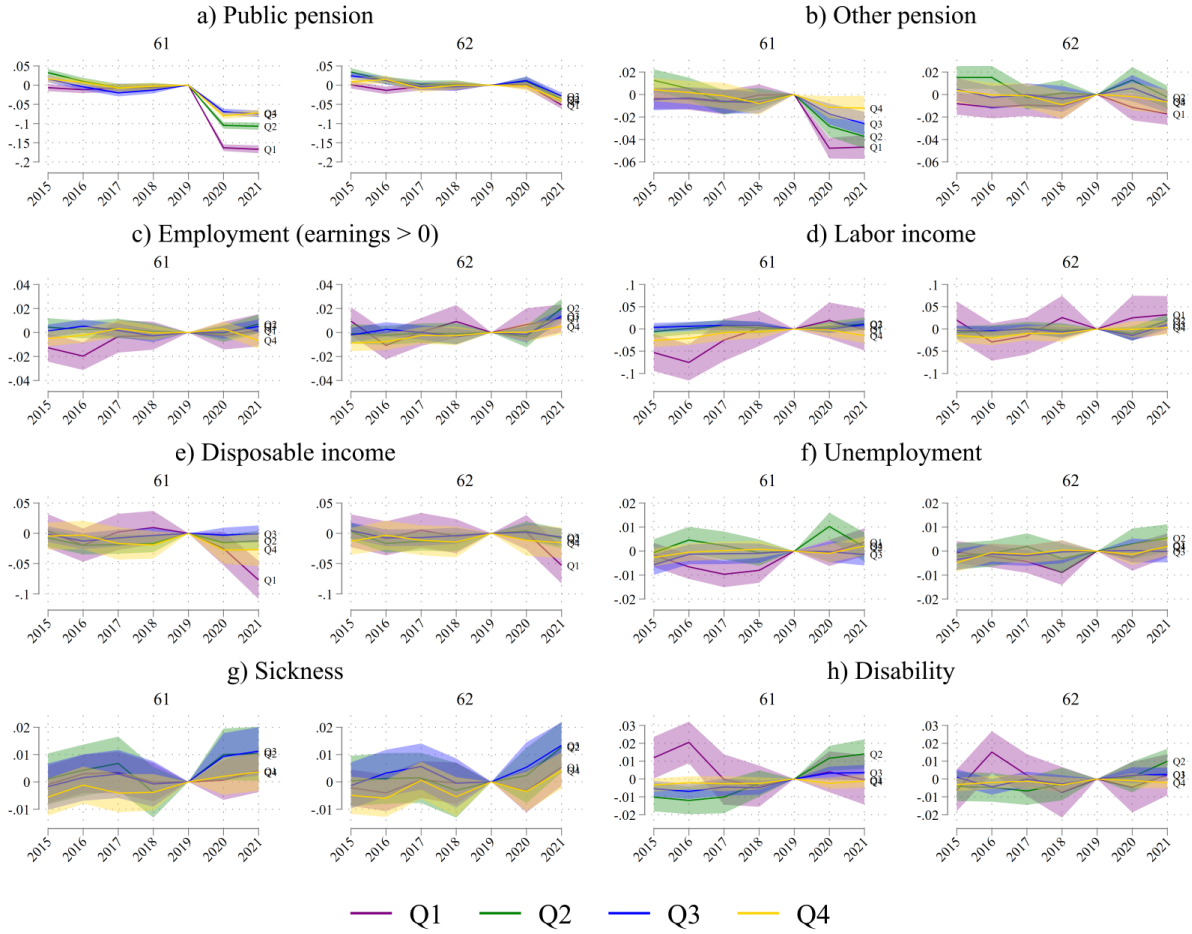
Note: The figure displays the employment rate by age, country, and gender across several European countries. The data is sourced from SHARE (Survey of Health, Aging and Retirement in Europe) for the years 2010 to 2020.

Figure B2: Trends in labor income, employment and public pension claiming by age and birth cohort



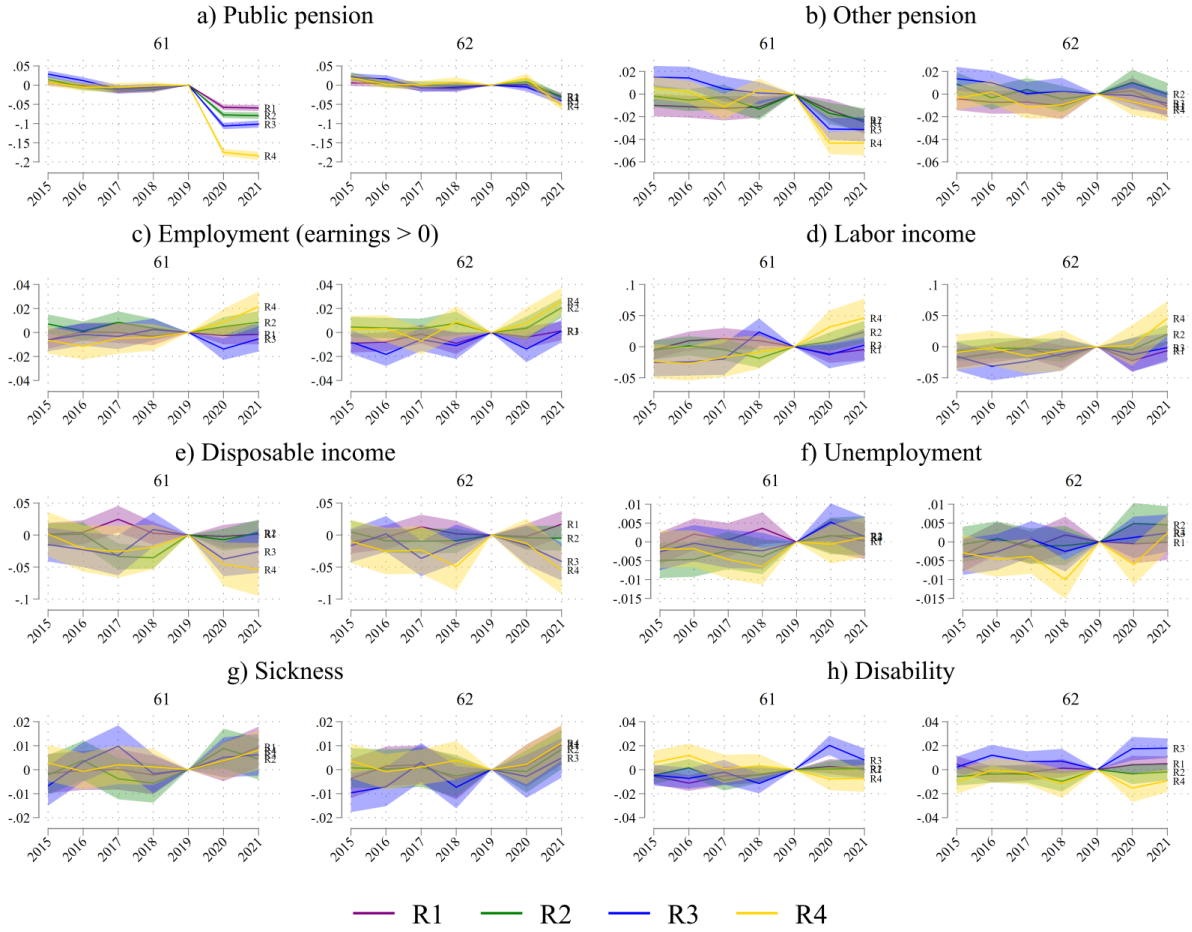
Note: This figure presents trends in (a) labor income, (b) employment, and (c) the share of individuals claiming public pensions by age and cohort. Figures (a) and (b) are based on data from Statistics Sweden, while figure (c) is based on data from the Swedish Pension Agency. The Statistics Sweden data covers individuals up to 2021, whereas the Swedish Pension Agency data extends to 2023. Red dots indicate the age cohorts affected by the 2020 early eligibility age reform.

Figure B3: Effect estimates by disposable income quartiles



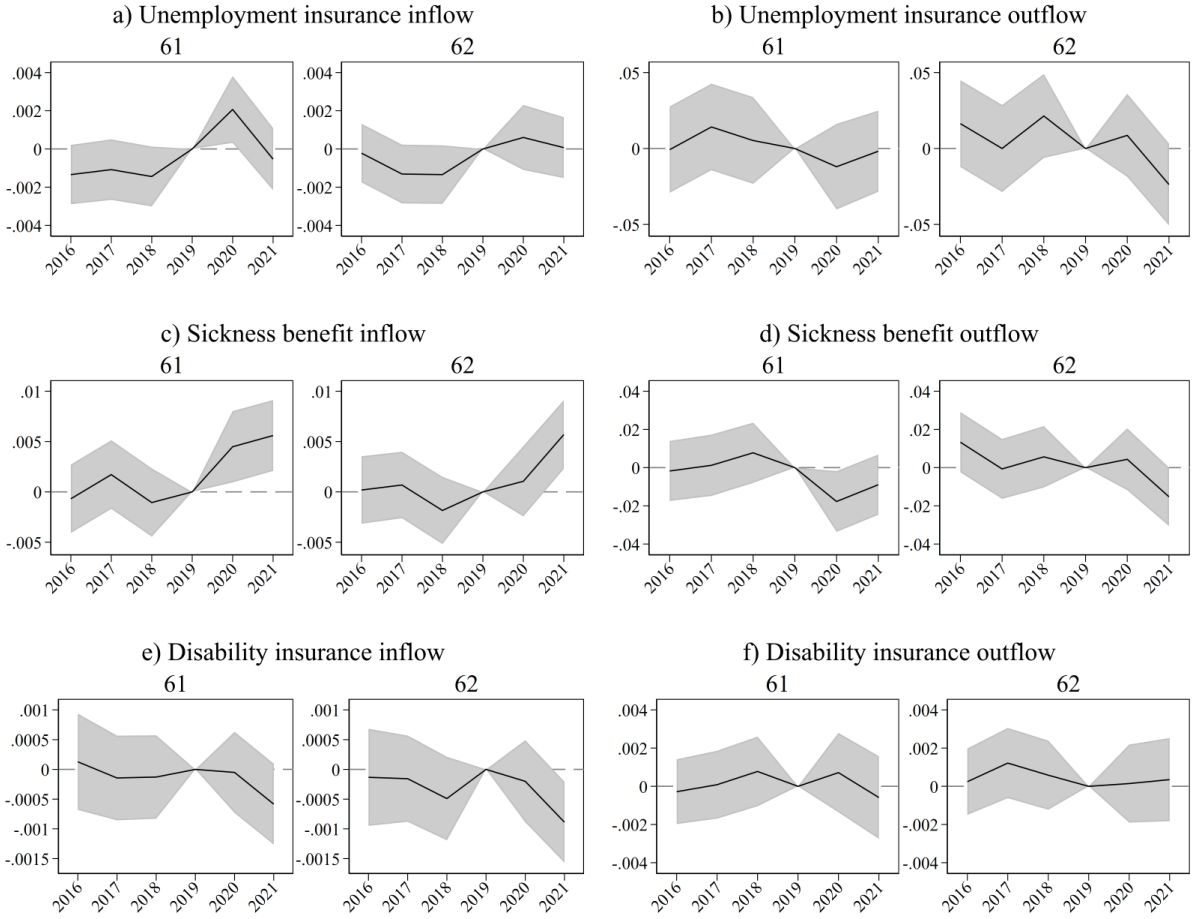
Note: This figure presents the estimated effects of the 2020 early eligibility age reform across disposable income quartiles at age 60. Public pension claiming, other pension claiming, employment, sickness benefit receipt, and disability benefit receipt are binary (dummy) variables, with effects estimated using linear regression. Labor income and disposable income are measured in Swedish Krona (SEK), with effects estimated using Poisson regression. Robust standard errors are clustered at the individual level.

Figure B4: Effect estimates by early claiming propensity quartiles



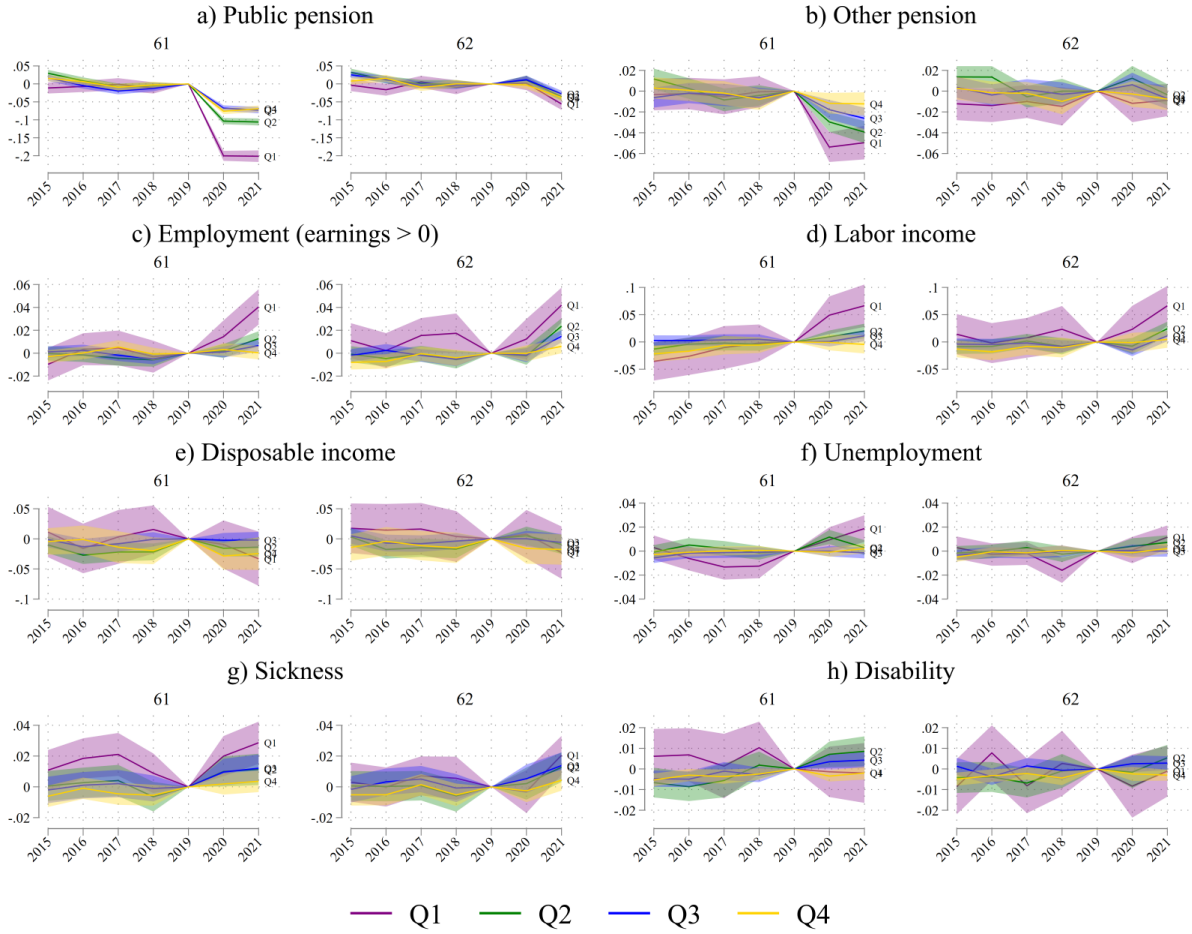
Note: This figure presents the estimated effects of the 2020 early eligibility age reform across early claiming propensity quartiles. Public pension claiming, other pension claiming, employment, sickness benefit receipt, and disability benefit receipt are binary (dummy) variables, with effects estimated using linear regression. Labor income and disposable income are measured in Swedish Krona (SEK), with effects estimated using Poisson regression. Robust standard errors are clustered at the individual level.

Figure B5: Effect of the 2020 early eligibility age reform on inflow and outflow of sickness, disability, and unemployment benefits



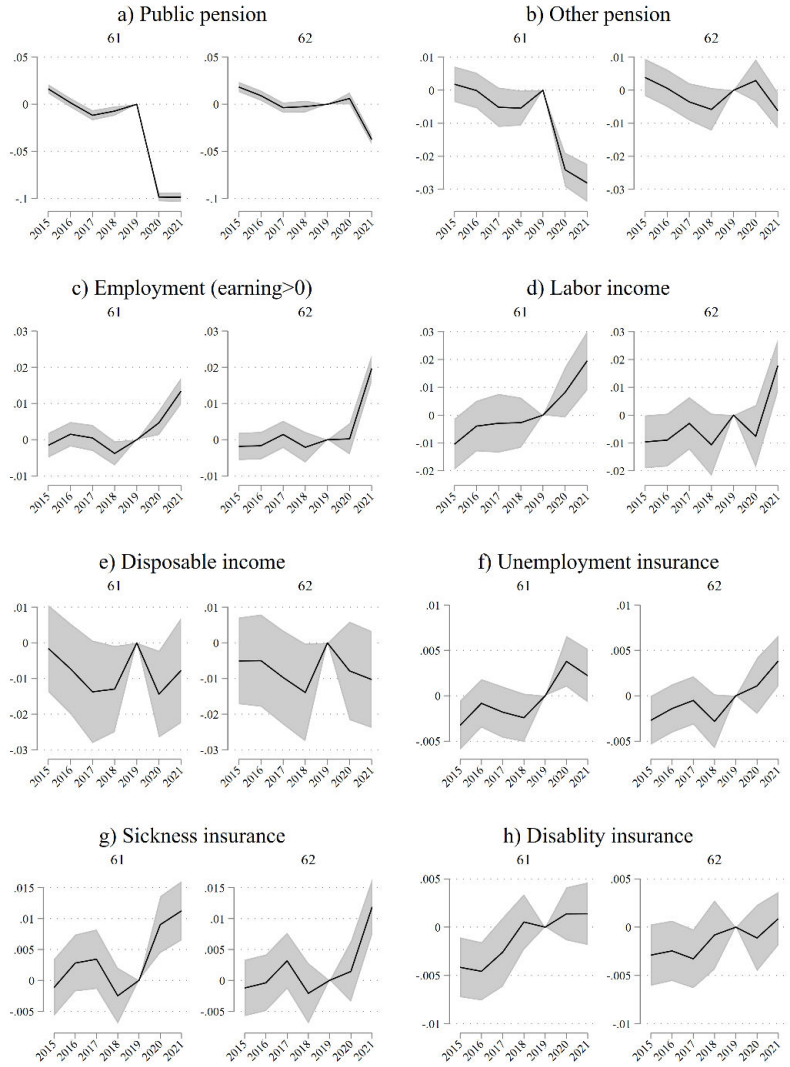
Note: This figure presents the estimated effects of the 2020 early eligibility age reform on inflows and outflows of sickness, disability, and unemployment benefits. "Inflow" is defined as receiving a benefit in year t after not receiving it in $t-1$, with the sample restricted to individuals who did not receive the benefit in $t-1$. "Outflow" refers to discontinuing a benefit in t after receiving it in $t-1$, with the sample restricted to those who had positive benefit income in $t-1$. Estimates are obtained from Equation (1) using the corresponding sample of individuals aged 61 to 63 from 2016 to 2021.

Figure B6: Effect estimates by disposable income quartiles, conditional on working at age 60



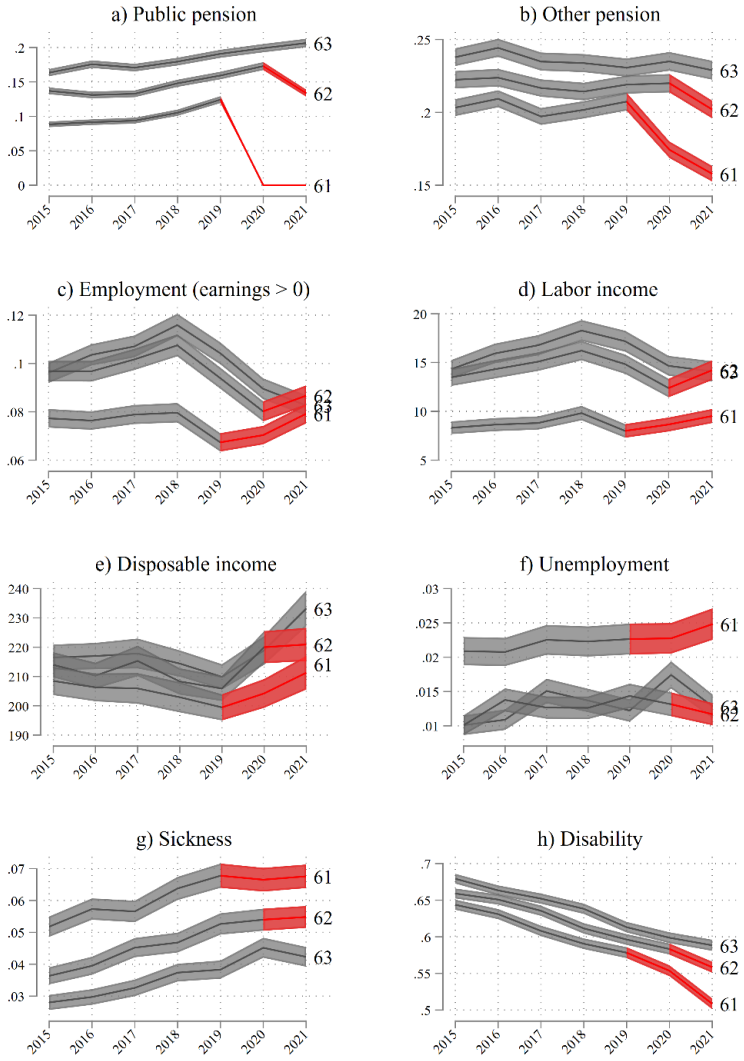
Note: This figure presents the estimated effects of the 2020 early eligibility age reform across disposable income quartiles at age 60 and conditional on being employed at age 60. Public pension claiming, other pension claiming, employment, sickness benefit receipt, and disability benefit receipt are binary (dummy) variables, with effects estimated using linear regression. Labor income and disposable income are measured in Swedish Krona (SEK), with effects estimated using Poisson regression.

Figure B7: Trends in outcome variables before and after the 2020 reform, conditional on working at age 60



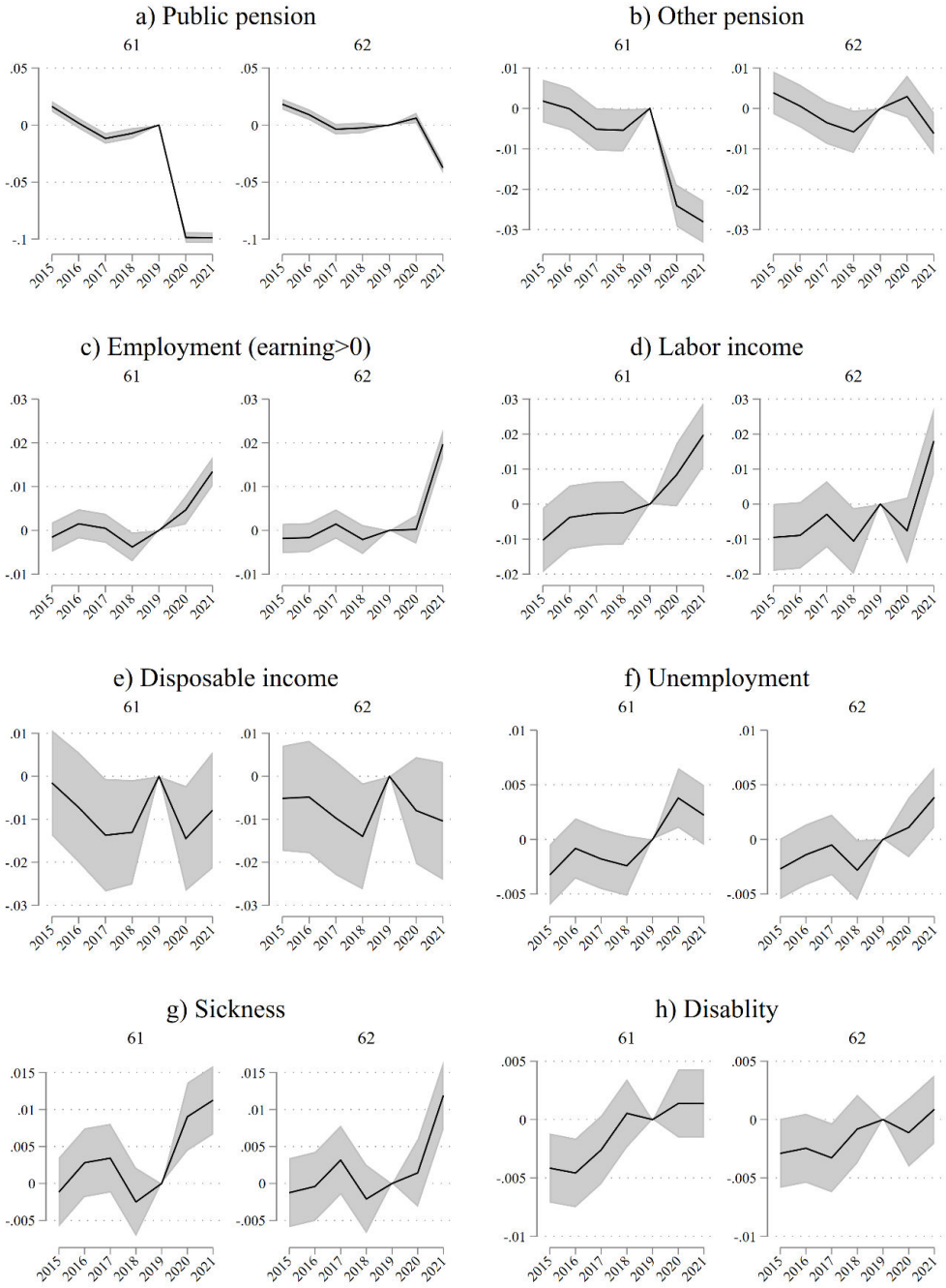
Note: This figure shows the average value along with the 95% confidence interval conditional on working at age 60 of the main outcome variables: claiming public pension, claiming other pensions, employment, labor income, disposable income, receipt of sickness benefits, receipt of disability benefits, and receipt of unemployment benefits. Labor income and disposable income are measured in 1000s of Swedish Krona (1 EUR $\approx$ 11 SEK) at an annual frequency. The age-year groups impacted by the reform—61-year-olds in 2020 and 2021 and 62-year-olds in 2021—are highlighted in red.

Figure B8: Trends in outcome variables before and after the 2020 reform, conditional on not working at age 60



Note: This figure shows the average value along with the 95% confidence interval conditional on not working at age 60 of the main outcome variables: claiming public pension, claiming other pensions, employment, labor income, disposable income, receipt of sickness benefits, receipt of disability benefits, and receipt of unemployment benefits. Labor income and disposable income are measured in 1000s of Swedish Krona (1 EUR ≈ 11 SEK) at an annual frequency. The age-year groups impacted by the reform—61-year-olds in 2020 and 2021 and 62-year-olds in 2021—are highlighted in red.

Figure B9: Effects of the 2020 early eligibility age reform, conditional on working at age 60



Note: This table presents estimation results from Equation (1), conditional on working at age 60, examining the 2020 early eligibility age reform's impact on (a) claiming public pension, (b) claiming other pension, (c) employment, (d) labor income, (e) disposable income, (f) receipt of sickness benefits, (g) receipt of disability benefits, and (h) receipt of unemployment benefits.

Figure B10: Effects of the 2020 early eligibility age reform, conditional on not working at age 60

Note: This table presents estimation results from Equation (1), conditional on not working at age 60, examining the 2020 early eligibility age reform's impact on (a) claiming public pension, (b) claiming other pension, (c) employment, (d) labor income, (e) disposable income, (f) receipt of sickness benefits, (g) receipt of disability benefits, and (h) receipt of unemployment benefits.

C Tables

Table C.1: Descriptive statistics: pre- and post-2020 reform for treatment (ages 61 and 62) and comparison (age 63) groups

	Age 61		Age 62		Age 63	
	Pre-Reform	Post-Reform	Pre-Reform	Post-Reform	Pre-Reform	Post-Reform
Claiming public pension	0.090	0.000	0.168	0.162	0.267	0.281
	(0.29)	(0.00)	(0.37)	(0.37)	(0.44)	(0.45)
Public pension (SEK)	6,184	0	19,357	17,337	34,035	39,070
	(24,560)	(0)	(50,341)	(47,147)	(65,759)	(71,931)
Public pension conditional on claiming	68,441	0	115,411	107,269	127,490	138,861
	(49,136)	(0)	(63,431)	(64,076)	(65,448)	(67,324)
Receiving private pension and/or occupation pension	0.17	0.13	0.22	0.20	0.30	0.29
	(0.37)	(0.33)	(0.41)	(0.40)	(0.46)	(0.45)
Claiming public pension and working	0.07	0	0.12	0.12	0.18	0.18
	(0.25)	(0)	(0.33)	(0.32)	(0.39)	(0.39)
Employment (earnings>0)	0.83	0.83	0.80	0.80	0.75	0.75
	(0.38)	(0.38)	(0.40)	(0.40)	(0.43)	(0.43)
Labor income	390,112	413,648	360,676	383,822	319,246	336,823
	(315,647)	(333,697)	(311,592)	(329,036)	(305,265)	(322,276)
Disposable income	408,376	423,499	404,382	423,479	395615.723	415,760
	(435,867)	(474,961)	(434,072)	(486,088)	(425,341)	(485,352)
Receiving unemployment benefit (UI)	0.04	0.06	0.04	0.05	0.04	0.05
	(0.20)	(0.23)	(0.20)	(0.22)	(0.19)	(0.21)
Receiving sickness benefit (SI)	0.15	0.16	0.14	0.15	0.13	0.13
	(0.35)	(0.37)	(0.34)	(0.36)	(0.33)	(0.34)
Receiving disability insurance (DI)	0.14	0.12	0.15	0.12	0.16	0.13
	(0.35)	(0.32)	(0.36)	(0.33)	(0.37)	(0.34)
Age	61	61	62	62	63	63
	(0)	(0)	(0)	(0)	(0)	(0)
Female	0.50	0.50	0.50	0.50	0.500	0.50
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
Immigrant	0.20	0.23	0.19	0.21	0.18	0.20
	(0.40)	(0.42)	(0.39)	(0.41)	(0.38)	(0.40)
Self-employed	0.10	0.10	0.10	0.10	0.10	0.11
	(0.30)	(0.30)	(0.30)	(0.30)	(0.31)	(0.31)
Observations	555,372	223,719	551,153	221,847	544,861	220,443

Note: This table presents descriptive statistics for the treatment groups (ages 61 and 62) and the comparison group (age 63) before and after the implementation of the 2020 early eligibility age reform. The sample covers the years 2015 to 2021. Means are reported with standard deviations in parentheses.

Table C.2: Average marginal effects on the probability of claiming public pension at age 61

	Marginal Effects (dy/dx)	
Disposable income level=1	Ref.	
Disposable income level=2	-0.0759***	(0.00207)
Disposable income level=3	-0.0569***	(0.00214)
Disposable income level=4	-0.0712***	(0.00212)
Disposable income level=5	-0.0814***	(0.00206)
Disposable income level=6	-0.0879***	(0.00203)
Disposable income level=7	-0.0957***	(0.00201)
Disposable income level=8	-0.104***	(0.00198)
Disposable income level=9	-0.107***	(0.00199)
Disposable income level=10	-0.0837***	(0.00211)
Female	-0.0181***	(0.000814)
Self-employed	0.0405***	(0.00110)
Immigrant	-0.0339***	(0.000879)
Small towns/rural area (15-40k)	Ref.	
Medium cities (40-200k)	-0.00328**	(0.00100)
Large cities (>200k)	0.000391	(0.00117)
Married/registered partner	Ref.	
Marital status: single	-0.0195***	(0.00101)
Marital status: divorced	-0.00384***	(0.000993)
Marital status: widow	-0.0253***	(0.00275)
Elementary school	Ref.	
High school or college <2 years	0.00147	(0.00104)
College >=2 years	-0.00957***	(0.00122)
year=2015	Ref.	
year=2016	-0.00146	(0.00121)
year=2017	-0.00871***	(0.00118)
year=2018	-0.00187	(0.00121)
year=2019	0.0112***	(0.00125)
Observations	555,372	

Note: This table presents average marginal effects from Equation (2), estimated using a logistic regression model to predict the probability of claiming a public pension at age 61. The regression includes covariates measured at age 60, including deciles of disposable income interacted with gender, self-employment status, immigration status, region, marital status, education level, and year. The sample includes 61-year-olds from pre-2020 cohorts. Standard errors are in parentheses. Statistical significance is denoted by * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

Table C.3: Descriptive statistics of monthly data

Age	2019		2020		2021	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Employment (earnings>0)						
60	0.81	(0.39)	0.81	(0.39)	0.81	(0.39)
61	0.79	(0.40)	0.79	(0.41)	0.79	(0.41)
62	0.76	(0.43)	0.75	(0.43)	0.76	(0.43)
63	0.70	(0.46)	0.69	(0.46)	0.69	(0.46)
64	0.62	(0.49)	0.61	(0.49)	0.61	(0.49)
Labor Income (SEK)						
60	29,480	(39,240)	30,061	(40,812)	31,633	(60,305)
61	28,355	(58,170)	28,767	(33,630)	30,316	(47,661)
62	26,215	(30,752)	26,771	(37,837)	28,252	(33,999)
63	23,136	(28,587)	23,567	(30,531)	24,677	(35,283)
64	19,404	(27,818)	19,815	(28,867)	20,714	(31,877)
Observations	5,511,204		5,511,831		5,513,889	

Note: This table presents descriptive statistics for individuals aged 60–64 based on monthly data from 2019 to 2021. Employment is a binary indicator equal to one if the individual was employed during the month. Monthly labour income includes wage earnings, sickness benefits, and parental allowances. Due to data availability, birth month information is only available for individuals with at least one child older than 15. Income is reported in Swedish Krona (SEK) at constant 2019 prices. The number of observations reflects the total number of person-months in each year.

Table C.4: Effect estimates by disposable income quartiles, conditional on working at age 60

	Q1	Q2	Q3	Q4
a) Public pension				
Age=61 × year=2020	-0.201*** (0.007)	-0.103*** (0.004)	-0.068*** (0.004)	-0.076*** (0.004)
Age=61 × year=2021	-0.200*** (0.008)	-0.105*** (0.005)	-0.073*** (0.005)	-0.068*** (0.005)
Age=62 × year=2020	0.002 (0.010)	0.011 (0.006)	0.012* (0.006)	-0.003 (0.006)
Age=62 × year=2021	-0.057*** (0.008)	-0.036*** (0.005)	-0.028*** (0.005)	-0.038*** (0.005)
b) Other pension				
Age=61 × year=2020	-0.054*** (0.007)	-0.029*** (0.005)	-0.018*** (0.005)	-0.011* (0.005)
Age=61 × year=2021	-0.048*** (0.008)	-0.038*** (0.005)	-0.026*** (0.005)	-0.011* (0.006)
Age=62 × year=2020	-0.012 (0.009)	0.012* (0.006)	0.006 (0.006)	-0.003 (0.006)
Age=62 × year=2021	-0.009 (0.008)	-0.003 (0.005)	-0.007 (0.005)	-0.007 (0.005)
c) Employment (Earnings> 0**)**				
Age=61 × year=2020	0.015* (0.007)	0.002 (0.003)	0.001 (0.002)	0.003 (0.003)
Age=61 × year=2021	0.041*** (0.008)	0.013*** (0.003)	0.007* (0.003)	0.000 (0.003)
Age=62 × year=2020	0.013 (0.009)	-0.002 (0.004)	-0.002 (0.003)	-0.000 (0.004)
Age=62 × year=2021	0.042*** (0.008)	0.024*** (0.004)	0.015*** (0.003)	0.006 (0.003)
d) Labor income				
Age=61 × year=2020	0.049** (0.018)	0.009 (0.006)	0.001 (0.005)	-0.001 (0.007)
Age=61 × year=2021	0.067** (0.020)	0.021** (0.007)	0.011* (0.005)	-0.007 (0.009)
Age=62 × year=2020	0.023 (0.022)	-0.008 (0.008)	-0.014* (0.006)	-0.001 (0.009)
Age=62 × year=2021	0.066*** (0.019)	0.024*** (0.007)	0.011* (0.005)	0.004 (0.008)
e) Disposable income				
Age=61 × year=2020	-0.010 (0.020)	-0.016* (0.007)	-0.002 (0.006)	-0.029* (0.011)
Age=61 × year=2021	-0.032 (0.023)	-0.013 (0.008)	-0.002 (0.007)	-0.025 (0.014)
Age=62 × year=2020	0.008 (0.020)	0.005 (0.008)	0.000 (0.007)	-0.016 (0.013)
Age=62 × year=2021	-0.024 (0.022)	-0.010 (0.008)	-0.006 (0.007)	-0.018 (0.013)
f) Unemployment insurance				
Age=61 × year=2020	0.009 (0.005)	0.011*** (0.003)	-0.000 (0.002)	-0.001 (0.002)
Age=61 × year=2021	0.018** (0.006)	0.002 (0.003)	-0.002 (0.002)	0.002 (0.002)
Age=62 × year=2020	0.001 (0.006)	0.003 (0.003)	0.000 (0.003)	-0.001 (0.002)
Age=62 × year=2021	0.012* (0.005)	0.007* (0.003)	-0.000 (0.002)	0.002 (0.002)
g) Sickness insurance				
Age=61 × year=2020	0.021** (0.007)	0.010* (0.005)	0.010* (0.004)	0.002 (0.004)
Age=61 × year=2021	0.029*** (0.007)	0.011* (0.005)	0.012** (0.005)	0.003 (0.004)
Age=62 × year=2020	-0.002 (0.007)	0.003 (0.005)	0.006 (0.005)	-0.003 (0.004)
Age=62 × year=2021	0.021** (0.006)	0.013** (0.005)	0.014** (0.004)	0.004 (0.003)
h) Disability insurance				
Age=61 × year=2020	-0.001 (0.006)	0.007* (0.003)	0.004* (0.002)	-0.004* (0.001)
Age=61 × year=2021	-0.001 (0.007)	0.009* (0.004)	0.004* (0.002)	-0.002 (0.002)
Age=62 × year=2020	-0.007 (0.008)	-0.001 (0.004)	0.003 (0.002)	-0.002 (0.002)
Age=62 × year=2021	-0.000 (0.006)	0.006 (0.003)	0.003 (0.002)	-0.003* (0.001)
Observations	252,835	553,605	574,844	567,471

Note: This table reports the estimated effects of the 2020 early eligibility age reform on key outcome variables, stratified by quartiles of disposable income at age 60 and conditional on working at age 60. Estimates are based on Equation (1), using data from 2015 to 2021. OLS is used for binary outcomes, and Poisson regression is used for continuous outcomes. Standard errors are reported in parentheses. Statistical significance is indicated by * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

Table C.5: Employment and labor income at age 60 by disposable Income quartiles

	Q1	Q2	Q3	Q4	Total
Employment at age 60	0.44	0.95	0.99	0.97	0.84
	(0.50)	(0.21)	(0.12)	(0.16)	(0.37)
Labor income at age 60	69,854	328,564	475,064	736,967	404,263
	(110,227)	(119,545)	(107,545)	(531,049)	(371,992)
Observations	570,920	581,455	582,933	582,087	2,317,395

Note: This table reports descriptive statistics for employment and labor income at age 60, stratified by quartiles of disposable income at age 60. The sample includes individuals aged 61 to 63 observed between 2015 and 2021. Standard deviations are reported in parentheses.

D Fiscal impact analysis

To assess the public finance consequences of the reform, we conduct a simple fiscal impact analysis based on estimated behavioral responses and average monetary amounts from administrative data. For each affected age-year group, we combine the estimated percentage change in key outcomes from Table 2, including public pension claims, occupational pensions, labor income, sickness benefits, and unemployment benefits, with pre-reform average amounts. These averages are based on pre-reform years and reflect values conditional on claiming or receiving the respective income or benefit, with the exception of labor income, for which we use the unconditional average. The coefficients and conditional avarages are summarized in Table D.1 below.

The per-person fiscal effect for each component is calculated as:

$$\text{Net impact (SEK)} = \text{Percentage change} \times \text{Average conditional amount} \times (1 - \text{tax rate})$$

The tax rate is set to 30%. For labor income, we also account for payroll taxes (31.42%). To obtain total fiscal effects, the per-person estimates are multiplied by the relevant population size (approximately 111,000 individuals per age group). The estimated revenue and expenditure for each component, as well as the net fiscal impact, are reported in Table D.1. The results indicate a total net fiscal gain of approximately 547 million SEK in 2020 and 1.1 billion SEK in 2021 when pensions are included. When excluding pensions, the reform yields positive fiscal effects: 17 million SEK in 2020 and 296 million SEK in 2021.

Table D.1: Estimated percentage change and average conditional amounts by program and age-year group

Year	Age	Induced % change	Avg conditional amount (SEK)
Public pension			
2020	61	-0.104	68,441
2021	61	-0.105	
2021	62	-0.0387	115,411
Occupational pension			
2020	61	-0.026	108,545
2021	61	-0.0304	
2021	62	-0.00797	132,742
Sickness benefit			
2020	61	0.00557	77,347
2021	61	0.00743	
2021	62	0.00898	78,465
Unemployment benefit			
2020	61	0.00216	87,043
2021	61	0.00146	
2021	62	0.00246	89,133
Labor income			
2020	61	0.00491	392,589
2021	61	0.00713	
2021	62	0.0108	362,456

Table D.2: Fiscal impact analysis (in millions of SEK)

Category	**2020**	**2021**
Revenue		
Tax revenue from public pensions	-239	-390
Tax revenue from occupational pensions	-95	-146
Tax revenue from sickness benefits	14	43
Tax revenue from unemployment benefits	6	12
Tax revenue from labor income	133	460
Total tax revenue	-181	-22
(Excl. public pensions)	59	368
Expenditure		
Public pension expenditure	-797	-1 300
Sickness benefit expenditure	48	143
Unemployment benefit expenditure	21	39
Total expenditure	-728	-1 119
(Excl. public pensions)	69	181
Net Fiscal Effect (with pensions)		
Net effect (total)	547	1 097
Net Fiscal Effect (excluding pensions)		
Net effect (total)	-11	187