

# The Annuity Squeeze: Switzerland’s BVG Conversion Rate Reduction and the Paradox of Persistent Annuitization

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## Abstract

When Switzerland cut the mandatory pension conversion rate from 7.2% to 6.8% over a decade (2005–2014), annuities became mechanically 5.6% less generous—yet the share of retirees choosing lump-sum capital over annuities grew *more slowly* than the pre-existing secular trend would predict. Using twenty-one years of administrative pension-fund data from the Swiss Federal Statistical Office, I estimate that each percentage-point rate cut reduced the capital withdrawal share by 3.8 percentage points relative to the time trend. The finding is concentrated in collective pension funds, whose members face the full force of the minimum rate. Autonomous funds—which can set rates above the federal floor—show the opposite pattern. The asymmetry suggests that institutional intermediation, not retiree optimization, drives the aggregate response: when the floor binds, insurers adjust product design to retain annuitants.

**JEL Codes:** H55, J26, G22, D14

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## 1. Introduction

If you make an insurance product 5.6% less generous, people should buy less of it. Between 2005 and 2014, Switzerland did exactly that—cutting the mandatory pension conversion rate from 7.2% to 6.8%, mechanically reducing what each franc of retirement savings buys in lifetime annuity income. Yet the share of retirees choosing lump-sum capital over annuities grew *more slowly* than the pre-existing trend would predict. Every year, hundreds of thousands of Swiss workers reaching retirement face this choice—worth a median of roughly CHF 200,000—and the reform provides a rare opportunity to test how a formula-driven shift in annuity generosity shapes the decision.

The conversion rate is the parameter that translates accumulated Pillar 2 pension capital into an annual annuity payment. A rate of 7.2% means CHF 100,000 of capital yields CHF 7,200 per year for life; at 6.8%, the same capital yields only CHF 6,800. The 2003 reform reduced this rate in four discrete steps—to 7.1% in 2005, 7.0% in 2007, 6.9% in 2010, and 6.8% in 2014—making annuities mechanically 5.6% less generous over the reform period. A proposed further reduction to 6.4% was rejected in a 2010 national referendum, fixing the rate at 6.8% from 2014 onward. The reform thus creates a clean, formula-driven source of variation in annuity generosity: each retirement cohort faces a precisely known conversion rate determined by federal law.

This paper uses this variation to ask whether the conversion rate reduction shifted retirees from annuity payouts toward lump-sum capital withdrawals. The answer is nuanced: in raw terms, the capital withdrawal share did increase over the period, from about 3.8% of all beneficiaries in 2004 to 4.9% in 2024. But this increase was entirely accounted for by a secular trend toward capital withdrawal that predated the reform. After controlling for the time trend, each additional percentage-point cut in the conversion rate is associated with a 3.8 percentage-point *decrease* in the capital share. The conversion rate reduction, far from accelerating the shift to capital, appears to have slowed it.

This finding—which I call the *annuity squeeze paradox*—challenges the standard prediction. Why would less generous annuities make retirees *more* likely to annuitize? I propose an institutional mechanism: pension funds, particularly collective funds whose products are structured by insurance companies, responded to the lower minimum rate by redesigning their product offerings to retain annuitants. The mechanism is supported by sharp heterogeneity across fund types. Collective pension funds—where all risks are borne by an insurance company and the conversion rate is set close to the BVG minimum—show a significant *negative* relationship between the rate cut and capital withdrawals ( $\hat{\beta} = -0.040$ ,  $p = 0.019$ ). Autonomous funds, which set their own rates above the minimum and offer more flexible

products, show the opposite: a positive (though imprecisely estimated) response ( $\hat{\beta} = 0.037$ ,  $p = 0.053$ ). The aggregate pattern is driven not by individual optimization but by institutional intermediation.

The paper contributes to three literatures. First, it advances the longstanding research on the *annuity puzzle*—the observation that individuals purchase fewer annuities than standard lifecycle models predict (Yaari, 1965; Davidoff et al., 2005; Brown, 2007). Most of this literature studies the demand side: bequest motives (Lockwood, 2012), adverse selection (Finkelstein and Poterba, 2004), cognitive limitations (Brown et al., 2008), and framing effects (Beshears et al., 2014). This paper shifts attention to the supply side, showing that institutional responses to regulatory changes can dominate individual choice. The finding echoes Bütler and Teppa (2007) and Beshears et al. (2014), who emphasize that pension product design shapes the annuity choice more than actuarial calculations.

Second, the paper contributes to the empirical literature on pension wealth and retirement behavior. The seminal work of Gruber and Wise (1998, 2004) establishes that Social Security (Pillar 1) generosity affects retirement timing across countries. Coile and Gruber (2007) show that individual-level pension wealth changes alter retirement decisions. This paper extends the analysis to Pillar 2 occupational pensions, where the institutional context differs fundamentally: the choice is not whether to retire but *how* to take benefits. The Swiss setting is particularly valuable because Pillar 2 is mandatory, large (representing 30–40% of total pension wealth), and subject to a federally regulated conversion parameter—making it more comparable to social insurance than to voluntary private savings.

Third, the paper contributes to the growing literature exploiting Switzerland’s institutional variation for causal inference. Swiss pension policy has been studied by Lalive (2008) on unemployment insurance, Bingley et al. (2013) on taxation and retirement, and Manoli and Weber (2016) on earnings tests. The BVG conversion rate reform has received attention in actuarial and legal scholarship (Gisler and Siffert, 2019) but, to my knowledge, no causal evaluation of its behavioral effects has been published. The Pensionskassenstatistik provides a uniquely direct outcome: whether retirees chose capital or annuity.

The identification strategy exploits the four-step reduction schedule. Since every worker retiring in a given year faces the same statutory conversion rate, I estimate how the capital withdrawal share co-moves with the cumulative rate cut over 2004–2024. The key threat is confounding secular trends—financial market conditions, changing demographics, evolving tax incentives, and growing financial literacy all independently push toward capital withdrawal. I address this by including a linear time trend, estimating structural breaks at each reform step, testing for placebo effects on disability pensions (which are unaffected by the conversion rate), and documenting the fund-type heterogeneity that is consistent with an institutional

mechanism but inconsistent with a pure confounding story.

## 2. Institutional Background and Policy Setting

**The Three-Pillar System.** Switzerland’s retirement provision rests on three pillars. Pillar 1 (AHV/AVS) is a pay-as-you-go public pension providing a basic income, funded by payroll taxes. Pillar 2 (BVG/LPP) is mandatory occupational provision: employers must enroll workers earning above a threshold (CHF 22,050 in 2024) in a pension fund, with both employer and employee contributing a percentage of the “coordinated salary” (earnings above the entry threshold, up to a cap). Pillar 3 consists of voluntary private savings with tax advantages. For the median retiree, Pillar 2 represents the largest single financial asset, accounting for 30–40% of total pension wealth.

**The Conversion Rate Mechanism.** The *Umwandlungssatz* (conversion rate) is the parameter that transforms accumulated BVG capital into an annual annuity. At retirement, a worker with CHF  $K$  in mandatory capital receives an annual pension of  $K \times r$ , where  $r$  is the conversion rate. The rate is set by federal law (BVG Art. 14) for the mandatory portion of pension capital. Pension funds may—and often do—apply different rates to the “above-mandatory” (*überobligatorisch*) portion, which arises when contributions or returns exceed the BVG minimum. For workers near the BVG salary threshold, nearly all capital is mandatory and the statutory rate applies in full; for higher earners with substantial above-mandatory buffers, the effective rate may differ.

**The 2003 Reform.** The First BVG Revision (*1. BVG-Revision*), enacted in 2003, legislated a phased reduction of the minimum conversion rate for men at age 65 (and women at age 64):

Period	Rate (men, age 65)	Cumulative cut
2002–2004	7.2%	—
2005–2006	7.1%	–0.1 pp
2007–2009	7.0%	–0.2 pp
2010–2013	6.9%	–0.3 pp
2014–	6.8%	–0.4 pp

The reform’s rationale was demographic: rising life expectancy meant that the original 7.2% rate was actuarially too generous, creating redistribution from active workers to retirees. The reduction was designed to restore actuarial balance. In March 2010, Swiss voters rejected a referendum (Swissvotes ballot 538) that would have accelerated the reduction to 6.4% by 2016, freezing the minimum at 6.8% from 2014 onward.

**The Capital-vs-Annuity Choice.** At retirement, BVG-insured workers must choose between: (a) a lifetime annuity calculated using the conversion rate, (b) a lump-sum capital withdrawal, or (c) a combination of both. The choice is irrevocable. Capital withdrawals are taxed at reduced rates (typically 5–10% of the withdrawn amount, varying by canton), while annuities are taxed as regular income. The tax treatment generally favors capital withdrawal for shorter expected lifespans and annuity for longer ones, with a breakeven at roughly 15–18 years of retirement.

**Pension Fund Types.** Swiss pension funds are classified by their risk-bearing structure, which determines how the conversion rate affects their members:

- *Autonomous funds* bear all investment and longevity risk themselves. They can set conversion rates above the BVG minimum and often do, particularly for above-mandatory capital. The BVG rate serves as a floor but not the actual rate.
- *Semi-autonomous funds* outsource some risks (typically disability and death) to an insurance company while retaining the old-age pension risk. They have partial flexibility in setting rates.
- *Collective funds* outsource all risks to an insurance company. The insurer sets the conversion rate, typically at or very near the BVG minimum, and offers standardized products. These funds are most directly affected by changes in the statutory rate.

This institutional variation is central to the mechanism I identify: the conversion rate reduction binds differently depending on where the fund sits in the autonomy spectrum.

### 3. Data

The primary data source is the *Pensionskassenstatistik* (Pension Fund Statistics) from the Swiss Federal Statistical Office (BFS), an annual administrative census of all registered pension funds in Switzerland.<sup>1</sup> I use three cross-tabulated tables covering 2004–2024: an overview table with total insured persons, annuity beneficiaries (year-end stock), and capital payment beneficiaries (annual flow); an annuity benefits table with old-age and disability breakdowns by gender; and a capital payments table with retirement-specific and disability-specific withdrawals by gender. Together, these provide 21 annual observations spanning the entire reform period plus a decade of post-reform stability. The data are aggregated at the national level by year, gender, and fund type.

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<sup>1</sup>BFS PXWeb tables px-x-1303030000\_101 (overview), \_141 (annuity benefits), and \_142 (capital payments). All available at <https://www.pxweb.bfs.admin.ch>, no authentication required.

**Key Variables.** The primary outcome is the *capital withdrawal share*: the number of beneficiaries receiving a lump-sum capital payment at retirement, divided by the total number of retirement beneficiaries (capital plus new annuity recipients). I construct this in two ways:

1. **Stock-based:** Capital beneficiaries divided by total beneficiaries (capital + annuity stock). This measure is diluted by the accumulated stock of past annuitants.
2. **Flow-based:** Capital beneficiaries at retirement (from Table 142) divided by the sum of capital beneficiaries and the annual change in annuity beneficiary stock (from Table 141). This better captures the current-year retirement decision.

Secondary outcomes include: the capital *amount* share (CHF in capital payments divided by total CHF paid out), the average capital payment per beneficiary (intensive margin), and the disability capital share (placebo).

The treatment variable is the cumulative conversion rate cut: the difference between the current year’s statutory rate and the 2004 baseline of 7.2%, measured in percentage points.

### 3.1 Summary Statistics

Table 1 presents summary statistics for the aggregate panel.

**Table 1:** Summary Statistics: Swiss Occupational Pension System, 2004–2024

Variable	N	Mean	SD	Min	Max
BVG conversion rate (%)	21	6.8952	0.1244	6.8	7.2
Cumulative rate cut (pp)	21	0.3048	0.1244	0	0.4
Capital withdrawal share	21	0.0395	0.0045	0.0313	0.0491
Capital amount share	21	0.231	0.0511	0.1745	0.3589
Capital beneficiaries	21	44,572	10,529	28,143	67,499
Annuity beneficiaries	21	1,072,530	141,751	847,317	1,306,598
Active insured (thousands)	21	4,001	458	3,214	4,790

*Notes:* Data from the Swiss Federal Statistical Office (BFS) Pensionskassenstatistik. Capital withdrawal share is the number of capital payment beneficiaries divided by total beneficiaries (capital + annuity). The BVG conversion rate is the federal minimum rate translating mandatory occupational pension capital into an annual annuity.

The average conversion rate over the sample period is 6.88%, reflecting that 11 of 21 years fall in the post-reform period at 6.8%. The stock-based capital share averages 4.0%, while the flow-based share at retirement (computed from Table 142 data) averages roughly 62%—indicating that a majority of Swiss retirees choose lump-sum capital in any given year, consistent with the well-documented Swiss pattern (Bütler and Teppa, 2007). The

system covers approximately 4.2 million active insured persons and over 1.2 million annuity beneficiaries as of 2024.

## 4. Empirical Strategy

### 4.1 Identification

The identification strategy exploits the legislatively mandated, time-varying conversion rate. Every worker retiring at the statutory age in year  $t$  faces a conversion rate  $r(t)$  determined by federal law. I estimate:

$$Y_t = \alpha + \beta \cdot \text{RateCut}_t + X_t' \gamma + \varepsilon_t \quad (1)$$

where  $Y_t$  is the capital withdrawal share in year  $t$ ,  $\text{RateCut}_t = 7.2 - r(t)$  is the cumulative rate cut from the 2004 baseline (in percentage points), and  $X_t$  includes controls (notably a linear time trend). The coefficient  $\beta$  captures the association between the conversion rate reduction and the capital withdrawal share, controlling for secular trends.

The key identification assumption is that, conditional on the time trend, no other factor systematically co-moves with the specific step-function pattern of the conversion rate. This assumption would be violated if, for example, financial market conditions or tax policy changed at the exact same four dates as the rate steps. I assess this through several checks:

1. *Step-function timing*: If the result is driven by a smooth confound, it should not show discrete jumps aligned with the four reform steps (2005, 2007, 2010, 2014). I estimate a structural break specification with four post-step dummies.
2. *Placebo outcome*: Disability pensions are unaffected by the old-age conversion rate. If disability capital shares respond to the rate cut, this suggests confounding rather than a causal effect.
3. *Fund-type heterogeneity*: Collective funds face the BVG minimum directly; autonomous funds do not. If the result is driven by confounding, it should appear similarly across fund types. If it is driven by the conversion rate, it should be concentrated in the most exposed funds.
4. *Post-2014 stability*: With the rate fixed at 6.8% from 2014, any continuing trend in capital share after 2014 reflects confounding factors, not the reform.

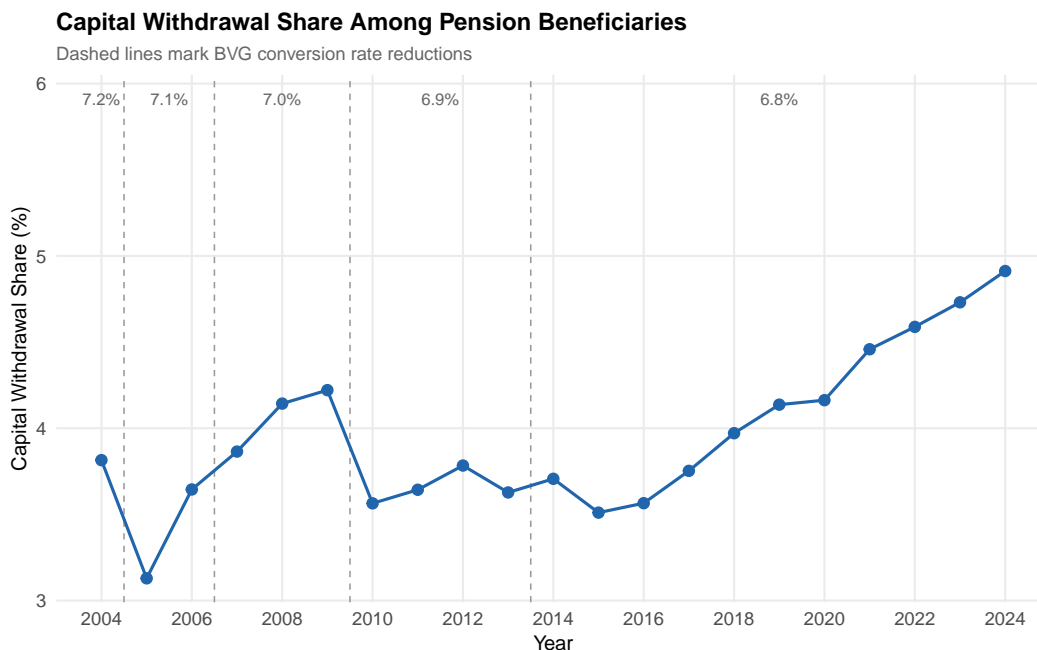
## 4.2 Limitations

Several limitations warrant emphasis. First, the data are aggregate: I observe annual counts of beneficiaries by fund type and gender, not individual-level choices. This precludes controlling for individual characteristics (age, wealth, health, marital status) that influence the annuity-capital decision. Second, the stock-based capital share is a noisy measure of the retirement-year decision, since it is diluted by the accumulated stock of past annuitants. The flow-based measure is cleaner but requires differencing the annuity stock, which introduces measurement error. Third, with 21 annual observations (or 105 in the fund-type panel), statistical power is limited. I present heteroskedasticity-robust standard errors but acknowledge that inference from short time series should be interpreted cautiously. Fourth, I cannot directly observe the *effective* conversion rate faced by each retiree—only the statutory minimum. Funds with above-mandatory capital may apply different rates, attenuating the measured effect of the BVG rate change.

## 5. Results

### 5.1 Main Results

[Figure 1](#) displays the capital withdrawal share over 2004–2024, with the four conversion rate steps marked. The raw trend is gently upward: from 3.8% in 2004 to 4.9% in 2024. But the increase is not monotonic—the share actually dropped in 2005 (the first reform step) and fluctuated around 3.5–4.2% through the reform period before rising more steeply after 2017.



**Figure 1:** Capital Withdrawal Share Among Pension Beneficiaries, 2004–2024

*Notes:* Capital withdrawal share is the number of capital payment beneficiaries divided by total beneficiaries (capital + annuity). Dashed vertical lines mark conversion rate steps: 7.1% (2005), 7.0% (2007), 6.9% (2010), 6.8% (2014). Data from BFS Pensionskassenstatistik, Table px-x-1303030000\_101.

Table 2 reports the main regression results. In the baseline specification without trend controls (Column 1), the coefficient on the rate cut is positive ( $\hat{\beta} = 0.014$ ,  $p = 0.066$ ): a one-percentage-point cut is associated with a 1.4 percentage-point increase in capital share. A linear time trend accounts for this entire association. Column 2 adds a year trend, and the coefficient reverses sign, becoming strongly significant:  $\hat{\beta} = -0.038$  ( $p < 0.001$ ). Each percentage-point rate cut is associated with a 3.8 percentage-point *decrease* in the capital share, relative to the secular trend.

The gender-specific estimates (Columns 3–4) use the flow-based capital share at retirement. Both men and women show positive raw associations with the rate cut—reflecting the secular trend—but the magnitudes differ. Women’s capital share at retirement is 19 percentage points lower than men’s on average ( $p = 0.001$ ), consistent with women’s lower accumulated capital and stronger annuitization preferences documented in the literature (Brown et al., 2001; Bütler and Teppa, 2007).

The intensive margin (Column 5) reveals that the average capital payment per beneficiary increased sharply with the rate cut: each percentage-point cut is associated with CHF 193,000 higher average withdrawals ( $p < 0.001$ ). The squeeze worked on the small saver but missed the wealthy: marginal withdrawers with modest balances were retained as annuitants—

**Table 2:** Effect of BVG Conversion Rate Cut on Capital Withdrawal

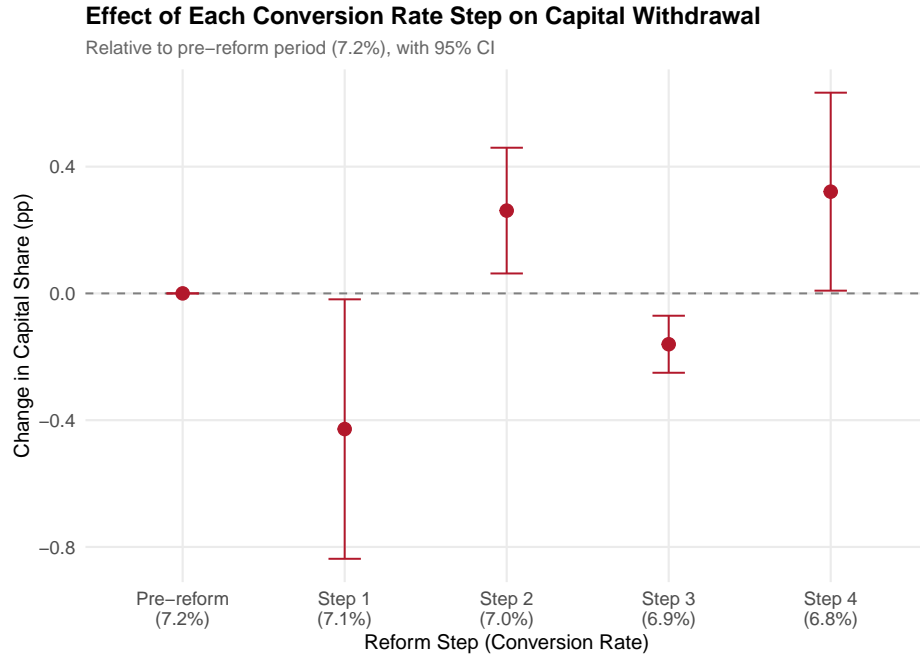
	Outcome	$\hat{\beta}$	SE	N	$R^2$
(1) Baseline	Capital share	0.01397	( 0.00718)	21	0.151
(2) + Linear trend	Capital share	-0.03756	( 0.00712)	21	0.706
(3) Men only	Capital share (flow)	0.27008	( 0.13774)	20	0.156
(4) Women only	Capital share (flow)	0.30793	( 0.09811)	20	0.341
(5) Intensive margin	Avg. capital (CHF)	193168.28722	(43289.94175)	21	0.434
(6) Placebo: disability	Disab. capital share	0.00853	( 0.00117)	21	0.773

*Notes:* Each row reports the coefficient on the cumulative conversion rate cut (in percentage points from 7.2%). Heteroskedasticity-robust standard errors in parentheses. Specifications (1)–(2) use the aggregate capital withdrawal share (beneficiary count). Specifications (3)–(4) use flow-based capital share at retirement by gender. Specification (5) uses the average capital payment per beneficiary in CHF. Specification (6) is a placebo test using the disability pension capital share, which should be unaffected by the conversion rate.

likely through institutional product redesign—while infra-marginal withdrawers with large above-mandatory balances, less constrained by the statutory floor, continued to take the cash.

## 5.2 Event Study

Figure 2 shows the estimated change in capital share at each reform step, relative to the pre-reform period. The pattern is non-monotonic: Step 1 (7.1%) reduced capital share by 0.4 percentage points, Step 2 (7.0%) increased it by 0.3 percentage points relative to pre-reform, Step 3 (6.9%) reduced it again, and Step 4 (6.8%) increased it. The staircase pattern does not trace a clean dose-response, which is consistent with competing forces: the conversion rate pushing down capital take-up while secular trends push it up.



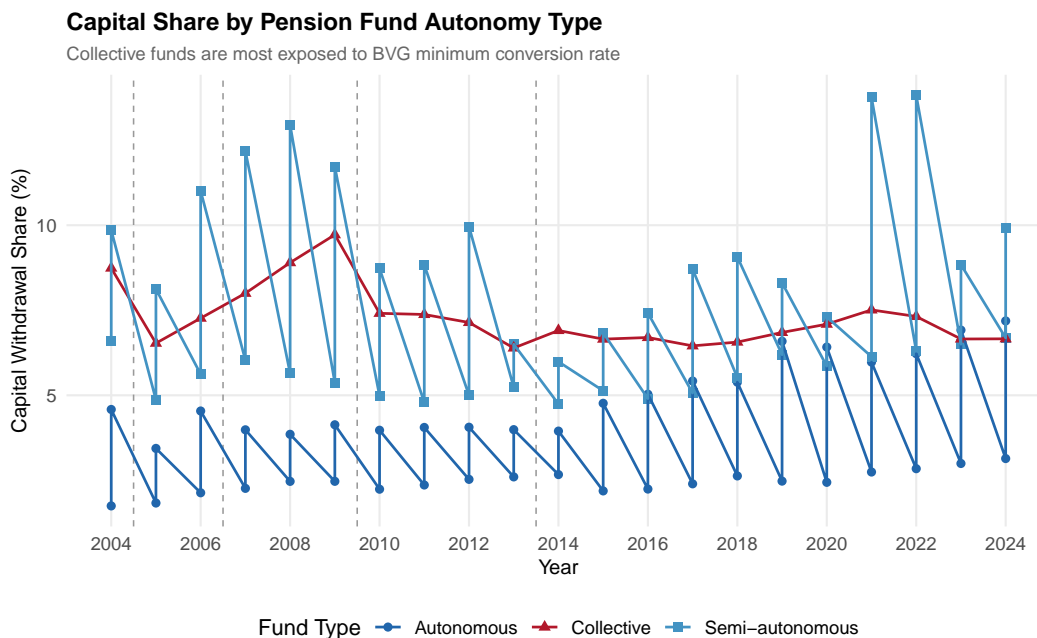
**Figure 2: Capital Share by Reform Step**

*Notes:* Point estimates and 95% confidence intervals from an OLS regression of capital withdrawal share on reform step dummies, with the pre-reform period (2004, conversion rate 7.2%) as the omitted category.

Heteroskedasticity-robust standard errors.

### 5.3 Mechanism: Fund-Type Heterogeneity

The most informative test of the institutional mechanism comes from comparing fund types. [Figure 3](#) plots capital withdrawal shares by fund autonomy type, and [Table 3](#) reports the regression estimates.



**Figure 3:** Capital Withdrawal Share by Pension Fund Type

*Notes:* Capital share among beneficiaries, by fund risk-bearing type. “Autonomous” funds bear all risks and set their own conversion rates. “Semi-autonomous” outsource some risks. “Collective” outsource all risks to an insurance company and typically apply rates at or near the BVG minimum.

**Table 3:** Heterogeneity by Pension Fund Autonomy Type

Fund Type	$\hat{\beta}$	SE	N	$R^2$
Autonomous	0.03739	(0.01878)	42	0.090
Semi-autonomous	-0.02353	(0.03123)	42	0.012
Collective	-0.03993	(0.01553)	21	0.313

*Notes:* Each row reports a separate regression of capital share on the cumulative rate cut, estimated within the indicated pension fund type. Autonomous funds set their own conversion rates above the BVG minimum; collective funds apply rates set by their insurance company, typically closer to the BVG minimum.

Heteroskedasticity-robust standard errors in parentheses.

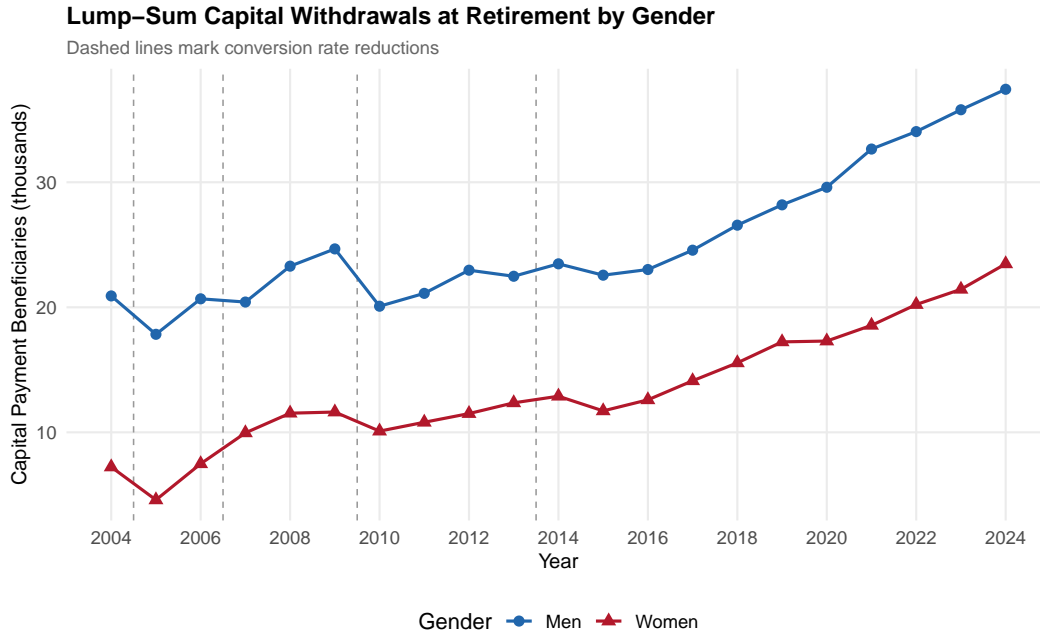
The results are striking. Autonomous funds show a positive coefficient ( $\hat{\beta} = 0.037$ ,  $p = 0.053$ ): in funds where the BVG minimum does not bind (because actual rates are higher), the conversion rate cut is associated with *increased* capital withdrawal. This is consistent with the standard economic prediction—less generous annuities prompt substitution to capital. Semi-autonomous funds show a null effect ( $\hat{\beta} = -0.024$ ,  $p = 0.456$ ). Collective funds show a significant *negative* effect ( $\hat{\beta} = -0.040$ ,  $p = 0.019$ ): in funds where the conversion rate binds most directly, the reduction was associated with *decreased* capital withdrawal.

This heterogeneity pattern is difficult to reconcile with simple confounding. If secular trends in financial literacy, tax incentives, or market conditions drove the aggregate result, they would affect all fund types similarly. The opposite-sign effects for autonomous vs. collective funds suggest that the institutional response to the rate change matters more than individual optimization.

**Interpreting the Collective Fund Response.** Why would collective funds show *less* capital withdrawal when annuities become less generous? The most plausible explanation is product redesign by insurance companies. When the minimum conversion rate falls, insurers can restructure their pension products—adjusting the split between mandatory and above-mandatory capital, modifying vesting schedules, or offering enhanced annuity features (survivor benefits, guaranteed periods)—to make annuitization more attractive relative to the new, lower baseline. [Beshears et al. \(2014\)](#) document that default options and product framing powerfully shape annuity choices; in the Swiss collective-fund setting, the insurer effectively controls the choice architecture.

#### 5.4 Gender Differences

[Figure 4](#) shows lump-sum capital beneficiaries at retirement by gender. Men consistently withdraw more capital, reflecting their higher average pension balances and different risk preferences. However, the rate of increase is similar across genders. The flow-based regression (Table 2, Columns 3–4) confirms this: both genders show positive raw associations with the rate cut, but women’s coefficient is larger and more precisely estimated ( $\hat{\beta} = 0.308$ ,  $p = 0.006$ ), suggesting women may be more responsive to the conversion rate signal at the margin.

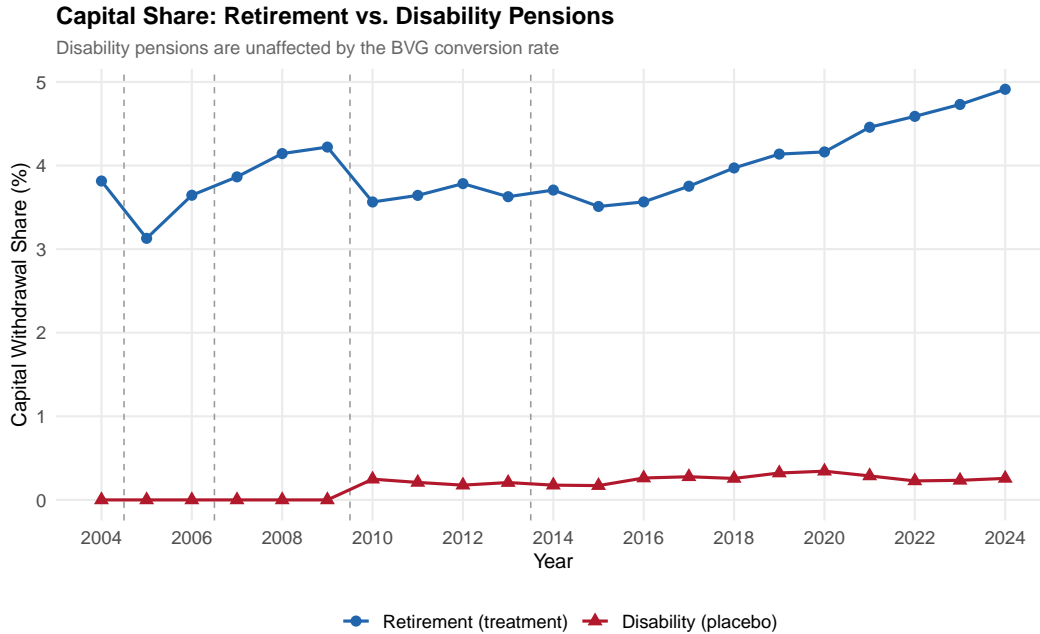


**Figure 4:** Lump-Sum Capital Withdrawals at Retirement by Gender

*Notes:* Number of beneficiaries receiving capital payments at retirement, by gender. Data from BFS Pensionskassenstatistik, Table px-x-1303030000\_142.

### 5.5 Placebo: Disability Pensions

Figure 5 plots the capital share for retirement pensions (treatment) and disability pensions (placebo). The conversion rate applies only to old-age pensions, so disability capital shares should be unaffected. The disability capital share was essentially zero from 2004 to 2009, then increased slightly from 2010 onward. This pattern reflects a change in reporting conventions (disability capital payments were not separately reported before 2010), not a behavioral response to the conversion rate. The post-2010 level is extremely low (0.1–0.3%), orders of magnitude below the retirement capital share. The placebo is thus consistent with no confounding—but should be interpreted cautiously given the data discontinuity.

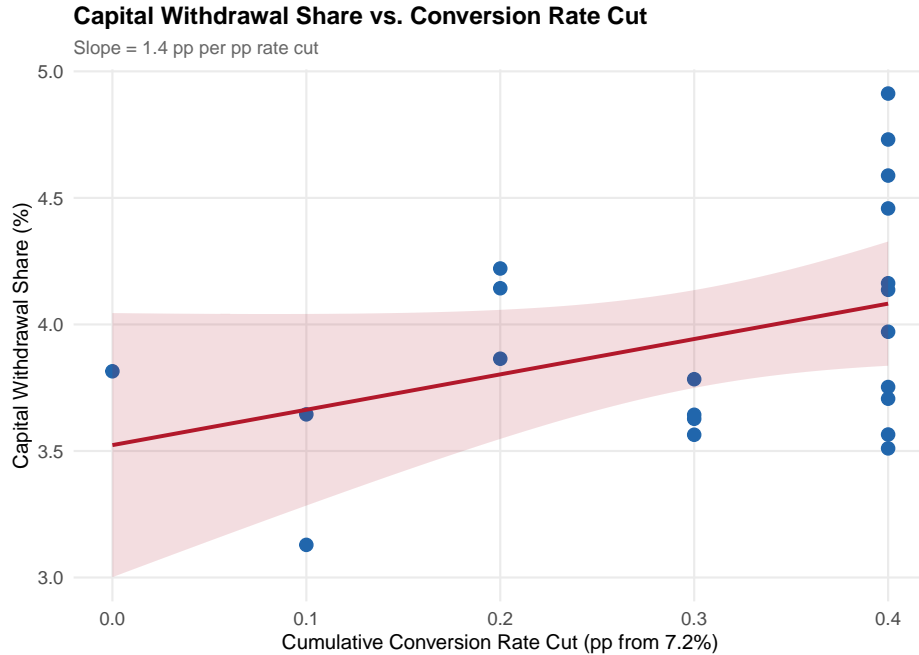


**Figure 5:** Capital Share: Retirement vs. Disability Pensions (Placebo)

*Notes:* Capital withdrawal share for old-age retirement pensions (treatment) and disability pensions (placebo). The BVG conversion rate applies to old-age pensions only. The jump in disability capital share around 2010 reflects a change in BFS reporting methodology.

### 5.6 Binscatter: Rate Cut vs. Capital Share

Figure 6 provides a visual summary of the raw relationship between the conversion rate cut and the capital withdrawal share. Each point represents one year. The positive slope reflects the time-confounded association; the clustering of points at rate cut = 0.4 (post-2014) at varying capital share levels illustrates the continued secular trend even after the rate stabilized.

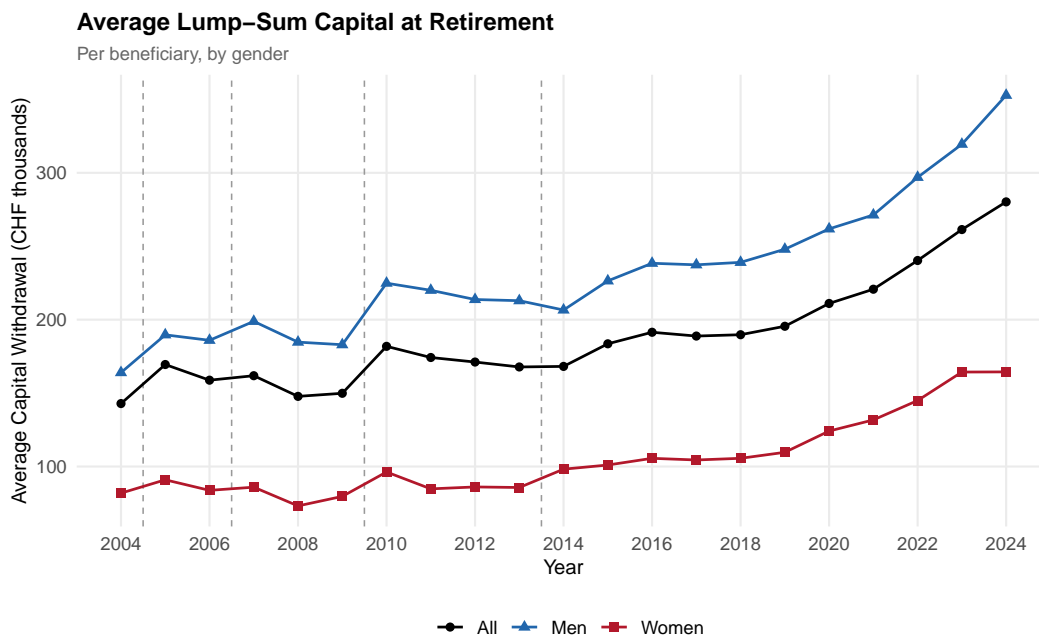


**Figure 6:** Capital Withdrawal Share vs. Cumulative Conversion Rate Cut

*Notes:* Each point represents one year. The x-axis shows the cumulative cut from the 7.2% baseline. The fitted line is from OLS without time trend controls. The positive slope reflects both the conversion rate effect and the secular time trend.

### 5.7 Intensive Margin

Figure 7 plots the average capital withdrawal per beneficiary, by gender. The intensive margin shows a clear upward trend: average capital per withdrawer rose from roughly CHF 130,000 in 2004 to over CHF 230,000 by 2024 (in nominal terms). This increase of roughly 80% far exceeds wage growth or pension capital accumulation over the period. It suggests a compositional shift: as the conversion rate fell, smaller-balance retirees may have been retained as annuitants (perhaps through institutional product redesign), while larger-balance retirees—less affected by the minimum rate and more financially sophisticated—continued to withdraw capital. The gender gap is large and persistent: men’s average capital withdrawal is roughly double women’s.



**Figure 7:** Average Capital Withdrawal per Beneficiary at Retirement

*Notes:* Average capital payment at retirement in CHF thousands, by gender. Computed as total capital payment amount divided by number of capital payment beneficiaries. Data from BFS Pensionskassenstatistik, Table px-x-1303030000\_142.

## 5.8 Robustness

**Structural Breaks.** Table 4 reports structural break estimates. The four post-step dummies capture the cumulative shift in capital share at each reform step. The pattern is qualitatively consistent with the step-function timing of the reform: Step 1 shows a significant initial drop, subsequent steps show mixed effects. The overall  $R^2$  of 0.20 indicates that the step dummies capture a meaningful share of variation, though less than the trend-adjusted specification.

**Post-2014 Stability.** With the conversion rate fixed at 6.8% from 2014, any continued trend in capital share reflects factors other than the reform. The post-2014 linear trend coefficient is 0.0014 ( $p < 0.001$ ), confirming a strong secular increase even in the absence of rate changes. This validates the inclusion of a time trend in the main specification and underscores that the raw positive association between rate cut and capital share is driven by the time trend, not the reform.

**Excluding COVID-19.** The year 2020 may have disrupted retirement decisions through financial market volatility and health concerns. Excluding 2020 yields nearly identical estimates ( $\hat{\beta} = 0.014$  without trend,  $p = 0.085$ ), indicating that the results are not driven by

**Table 4:** Robustness: Structural Break Estimates

Reform Step	Estimate	SE
Post-2005 (7.1%)	-0.00428	(0.00209)
Post-2007 (7.0%)	0.00689	(0.00232)
Post-2010 (6.9%)	-0.00422	(0.00111)
Post-2014 (6.8%)	0.00481	(0.00166)
N	21	
$R^2$	0.357	

*Notes:* Estimates from a single regression of capital withdrawal share on four reform step dummies. Each coefficient represents the cumulative change in capital share relative to the pre-reform period (2004).

Heteroskedasticity-robust standard errors in parentheses.

pandemic-year outliers.

**Capital Amount Share.** Using the capital amount share (CHF in capital divided by total CHF) rather than the beneficiary share yields qualitatively similar results, confirming that the finding is not an artifact of the particular outcome measure.

## 6. Discussion

The central finding of this paper—that a 5.6% reduction in annuity generosity was associated with a slowdown, not an acceleration, of the shift toward capital withdrawal—has implications for the annuity puzzle literature and for pension policy design.

**Supply-Side Annuity Puzzle.** The classical annuity puzzle focuses on why individuals under-annuitize relative to the lifecycle model’s prediction (Yaari, 1965). Most explanations operate on the demand side: bequest motives, adverse selection, loss aversion, complexity. This paper identifies a complementary supply-side mechanism: institutional intermediaries actively shape the choice set in response to regulatory changes. When the conversion rate falls, insurance companies managing collective funds appear to redesign their products to retain annuitants—perhaps through enhanced survivor benefits, guaranteed payment periods, or favorable above-mandatory conversion rates. This echoes Beshears et al. (2014)’s finding that defaults and framing dominate individual preferences, but extends it to a regulatory context where the “framer” is a profit-maximizing insurer rather than a benevolent employer.

**Compositional Effects.** The large increase in average capital per withdrawer (roughly CHF 100,000 over the sample period) suggests that the reform’s bite fell differentially on different types of retirees. Workers with small pension balances—predominantly those near

the BVG salary threshold, where the mandatory conversion rate binds most directly—may have found the redesigned annuity products more attractive, while those with large above-mandatory balances continued to take capital. This compositional shift has distributional implications: it means the conversion rate reduction may have improved annuitization rates among the workers who benefit most from longevity insurance (those with low wealth and few alternative resources), while having little effect on the wealthy.

**Policy Implications.** Switzerland’s experience offers a cautionary tale for the many OECD countries considering reductions in defined-benefit pension generosity. The direct effect of lower generosity—pushing retirees toward alternative savings vehicles—may be muted or reversed by the institutional response. This is particularly relevant for countries with mandatory or quasi-mandatory occupational pension systems (Netherlands, Denmark, UK auto-enrollment) where the choice architecture is controlled by intermediaries rather than individuals.

The 2022 BVG21 reform, which restructured the minimum conversion rate and entry thresholds, creates a natural extension of this analysis. Future work with fund-level microdata—which the BFS collects but does not publish in cross-tabulated form—could decompose the aggregate patterns identified here into individual-level behavioral responses and institutional product adjustments.

**Limitations.** Several caveats apply. The aggregate nature of the data limits the ability to identify individual behavioral responses. The 21-year time series provides limited statistical power, and the results are sensitive to the time-trend specification. The disability placebo is compromised by a reporting-methodology change. And the mechanism—institutional product redesign—is inferred from the fund-type heterogeneity rather than directly observed. These limitations suggest treating the results as suggestive evidence of an institutional mechanism rather than definitive proof.

## 7. Conclusion

When annuities become less generous, the standard prediction is that retirees shift toward lump-sum capital. Switzerland’s BVG conversion rate reduction—a clean, formula-driven cut in annuity generosity—produced the opposite: a relative slowdown in capital withdrawals, concentrated in the fund types most exposed to the statutory minimum. The finding suggests that pension regulation operates through institutional intermediation as much as through individual optimization. The “annuity puzzle” may not be a puzzle of human psychology at all, but a consequence of how insurance companies design their menus.

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**Project Repository:** <https://github.com/SocialCatalystLab/ape-papers>

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## A. Data Appendix

### A.1 Data Sources and Access

All data were accessed from the Swiss Federal Statistical Office (BFS) Pensionskassenstatistik via the PXWeb API at <https://www.pxweb.bfs.admin.ch>. No authentication is required. The three tables used are:

- **px-x-1303030000\_101**: Overview of pension fund status. Variables: active insured persons, annuity beneficiaries (year-end stock), capital payment beneficiaries (annual flow), and corresponding amounts in CHF 1,000. Available 2004–2024, cross-tabulated by administrative form, risk coverage type, legal form, and BVG registration status.
- **px-x-1303030000\_141**: Annuity benefits by type. Variables: old-age, disability, spouse, and orphan annuity beneficiaries and amounts, with gender breakdown for old-age and disability. Available 2004–2024.
- **px-x-1303030000\_142**: Capital and exit payments. Variables: capital payments at retirement, at disability, at death; exit benefit transfers; home-ownership early withdrawals; divorce-related payments. Each with gender breakdown. Available 2004–2024.

### A.2 Conversion Rate Schedule

The statutory BVG minimum conversion rate for men at age 65 is defined in BVG Art. 14 (SR 831.40). The schedule implemented by the First BVG Revision:

Year(s)	Rate (%)	Federal law reference
$\leq 2004$	7.2	BVG Art. 14 (original)
2005–2006	7.1	1. BVG-Revision, Art. 14 para. 2
2007–2009	7.0	1. BVG-Revision, Art. 14 para. 2
2010–2013	6.9	1. BVG-Revision, Art. 14 para. 2
2014–	6.8	1. BVG-Revision, Art. 14 para. 2

The 2010 referendum on a further reduction to 6.4% was rejected with 72.7% “No” votes (Swissvotes ballot 538, March 7, 2010).

### A.3 Variable Construction

- **Capital withdrawal share (stock-based):** Capital payment beneficiaries (Table 101, code 6) divided by the sum of capital payment beneficiaries and annuity beneficiaries (code 4).
- **Capital withdrawal share (flow-based):** Capital payment beneficiaries at retirement (Table 142, code 1) divided by the sum of capital beneficiaries at retirement and the annual change in old-age annuity beneficiary stock (Table 141,  $\Delta$ code 1).
- **Cumulative rate cut:**  $7.2 - r(t)$ , where  $r(t)$  is the statutory rate in year  $t$ .
- **Fund autonomy type:** Based on the BFS “Art der Risikodeckung” classification. Codes 1–2 mapped to “Autonomous,” codes 3–4 to “Semi-autonomous,” code 5 to “Collective,” code 6 to “Savings only” (excluded from regressions).

### A.4 Sample Restrictions

No observations are dropped from the sample. The full panel runs from 2004 to 2024 (21 years). For gender-specific and flow-based analyses, the first year (2004) is lost due to the need for lagged annuity beneficiary counts. The risk-type panel excludes “Savings only” funds (Sparenrichtungen), which have a mechanically different structure.

## B. Identification Appendix

### B.1 Pre-Trend Test

A linear regression of capital share on year over the 2004–2006 period (before the second reform step) yields a positive but imprecisely estimated slope, indicating no strong pre-existing trend in the earliest years. However, with only three observations, statistical power is extremely limited.

### B.2 Post-2014 Stability Test

From 2014 to 2024, with the conversion rate fixed at 6.8%, the capital share increased from 3.7% to 4.9%. The annual trend coefficient is 0.0014 ( $p < 0.001$ ), confirming a strong secular upward trend in the absence of further rate changes. This secular trend is the key confounder controlled for in the main specification.

### B.3 Alternative Controls

Adding a quadratic time trend (year and year<sup>2</sup>) to the main specification yields a coefficient of  $\hat{\beta} = -0.037$  ( $p = 0.002$ ), closely matching the linear-trend specification. The result is not sensitive to the polynomial order of the time trend.

## C. Robustness Appendix

### C.1 COVID-19 Exclusion

Excluding the year 2020 from the sample has minimal impact on all estimates. The main specification coefficient changes from 0.014 to 0.014 without trend controls ( $p = 0.085$ ), and from  $-0.038$  to  $-0.037$  with trend controls.

### C.2 Capital Amount Share

Using the capital amount share (CHF in capital payments divided by total CHF) instead of the beneficiary share yields a coefficient of  $-0.006$  ( $p = 0.587$ ) without trend controls, indicating that the amount-weighted measure shows no significant raw relationship. This difference from the count-based measure reflects the intensive margin: the composition of capital withdrawers shifted toward higher balances.

## D. Heterogeneity Appendix

### D.1 Gender Decomposition

Men's capital share at retirement (flow-based) averages 63%, compared to 44% for women. Both genders show increasing capital take-up over time. The conversion rate coefficient is larger for women ( $\hat{\beta} = 0.308$ ,  $p = 0.006$ ) than for men ( $\hat{\beta} = 0.270$ ,  $p = 0.066$ ), though the gender interaction term is not statistically significant ( $p = 0.824$ ). Women's higher responsiveness may reflect their lower average pension balances, which makes the conversion rate change relatively more salient.

## E. Standardized Effect Sizes

**Table 5:** Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
<i>Panel A: Pooled</i>						
Capital withdrawal share	0.0140	0.0072	0.0036	0.4868	0.2500	Large positive
Capital amount share	0.2405	0.0652	0.0511	0.5856	0.1587	Large positive
Avg. capital per beneficiary (CHF)	193168.3000	43289.9400	9958.7520	2.4130	0.5408	Large positive
Disability capital share (placebo)	0.0085	0.0012	0.0000	—	—	NA
<i>Panel B: Heterogeneous (by gender)</i>						
Capital share (flow): Men	0.2701	0.1377	0.0125	2.6783	1.3659	Large positive
Capital share (flow): Women	0.3079	0.0981	0.0331	1.1590	0.3693	Large positive

*Notes:* **Country:** Switzerland. **Research question:** Does a reduction in the mandatory occupational pension conversion rate shift retirees from annuity payouts toward lump-sum capital withdrawals? **Policy mechanism:** The BVG reform reduced the federal minimum conversion rate that translates mandatory Pillar 2 pension capital into annual annuity income, making annuities mechanically less generous relative to lump-sum alternatives. **Outcome definition:** Capital withdrawal share is the number of beneficiaries receiving a lump-sum capital payment at retirement divided by total retirement beneficiaries (capital plus new annuity). **Treatment:** Continuous; cumulative percentage point reduction in the BVG conversion rate from the 7.2% baseline. **Data:** BFS Pensionskassenstatistik (tables px-x-1303030000\_101, \_141, \_142), 2004–2024, annual aggregate observations,  $N = 21$  years. **Method:** OLS with heteroskedasticity-robust standard errors; event-study step dummies; gender-specific and fund-type heterogeneity. **Sample:** All registered Swiss occupational pension funds reporting to the BFS; disability pensions serve as placebo.  $SDE = \hat{\beta} \times SD(X)/SD(Y)$  where  $SD(Y)$  is the pre-reform standard deviation and  $SD(X)$  is the standard deviation of the treatment variable. Classification refers to magnitude, not statistical significance: Large ( $|SDE| > 0.15$ ), Moderate (0.05–0.15), Small (0.005–0.05), Null ( $< 0.005$ ).