The Politics of Aging and Retirement: Evidence from Swiss Referenda

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Abstract

Aging threatens financial sustainability for PAYG pension systems, since the share of retirees to workers increases. An often advocated policy response is to increase retirement age. Ironically, however, the political support for this policy may actually be hindered by population aging. Using Swiss administrative voting data at municipal level (and individual survey data) from pension reforms referenda, we show in fact that individuals close to retirement tend to oppose policies that postpone retirement, whereas young and elderly individuals are more favorable. The current process of population aging, and the associated increase in the size of the cohort of individuals close to retirement, may partially explain why a pension reform, which increased retirement age for women, was approved in two referenda in 1995 and 1998, while a reform, which proposed a similar increase in female retirement age, was defeated in a 2017 referendum.

1   Introduction

Aging is recognized to threaten the financial sustainability of PAYG pension systems. The increase in the share of retirees to workers – the old age (pension) dependency ratio – creates a financial unbalance in the pension systems since contributions from fewer workers need to finance pension benefits to more retirees. Faced with population aging, many developed countries have responded by increasing retirement age. As shown in Figure 1, the average retirement age had largely decreased from the early 70s to the mid90s. This massive use of generous early retirement provisions has represented a crucial factor that challenged the financial sustainability of PAYG systems (Gruber and Wise, 2008; Blöndal and Scarpetta, 1999). However, this trend changed in the late 90s. Since then, retirement age has slowly increased.

Reform policies that mandate an increase of the statutory retirement age, or modify pension generosity in order to induce people to postpone retirement, are never popular, since they create clear losers: the individuals close to retirement. Ironically, although postponing retirement is largely advocated as a solution to population aging, the political support for this policy may actually be hindered by population aging. Aging increases the relative size of the cohorts of the individuals close to retirement. It is thus crucial for the economic sustainability of the pension system that these large cohorts remain in the labor market – rather than move into retirement. Yet, these cohorts vocally disapprove a policy that forces them to work longer years – and this opposition materializes also in the political arena. As the relative size of these cohorts increases, so does their electoral opposition to postponing retirement.

This paper provides an empirical assessment of the electoral support for (or rather opposition to) postponing retirement age in Switzerland, and quantifies how this support is affected by population aging. Switzerland is an ideal scenario where to evaluate the political effects of aging on postponing retirement since it has one of the oldest population in the world, its pension system has been subject to several reforms of the retirement age and (some of these) reforms have been voted upon in referenda.[1] The economic effects of aging on the Swiss pension system have been relevant. In 1948, when the federal pension system was introduced, there was only one retiree (aged 64 or over) for every 6.5 employed individuals (aged 20-63). Today, 3.4 workers finance the pension of a retiree and this ratio is expected to become 2 to 1 in twenty years, as the baby-boomer generation will retire (Dorn and Sousa-Poza, 2003; OECD, 2017). The policy response to these demographic dynamics began in 1995, with the 10-th revision of the pension system (see table 1), which, for the first time, increased the retirement age.[2] This increase, specifically targeted to women and aimed at bringing their retirement

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[1]Swiss citizens can propose partial or total revisions of the Constitution by popular initiative, or ask for a referendum to be held on any law voted by the federal and cantonal Parliament and/or by the municipal legislative bodies. Moreover, a referendum is mandatory for any amendment to the Federal Constitution, which then comes into force only if accepted by a majority of both voters and cantons.

[2]Previous revisions (the 4th in 1957 and 6th in 1964) instead reduced the retirement age.

age in line with men's, was also justified by gender equality arguments. The policy reform was subject to two popular referenda, in 1995 and in 1998. A more recent reform proposal to increase the retirement age, again for women, was also subject to a popular referendum, in 2017.[3] These direct votes by the citizens allow us to assess the political support for postponing retirement (for women) in different periods.

To evaluate the importance of the age composition of the population for the political support to postpone retirement, we use administrative voting data in referenda at municipal level and survey data on individual voting behavior. The empirical results with administrative data exploit variation across municipalities to show that, in all referenda (1995, 1998 and 2017), municipalities with higher shares of women in their fifties – thereby locked into the pension system (Pierson, 1996) and directly affected by the increase in retirement age – were less likely to support the reform policy. Individual survey data provide additional evidence in this direction. Female voters in their fifties were particularly opposed to a policy, such as the 10-th revision or the 2020 reform, that increased retirement age specifically for female workers. As a placebo test, we analyzed whether the demographic composition of the population (using municipal data) or the age of the respondent (using survey data) could explain the voting behavior in a 2017 referendum on a different topic: the corporate tax reform. As expected, they did not. Finally, we use municipal data from all referenda (1995, 1998 and 2017) to find that the electoral support to postpone retirement for women drops more (from 1995 or 1998 to 2017) in municipalities that had a larger increase in the share of women in their fifties. Hence, aging – by increasing the share of individuals close to retirement – had a negative impact on the support to policies that postponed retirement. Taken together, all these evidences confirm the crucial role of aging in reducing the political support for postponing retirement and may help to explain why the 10-th revision of the pension system passed (both in 1995 and in 1998), while the 2020 reform failed to be approved in 2017.

This paper contributes to a literature on the political determinants of policy reforms. Changes in welfare programs and structural reforms are difficult to implement, as they require policy-makers to promote policies that create winners and losers, and may have negative electoral consequences (Buti et al., 2009; Leroux et al., 2011; Galasso, 2014). Empirical evidence in this literature use survey data to identify the socio-economic determinants of the individual preferences (age, income, gender, occupation, working history or degree of information about the issues at stake) that may affect the political support for a policy or a reform (Boeri et al., 2002; Boeri and Tabellini, 2012; Rehm et al., 2012; Margalit, 2013; Gingrich, 2014; Parlevliet, 2017; de Mello et al., 2017; Bittschi and Wigger, 2019).[4] This evidence on the political support is self-reported and, at most, indirect, since individuals vote for parties and not over

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[3]Also the 11-th revision of the pension system, blocked in 2004 by a referendum, proposed an increase in the retirement age for women from 64 to 65 years. However, the main measure in this proposal was a substantial rise in the VAT rate, from 7.6% to 9.4%, to finance the pension system (see Table 1).

[4]Hess (2017) suggests that elderly workers adapt to pension reforms that delay retirement by increasing their preferred retirement age.

policies. Alternative empirical evidence on the effect of country characteristics, such as share of elderly, religion, political institutions or GDP, uses instead cross country data on welfare spending (Brooks and Manza, 2006; Bittschi and Wigger, 2019). Our paper contributes to this literature, by providing direct evidence, with both administrative voting data in referenda on specific policies and survey data, that alongside other individual characteristics – such as, political ideology, education, income – age matters.

The paper contributes also to the research on the impact of aging on the political support for welfare states[5] (Busemeyer et al., 2009; Razin et al., 2002; Sinn and Uebelmesser, 2003; Tepe and Vanhuysse, 2009). Some contributions have argued that demographic dynamics may have opposite economic and political effects (Galasso and Profeta, 2004; Galasso, 2008). For instance, aging makes PAYG pension systems economically less efficient,[6] but increases their political support since the voting population becomes older.[7] Our paper provides a quantitative assessment of the effect of population aging on the support – or rather opposition – for postponing retirement, by measuring the impact of the change in the share of elderly workers on the electoral support for postponing retirement in two Swiss referenda held twenty years apart.

Other studies used Swiss ballot data to investigate the relevance of socioeconomic factors for voting behaviour. Funk and Gathmann (2014) analyzed gender gap in policy making by exploiting survey data on voting for a representative sample of Swiss citizens. By using survey data, Bonoli and Häusermann (2009) analyzed 22 referenda on distributional issues from 1981 to 2004 to show that age matters more than income and education in explaining individual voting decisions. Eugster et al. (2011) used municipal data on voting in referenda to study the role of culture in the demand for social insurance. A paper analyzing a research question closer to ours is Bütler (2002), who explored the political feasibility of increasing (female) retirement age. She uses voting data at municipal level from the 1998 referendum on the 10th revision of the pension system to show that municipalities with a younger population support an increase in the female retirement age, while those with a larger share of middle-aged voters strongly oppose it. Our paper confirms these results for the 1998 referendum and extends them to other two referenda, in 1995 and 2017, which had opposite voting outcomes. Our additional contribution is to use both administrative and survey data to identify the actual

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[5]Regardless of the underlying source of support for the welfare state – whether redistribution towards the working class (Esping-Andersen, 2013; Huber et al., 2001) or a demand for insurance by many (Baldwin, 1990; Iversen and Soskice, 2001; Moene and Wallerstein, 2001) – aging may modify the intensity of the pre-existing support.

[6]However, Ediev (2014) shows that for a population with increasing longevity the PAYG system may be more advantageous than a funded system, as for the workers living longer at retirement than current retirees, it is less costly to fund others' current pensions than their own.

[7]Hess et al. (2017) argue that the strength of this intergenerational conflict does not increase with aging, if active aging policies are introduced. Moreover, another literature suggests that aging may also affect voting outcomes since individuals modify their political ideology – for instance becoming more conservative – as they age (Tilley and Evans, 2014; Wagner and Kritzinger, 2012).

(voting) preferences on retirement age of individuals by age groups. Moreover, we are able to assess the impact of aging on the different electoral outcomes of the referenda of the 90s and the 2017 referendum. Finally, Bütler and Maréchal (2007) study two – effectively identical – Swiss popular initiatives (#469 and #470) proposed in opposition to postponing retirement age that were voted – and rejected – in November 2000. They suggest that the difference in the approval rate between the initiatives depends on framing in the title of the initiative.

The paper is organized as follows. Section 2 describes the Swiss institutional background. Section 3 provides our theoretical predictions and then describes the data and the identification strategy. Finally, Section 4 presents the results and concludes.

2 Institutional Background

The Swiss pension system is based on two pillars. The first pillar is a mandatory PAYG old-age pension system (LAVS), which covers all employees, self-employed, and unemployed individuals and is financed by payroll taxes. The second pillar is a fully-funded (company) pension plan, which is compulsory for these employees, whose labor income exceeds a minimum threshold. It is financed by contributions shared between employers and employees. The minimum age of entitlement varies across pension plans and thus needs not to coincide with the retirement age on the first pillar.

The old-age pension system was introduced in 1948 with the Federal Old-Age and Survivors' Insurance Act (LAVS). The new federal system absorbed the pre-existing cantonal schemes and provided a basic pension to individuals aged 65 and above, who had contributed with 4 per cent of their earnings. This Act gained an overwhelming majority (80% of the voting population, who, at the time, did not include women) in a referendum. In 1960, the Old-Age and Survivors' Insurance (AVS) was complemented by the Invalidity Insurance Scheme (AI), and in 1966 by the AVS-AI Benefits Act (LPC).

Revisions to the pension system were introduced already in 1951 (see Table 1 for a summary of all revisions) in order to expand eligibility and to increase pension generosity. Retirement age was reduced for women from 65 to 63 years old in 1957 (4th revision) and from 63 to 62 in 1964 (6th revision). No referendum took place on any revision until 1978, when a popular initiative tried to block the 9th revision. This revision reintroduced AVS contributions for individuals receiving an AVS pension, who were still working, and increased the requirements for joint pensions. In that referendum, the revision was accepted with a 60% majority. In 1995, the 10th revision proposed to increase the official retirement age for women from 62 to 64 and to allow individuals to claim benefits up to one year earlier (up to two years since 2001). As a compensatory measure, the reform introduced also a splitting of contributions and pensions between spouses and education pension credits.[8] This 10th revision was approved with 60%

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[8]The statement on the ballot was "Do you accept the changes made on October 7th 1994 to the Federal law on the old age and survival pensions (10th revision)?"

of the votes in a referendum by the Swiss population. Three years later, the reform was challenged by a popular initiative that promoted a new referendum.[9] In 1998, 60% of voters supported again the revision (see Butler, 2002). A more comprehensive reform was proposed in 2003. This 11th revision aimed at guaranteeing the solvency of the scheme through a substantial increase in the sales tax (VAT) – from 7.6% to 9.4% – to finance pension spending. This reform included also a further increase in retirement age for women from 64 to 65, a change in the timing of pension indexation, the abolition of widow's pension and the access to early retirement three years before standard retirement age. This reform was opposed by 68% of Swiss voters in a referendum and thus did not pass. Finally, the 2020 reform package was designed to address the financial sustainability of the system in a low interest rate environment under population aging. The main measures included postponing normal retirement age for women from 64 to 65 and increasing the earliest possible retirement age from 58 to 62, while allowing more flexibility in retirement between the 62 and 70 years old. This reform also included, among other things, a gradual reduction of the minimum conversion rate from 6.8% to 6.0% over 4 years and an increase in the use of VAT revenue to finance the pension system. VAT tax was set to increase by 0.3% in 2021, while 0.6% of the VAT tax was immediately devoted to finance the pension system.[10] On 24 September 2017, this 2020 reform was rejected by 53% of the voters in a referendum. The history of the approval rate in Swiss referenda on pension issues is shown in Figure 2.

3 Data and Empirical Strategy

3.1 Theoretical Predictions

The existing theoretical literature suggests that the support for the welfare state may stem from a demand for redistribution by the working class (Esping-Andersen, 2013; Huber et al., 2001) and/or from a demand for insurance by different individuals (Baldwin, 1990; Iversen and Soskice, 2001; Moene and Wallerstein, 2001). In both cases, once a welfare system is in place, any reform creates additional redistributive effects. This redistributive elements contribute to shape the individual preferences over the reform policy.

Since aging modifies the population structure, a crucial question is how preferences over retirement age depend on the individual voter's age.[11] Younger individuals may benefit from

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[9]The statement on the ballot was "Do you accept the popular initiative for the 10th revision of the pension system without the increase in the retirement age?"

[10]The statement on the ballot was "Do you accept the Federal law of March 17th 2017 on the reform of the pension system 2020?"

[11]A large literature has studied how preferences towards a PAYG pension system may differ by age and other individual characteristics (for a review see Galasso and Profeta, 2002) and how aging affects the political support for different pension reforms (Galasso and Profeta, 2004; Galasso, 2008). Clearly, reforms that reduce pension benefits are opposed by retirees, unless granfathering mechanisms are introduced, whereas reforms that increase contributions are opposed by current workers.

a low retirement age, if they will also be allowed to retire early in the future. However, an immediate reduction of the retirement age may lead to a current increase in the contribution rate needed to finance the increased number of current pensions. This cost would fall on the current workers. Hence, as discussed in Galasso (2008), young workers will indeed tend to favor higher retirement ages. Middle aged individuals will instead prefer to reduce (or at least not to increase) retirement age, since they are close to retirement. And their opposition to postponing retirement age will become stronger as they get closer to the current retirement age.[12] Finally, individuals, who have already retired, may have less pronounced preferences. Typically, they will not be called back into the labor market and their pension benefits, which have been defined at retirement, are not subject to renegotiation. Nevertheless, if the elderly have any doubt that a reduction in retirement age (or the absence of its increase) may lead to a situation of financial instability for the pension system, they would favor a higher retirement age (see Bittschi and Wigger, 2019, for the preferences of German retirees).

To summarize, our theoretical predictions are the following. We expect young individuals to (weakly) favor an increase in the retirement age. Yet, this support decreases with the age of the individual and reaches its minimum (or the maximum opposition) close to the current retirement age. Among retired individuals, instead, we expect again to find (weak) support for postponing retirement. In our empirical analysis, we will thus operationalize these differences in preferences by age by considering different age groups at the time of each referendum. Since the increase in retirement age is only targeted to women, among the individuals close to retirement, we distinguish between women, who are directly affected by the policy, and men, who may be indirectly affected, if their spouses are.[13] We thus concentrate on the following groups: young (18-29), adults (30-49), women close to retirement and thus certainly affected by the policy (50-61), men close to retirement but likely unaffected (50-61), retired individuals (62+). This age group break-down depends on the fact that all reform policies were enacted (or planned to be enacted) after the referendum. In particular, the increase in the retirement age for women featured in the 10-th revision was designed to happen in two steps, reaching 63 years by 2001 and 64 by 2005. The 2020 reform envisaged an increase in the retirement age for women from 64 to 65 years to be reached over a four year transition path, starting in 2018. Clearly, besides age, other individual characteristics, such as education, income, may determine people preferences over retirement age (see Boeri et al., 2002). In our empirical analysis, we control for these characteristics.

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[12]This discussion considers the preference of individuals, who are directly covered by the PAYG pension system: in the Swiss case, employed, self-employed and unemployed individuals. To the extent that individuals are not directly enrolled in the system, their preferences are likely to be shaped by family considerations, if other persons in the family are covered by the pension system.

[13]The preferences over this policy of the husband of a woman, whose retirement age increases, are not easy to determine. In fact, an increase in the retirement age will lead to a higher household income, but will reduce the wife leisure time – and perhaps her share of family chore. The overall effect on the husband preferences will thus depend on his degree of altruism and on the within household bargaining.

3.2 The Data

Our analysis focuses on three of the referenda on pension reforms mentioned above, in which the main measure was the increase in retirement age for women. Two referenda concern the 10th pension revision and took place in 1995 and in 1998. The third referendum was in 2017 on the 2020 pension reform. Both reforms (the 10th revision and the 2020 reform) included additional measures – most notably some flexibility in the retirement options, which affected both men and women, but the main focus was on the increase in retirement age for women. We instead exclude from the analysis the 11-th pension revision, which entailed a rise in the retirement age for women, but whose main reform measure was a substantial hike in the VAT tax, from 7.6% to 9.4%, to finance pension spending. Table 1 provides a list of the measures included in all pension reforms. Interestingly, our two reforms represent respectively the last to be approved and the last to be rejected in a referendum. Additionally, as a placebo, we examine the referendum on the corporate tax reform, which was rejected on the 12th of February 2017. This reform aimed at aligning the Swiss corporate tax system with international standards.[14] Hence, unlike in the two referenda on pension reforms, we do not expect individuals' preferences to be related to their age and the result of the referendum to be affected by the age structure of the population.

We use publicly available voting data for about 2100 Swiss municipalities with information on the number of eligible voters, of valid votes, and of votes in favour or against the initiative. Moreover, for each municipality we collect data on the structure of the population from the Federal Statistical Office. Specifically, population data are taken from the Swiss Census, which was conducted every ten years from 1850 to 2010. From 2010, the Census has been updated on annual basis using information from the population registers and from a sample survey. We use the 1990 Census for the 1995 and 1998 referenda and the 2016 Census for the 2017 referenda (on the 2020 pension reform and on the corporate tax reform).[15] We focus only on Swiss citizens, since foreigners have no right to vote. Changes in the age structure of the Swiss population can be appreciated in Figure 3. From 1995 to 2017 there was a 41 percentage point increase in the number of middle-aged individuals. We also collect economic, political and demographic information at municipal level: income level and income inequality from the Federal Tax Office; political parties' vote shares at the national elections, share of foreigners and share of population by highest education attainment from the Federal Statistical Office.[16]

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[14]In particular, the goal was to abolish existing and preferential tax regimes for holdings or mixed companies and to replace them with a new set of internationally accepted measures.

[15]Age x in 1995 (1998) corresponds to age x-5 (x-8) in 1990. Age x in 2017 corresponds to age x-1 in 2016. We use this information to create demographic variables at municipal level measuring the fraction of voters in our five age groups: 18-29, 30-49, 50-61, 62-67, 68+. Due to lack of data, we do not take into account survival probabilities.

[16]The federal tax authority reports the average net income and the Gini coefficient per municipality. We use 1995/1996 data for the 1995 Referendum, 1997/1998 data for the 1998 Referendum, and 2014 data (the most recent available data) for the 2017 Referendum. Moreover, we use the vote share of the Swiss Social

Table 2 provides summary statistics for our main variables.

We use also survey data on voting behaviour for a representative sample of Swiss citizens. The VOX/VOTO surveys[17] include responses to questions on all federal propositions held between 1981 and 2017. Among many other variables, VOX/VOTO data include the voting decision, the party preference and demographic and socio-economic characteristics of the respondents. We use data for our four federal ballots of interest: 1995 and 1998 for the 10th pension revision, 2017 for the 2020 pension reform and for the corporate tax reform. Table 3 provides summary statistics for our main variables.

3.3 Empirical Strategy

In our empirical analysis, we use these two datasets to test the role of age in determining individual preferences over pension policies and to assess the effect of aging on the voting outcomes.

First, we exploit administrative data to investigate whether the approving vote share in a municipality is correlated with its demographic structure and socioeconomic characteristics. We estimate the following OLS regression for each of the four referenda (1995, 1998 and 2017 on pensions and 2017 on corporate taxes):

$$Y_{ik} = \alpha + \beta_1 D_{ik} + \beta_2 X_{ik} + Z_k + \varepsilon_{ik} \tag{1}$$

where Y_{ik} indicates the share of votes supporting the reform in municipality i and canton k, the vector of demographic variables D_{ik} represents the share of total voting population (i.e., aged 18 and above) in the different age groups (18-29, 50-61, 62+)[18], separately for men and women for our groups of interest (50-61), X_{ik} is a vector of control variables (turnout, size of the municipality, share of foreign born, average ideology, share of individual with tertiary education, average income and income inequality) at municipal level and Z_k is a vector of canton dummies that capture important structural differences across Swiss cantons. Finally, ε_{ik} is the error term. To confirm the role of individual age in shaping preferences over pension policies, we exploit also VOX/VOTO survey data. We estimate the following OLS regression, separately for males and females, using self-reporting voting data, for each of the four referenda (1995, 1998 and 2017 on pensions and 2017 on corporate taxes):

$$Y_{jk} = \alpha + \beta_1 D_{jk} + \beta_2 X_{jk} + Z_k + \varepsilon_{jk} \tag{2}$$

Democratic Party (left-wing political party) and of the Liberal Democratic Party (centre-right-wing political party) at the 1995, 1999, and 2015 national elections to capture ideological differences across municipalities. Education level data are only available at the district level for the 2012-2014 period. We use these data for all four referenda.

[17]Until 2016, these surveys were carried out under the name of VOX. Then, the VOX survey was replaced by the VOTO survey. However, the two surveys were standardized and made comparable.

[18]In order to keep the constant in the regression, we do not include the fraction of voters in the 30-49 age group.

where Y_{jk} indicates the vote on the reform of individual j in canton k, D_{jk} is a vector of dummy variables defining which age group (18-29, 50-61, 62+) the individual belongs to, X_{ik} is a vector of individual control variables, such as education level (tertiary education), political ideology (left, center, right), marital status and Z_k is a vector of canton dummies that capture any important differences across Swiss cantons. Finally, ε_{jk} is the error term.

To analyze the effects of aging – and of the associated change in the population structure – on the voting outcomes, we use a third regression model. In particular, we test whether differences across municipalities in the changes of the population share in any given age group between 1995 (or 1998) and 2017 predict the changes in the approving vote share in the 1995 (or 1998) and 2017 pension referendum. We are interested in the predictive power of the share of female voters in the 50-61 age group. We hence run the following regression:

$$\Delta Y_{ik} = \alpha + \beta_1 \Delta D_{ik} + \beta_2 \Delta X_{ik} + Z_k + \varepsilon_{ik} \tag{3}$$

where all variables were defined as in the equation 1 above, but we use their variations between 1995 (or 1998) and 2017, except for canton dummies.

4   Results and Conclusions

Table 4 reports the estimates of our first specification in equation 1, using municipal data from the two referenda (1995 and 1998) on the 10th pension revision (columns 1 and 2) and from the 2017 referenda on the 2020 pension reform and on the corporate tax reform (columns 3 and 4). The excluded demographic group is made of adults aged 30-49. In all three pension reforms, the coefficient on the main group of interest is negative and statistically significant (at 5% or 1% level): municipalities with a larger fraction of female voters in the 50-61 age group are less supportive of all three reforms. Municipalities with a larger shares of younger (18-29 years old) or older (62+) voters are significantly (at 5% or 1% level) more favorable to all three reforms.[19] The share of male voters in the 50-61 age group is instead not relevant. Column 4 reports the results of our placebo test: the corporate tax reform. In this case, age plays no role in explaining the support for the reform, as no coefficient of any age groups is statistically different from zero (except for the elderly, at 10% level).

Among the control variables, municipalities with higher income and a larger share of workers in the tertiary sector are more supportive of increasing retirement. This may be driven by better average working conditions in these municipalities, which make working longer years more acceptable. The political composition of the municipality also matters. A municipality with larger share of votes for the Social Democratic Party are in fact associated with more opposition for the 1995 and 1998, but less for the 2020 pension reform, in accordance with the party position on these referenda. Finally, the share of foreigners is negatively correlated

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[19]Our results are robust to (one or two-year) changes in the age groups.

with the approving vote share, perhaps reflecting cultural differences across municipalities. In fact, the share of foreigners is likely to be correlated with the percentage of Swiss citizens with immigrant origins, who might have stronger preferences in favor of earlier female retirement age than the other citizens.

These empirical findings are strongly in line with the theoretical predictions discussed in session 3.1. The three pension reforms aimed at increasing retirement age for women should be opposed by the female workers, who are directly affected by the change in the policy, but should find the support of younger and older workers. In fact, increasing retirement age may help avoiding alternative policies, which would penalize young or elderly individuals, such as, respectively, increasing contribution rates or reducing pension benefits. The effect on males in the 50-61 age group is instead hard to determine ex-ante, as it might depend on the specific family situation of each individual. Our empirical findings are also in line with Bütler (2002), who analyzed how voting behavior in the 1998 referendum varied at municipal level depending on local demographic, economic and political characteristics, and with Bittschi and Wigger (2019), who find support for increasing retirement age among retired individuals in Germany.

The empirical analysis reported in Table 4 has the advantage of using administrative data at municipal level, but has to rely on demographic groups and may thus be exposed to the ecological fallacy. The use of canton dummies attenuates this issue. Moreover, we can re-evaluate our municipal level results by using individual survey data. The evidence using individual survey data provided in Table 5 is in line with our previous findings. Women aged 50 to 61 years, who were thus directly affected by the increase in the retirement age, oppose the 10th pension revision both in 1995 and in 1998. In 2017, they oppose also the 2020 pension reform. However, they do not oppose the 2017 corporate tax reform – our placebo test. In line with our previous analysis, men in the same age group (50-61) are not more likely to oppose the reforms. As in the analysis with administrative data, political orientation (left) and job conditions (working in the tertiary sector) affect the voting decisions.

Table 6 provides the results of the regression at equation 2, in which we use administrative voting data to analyze the variations from 1995 (or 1998) to 2017 in the approval rate at referenda. Our findings show that municipalities with the larger increases in the share of women close to retirement (50-61) experience larger reductions in the share of votes in support of the pension reform. The reverse is true for municipalities with the larger increases in the share of young (18-29) or of old (62+) people. Results in column 2, which refer to the change from the 1998 to the 2017 referendum, show a negative effect of the variation in the share of men close to retirement (50-61) on the change in the support for retirement reforms. This finding may be due to the correlation in the increase of men and women aged 50-61 across municipalities and thus to a possible corresponding increase in (married) men, who share their spouse preferences on retirement policies (see Butler, 2002).

Our empirical evidence exploits a unique feature of the Swiss direct democracy – the opportunity for voters to express their opinion on policy issues in referenda– to provide clear

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evidence that the demographic distribution of the voters matters for the political support to retirement policies. The analysis of each of the three referenda (1995, 1998 and 2017) on pension reforms shows that individual age is a crucial determinant in the voters' preferences over retirement policies. Moreover, exploiting the fact that Switzerland hold referenda on similar retirement policies twenty years apart, we can also assess the effect of population aging on the political support – or opposition – to these policies. Aging has a sizable negative effect on the support for pension reforms: the increase in the share of Swiss women aged 50-61 can explain between 12% and 15% of the drop in the approving vote share.

We expect these results to generalize also to non-direct democracies. The demographic distribution will still matter, since parties internalize the electoral preferences of the voters in their electoral programs. Indeed, the political economy literature on pension reforms (Galasso and Profeta, 2004; Galasso, 2008) suggests that aging leads to more demand for pension spending by increasing the relative size of those cohorts – retirees and individuals about to retire – who most support pensions. To offset these political effects of aging, some policies have been proposed that give additional voting rights to parents, as a function of the number of their non-adult children (Demeny, 1986). Other pension reforms have instead used grandfathering of existing pension rights or other reform packaging to obtain the necessary political support for reforming. Indeed, the three reforms discussed in this analysis did entail few years of phase-in period in the increase of the female retirement age and some policy packaging. The 10th pension reform complemented the increase in the retirement age with more flexibility in early retirement and with a new splitting of contributions and pensions between spouses, which could at least partially compensate women. Yet, these phase-in and compensatory measures are costly and thus difficult to design, when the aim of the pension reform is instead to contain pension spending. For instance, the 2020 pension reform tried to compensate the increase in female retirement age with the introduction of additional flexible retirement options. However, the other two main reform measures consisted of a progressive, i.e., with a phase-in period, reduction of the conversion rate that would lead to a decrease in pension benefits and of an increases in the sales VAT taxes, albeit again with a phase-in period. Indeed, the existence of these two measures may explain the additional opposition to the reform across all age groups, which led to its rejection at the referendum.

However, our empirical findings deliver also a positive message for the future political sustainability of postponing retirement age, which is considered by experts and policy advisors a crucial policy measure to counteract the negative effect of aging on pension spending. Our results show in fact that while individuals, who are close to retirement, strongly oppose an increase in the retirement age, retirees (and young individuals) are more favorable to this policy than people in their prime age (30-49). These preferences are currently a major opposing factor to reform in aging countries, such as Switzerland. In fact, as shown in Figure 3, a large share of the population is made of individuals about to retire. Yet, when the baby-boom generation will have retired, a larger share of the population will be made of retirees. And retirees are

against any reduction in pension benefits, but in favor of increasing the retirement age (for the younger generations) in order to secure the financial sustainability of their pensions.

Figures and Tables

Figure 1: Average effective age of retirement, 1970-2014
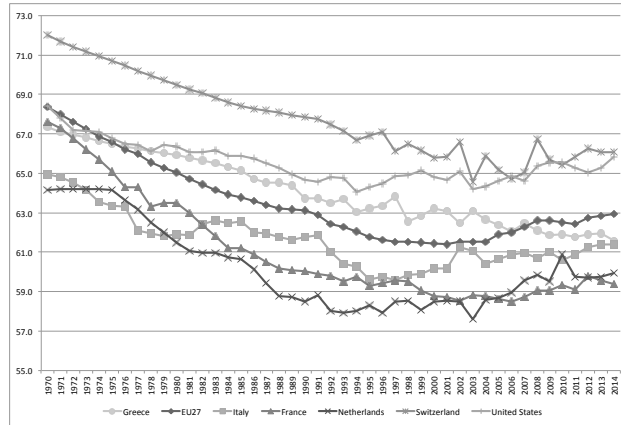
Note: OECD estimates based on the results of national labour force surveys, the European Union Labour Force Survey, and national censuses.

Figure 2: Approval Rate of LAVS and of its Reforms
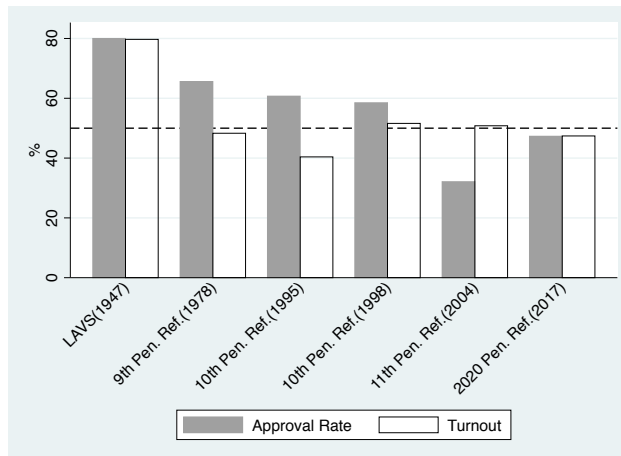
Note: Outcomes of the referenda on the Federal Old-Age and Survivors' Insurance Act (LAVS), the four pension reforms that have been voted upon in a referendum (the 9th, 10th, 11th, 2020 Pension Reform) and the popular initiative against the 10th Pension Reform. For the 1998 referendum the approval rate corresponds to the vote share supporting a higher female retirement age. Municipal data are from the Swiss Federal Office of Statistics.

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Figure 3: Population Distribution by age
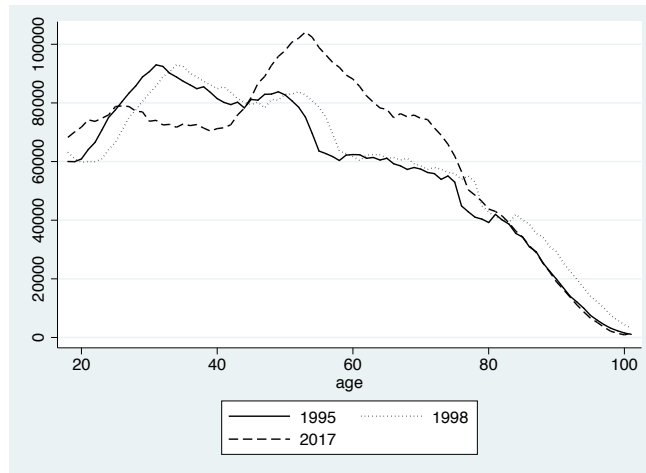
Note: Number of Swiss citizens by age. Data are from the 1990 and the 2016 Swiss Business Census. Age X in 1995 (1998) corresponds to age x-5 (x-8) in 1990. Age X in 2017 corresponds to age x-1 in 2016.

Table 1: Pension Reforms

1, 2, 3th Pension Reform
- improvement in conditions for the entry generation
4th Pension Reform
- decrease in the NRA for women from 65 to 63
5th Pension Reform
- increase in the standard pension amount
6th Pension Reform
- decrease in the NRA for women from 63 to 62 years
- increase in the standard pension amount
- introduction of two new in kind benefits (the supplementary pension for wives and for dependent children)
7th Pension Reform
- introduction of the possibility of deferring pension benefits
- increase in contribution
- pension indexing
8th Pension Reform
- raise in the pensions for couples
- improvement in the position of divorced women
9th Pension Reform
- reintroduction of AVS contributions for those who are still working while receiving a pension
- higher requirements for joint pensions for couples and supplementary pensions for wives
10th Pension Reform
- increase in the NRA for women from 62 to 64
- early retirement allowed at 63 and the possibility of delaying pension up to age of 70
- splitting of contributions and pensions between spouses
- education pension credits
11th Pension Reform
- increase in contribution rates for those who are still working while receiving a pension
- shifting of the indexing of pension from a two years to three years circle
- increase in the NRA for women from 64 to 65
- introduction of additional flexible retirement options
- introduction of united pensions for widows and widowers
- reduction in survivors' pensions
- progressive increase (+1.8%) in VAT rate
2020 Pension Reform
- increase in the NRA for women from 64 to 65
- introduction of additional flexible retirement options
- gradual reduction of the minimum conversion rate
- increased transfers from VAT revenues (+0.6%) with an increase (+0.3%) in VAT rate

Note: Key elements of the twelve pension reforms (Greber, 1988). Only 4 of them were subject to a referendum (the 9th, 10th, 11th, 2020 Pension reform). While the Swiss population has accepted the first two reforms, the 11th and the 2020 Pension Reform failed in the ballot.

Table 2: Summary statistics: Municipal voting data

variable	mean	sd	N
10th Pension Reform (1995)			
Approval Rate	0.59	0.11	2101
Turnout	0.39	0.09	2101
Share_18_29	0.20	0.03	2101
Share_30_49	0.37	0.05	2101
Share_50_61	0.17	0.03	2101
Share_62plus	0.27	0.06	2101
Income	59560	15456	2101
Gini	0.34	0.06	2101
Pop	2506	8281	2101
Left	17.53	8.46	2101
Center	20.18	12.84	2101
Tertiary Ed	0.27	0.07	2101
Foreigners	0.10	0.08	2080
10th Pension Reform (1998)			
Approval Rate	0.60	0.12	2100
Turnout	0.56	0.09	2164
Share_18_29	0.18	0.03	2100
Share_30_49	0.35	0.04	2100
Share_50_61	0.18	0.03	2100
Share_62plus	0.29	0.06	2100
Income	60444	16081	2100
Gini	0.33	0.06	2100
Pop	2504	8270	2100
Left	18.43	8.77	2100
Center	20.20	12.89	2100
Tertiary Ed.	0.27	0.07	2100
Foreigners	0.10	0.08	2079
2020 Pension Reform (2017)			
Approval Rate	0.44	0.09	2213
Turnout	0.48	0.07	2213
Share_18_29	0.17	0.03	2213
Share_30_49	0.29	0.04	2213
Share_50_61	0.23	0.03	2213
Share_62plus	0.31	0.05	2213
Income	81793	57319	2213
Gini	0.35	0.07	2213
Pop	2815	8197	2213
Left	15.13	6.98	2213
Center	16.12	9.54	2213
Tertiary Ed.	0.27	0.07	2213
Foreigners	0.17	0.10	2213
Corporate Tax Reform (2017)			
Approval Rate	0.42	0.10	2213
Turnout	0.47	0.08	2213
Share_18_29	0.17	0.03	2213
Share_30_49	0.29	0.04	2213
Share_50_61	0.23	0.02	2213
Share_62plus	0.31	0.05	2213
Income	81793	57319	2213
Gini	0.35	0.07	2213
Pop	2815	8197	2213
Left	15.13	6.98	2213
Center	16.12	9.54	2213
Tertiary Ed.	0.27	0.07	2213
Foreigners	0.17	0.10	2213

Note. For the 1998 referendum the approval
rate corresponds to the vote share support-
ing a higher female retirement age. Foreign-
ers indicates the fraction of foreign residents.
Tertiary indicates the share of citizens with
tertiary education. Left and center measures
the vote share of the Swiss Social Democratic
Party and of the Liberal Democratic Party
at the 1995, 1999, and 2015 national elec-
tions. Income refers to the (net) average in-
come. Pop indicates the number of inhabi-
tants. The demographic variables are mea-
sured as a fraction of total voting population.

Table 3: Summary Statistics: Individual voting data

variable	mean	sd	N
10th Pension Reform (1995)			
Approval Rate	0.51	0.50	897
Share_18_29	0.18	0.38	897
Share_30_49	0.39	0.49	897
Share_50_61	0.18	0.38	897
Share_62plus	0.26	0.44	897
Female	0.55	0.50	897
Left	0.11	0.31	897
Tertiary Ed.	0.34	0.47	897
Married	0.57	0.50	897
Voter Share	0.60	0.49	897
10th Pension Reform (1998)			
Approval Rate	0.60	0.49	847
Share_18_29	0.11	0.31	847
Share_30_49	0.43	0.49	847
Share_50_61	0.18	0.38	847
Share_62plus	0.28	0.45	847
Female	0.52	0.50	847
Left	0.14	0.35	847
Tertiary Ed.	0.30	0.46	847
Married	0.63	0.48	847
Voter Share	0.74	0.44	847
2020 Pension Reform (2017)			
Approval Rate	0.48	0.50	1077
Share_18_29	0.11	0.32	1077
Share_30_49	0.19	0.39	1077
Share_50_61	0.25	0.43	1077
Share_62plus	0.45	0.50	1077
Female	0.51	0.50	1077
Left	0.15	0.35	1077
Tertiary Ed.	0.41	0.49	1077
Married	0.62	0.49	1077
Corporate Tax Reform (2017)			
Approval Rate	0.32	0.47	1045
Share_18_29	0.10	0.30	1045
Share_30_49	0.23	0.42	1045
Share_50_61	0.24	0.43	1045
Share_62plus	0.42	0.49	1045
Female	0.50	0.50	1045
Left	0.17	0.37	1045
Tertiary Ed.	0.40	0.49	1045
Married	0.67	0.47	1045

Note. Individual data from the VOX/VOTO surveys. Only for the 1995-1998 referenda the sample include also non-voters. For the 1998 referendum the approval rate corresponds to the vote share supporting a higher female retirement age. Married is a dummy for married individuals, tertiary for individuals with at least a tertiary level of education, left for left- wing individuals. Only for the 1995-1998 referenda the sample include also non-voters. For the 1998 referendum the approval rate corresponds to the vote share supporting a higher female retirement age.

Table 4: Approving vote share, Municipal data

	(1) 1995 10th Pension Reform	(2) 1998 10th Pension Reform	(3) 2017 2020 Pension Reform	(4) 2017 CorporateTaxReform
Share_18_29	0.308***	0.313***	0.352***	0.112
	(0.088)	(0.079)	(0.104)	(0.076)
Share_50_61_females	-0.431**	-0.592***	-0.304**	-0.197
	(0.174)	(0.155)	(0.140)	(0.127)
Share_50_61_males	-0.131	-0.061	0.149	-0.100
	(0.175)	(0.167)	(0.149)	(0.125)
Share_62plus	0.201***	0.100**	0.259***	0.092*
	(0.053)	(0.045)	(0.070)	(0.056)
Turnout	0.080**	0.074**	0.047	0.044
	(0.034)	(0.029)	(0.036)	(0.034)
Left	-0.001**	-0.004***	0.005***	-0.005***
	(0.000)	(0.000)	(0.000)	(0.000)
Center	0.000**	0.001***	-0.000*	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
ln Pop	0.002**	-0.000	0.003**	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Share Foreigners	-0.168***	-0.153***	-0.118***	0.038**
	(0.028)	(0.028)	(0.023)	(0.018)
Tertiary	0.212***	0.158***	0.185***	0.078**
	(0.037)	(0.033)	(0.030)	(0.030)
ln Income	0.089***	0.017	0.042***	0.055***
	(0.015)	(0.015)	(0.012)	(0.013)
Gini coef.	0.239***	0.207***	0.033	0.190***
	(0.042)	(0.041)	(0.042)	(0.037)
Observations	2,080	2,079	2,213	2,213
R-squared	0.577	0.700	0.525	0.686
Canton dummies	YES	YES	YES	YES

Note. The table reports OLS estimation results. Data at municipal level: voting data are from the Swiss Federal Office of Statistics, population data are from the Swiss Censuses (1990, 2016), income data and the Gini coefficient are from the Federal Tax Office. Age x in 1995 (1998) corresponds to age x-5 (x-8) in 1990. Age x in 2017 corresponds to age x-1 in 2016. For the 1998 referendum a positive sign corresponds to a support for a higher female retirement age. The demographic variables are measured as a fraction of total voting population (i.e., aged 18 and above). We control for the turnout, net average income (log), share of foreigners, number of inhabitants (log), share of population with a tertiary level of educational attainment, political parties' vote shares. Robust standard errors in parentheses.*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: Voting behavior, Individual data

	(1) M 1995 10th Pension Ref.	(2) F 1995 10th Pension Ref.	(3) M 1998 10th Pension Ref.	(4) F 1998 10th Pension Ref.	(5) M 2017 2020 Pension Ref.	(6) F 2017 2020 Pension Ref.	(7) M 2017 Corpo.Tax Ref.	(8) F 2017 Corpo.Tax Ref.
_18_29	0.054	-0.052	0.008	0.079	-0.045	-0.077	0.124	0.158**
	(0.077)	(0.067)	(0.082)	(0.088)	(0.088)	(0.089)	(0.088)	(0.074)
_50_61	-0.005	-0.119**	-0.110	-0.119*	-0.016	-0.138**	0.048	-0.079
	(0.075)	(0.060)	(0.071)	(0.067)	(0.066)	(0.064)	(0.064)	(0.054)
_62plus	0.075	0.130**	-0.001	0.016	-0.018	-0.064	0.062	-0.012
	(0.070)	(0.056)	(0.057)	(0.060)	(0.060)	(0.060)	(0.054)	(0.053)
Left	0.025	-0.237***	-0.318***	-0.331***	0.229***	0.258***	-0.363***	-0.260***
	(0.079)	(0.072)	(0.069)	(0.064)	(0.060)	(0.057)	(0.040)	(0.042)
Tertiary Ed	0.130**	0.006	0.115**	0.171***	0.141***	0.151***	0.080*	0.076*
	(0.054)	(0.053)	(0.047)	(0.061)	(0.045)	(0.045)	(0.042)	(0.042)
Married	-0.003	0.131***	-0.030	0.050	0.047	0.073	0.022	0.131***
	(0.059)	(0.047)	(0.057)	(0.052)	(0.055)	(0.047)	(0.053)	(0.043)
Voter	0.179***	0.133***	0.092	0.064				
	(0.059)	(0.048)	(0.062)	(0.055)				
Observations	403	494	408	439	530	547	520	525
R-squared	0.115	0.194	0.159	0.153	0.097	0.138	0.150	0.111
Canton dummies	NO	NO	NO	NO	YES	YES	YES	YES

Note. The table reports OLS estimation results. Individual data from the VOX/VOTO Survey. The dependent variable is the voting decision, which is equal to one if the respondent supported the proposition and zero otherwise. For the 1998 referendum a positive sign corresponds to a support for a higher female retirement age. Only for the 1995-1998 referenda the sample include also non-voters. Covariates: a dummy for married individuals, for individuals with a tertiary level of education, and for left -wing individuals. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Table 6: Differences in approving vote share

	(1) 1995 / 2017 X Pension Ref. vs 2020 Pension Ref.	(2) 1998 / 2017 X Pension Ref. vs 2020 Pension Ref.
D.Share_18_29	0.280***	0.579***
	(0.092)	(0.090)
D.Share_50_61_males	-0.014	-0.501***
	(0.178)	(0.175)
D.Share_50_61_females	-0.436***	-0.609***
	(0.163)	(0.166)
D.Share_62plus	0.128**	0.006
	(0.058)	(0.065)
D.Income	-0.000	-0.000**
	(0.000)	(0.000)
D.Turnout	-0.087**	0.003***
	(0.043)	(0.000)
D.ShareForeigners	0.040	-0.024
	(0.053)	(0.054)
D.Left	0.001	-0.002***
	(0.001)	(0.001)
D.Center	0.000	0.000
	(0.000)	(0.000)
D.Gini coeff.	0.132*	-0.046
	(0.073)	(0.073)
Observations	2,079	2,078
R-squared	0.614	0.643
Canton dummies	YES	YES

Note. The table reports OLS estimation results. Data at municipal level. Voting data are from the Swiss Federal Office of Statistics. Population data are from the Swiss Censuses (1990, 2016). Income data and the Gini coefficient are from the Federal Tax Office. Age x in 1995 (1998) corresponds to age x-5 (x-8) in 1990. Age x in 2017 corresponds to age x-1 in 2016. For the 1998 referendum a positive sign corresponds to a support for a higher female retirement age. The demographic variables are measured as a fraction of total voting population (i.e., age 18 and above). D.Income indicates the log of the difference in net average income between 1995 (or 1998) and 2017. Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

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