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Conference Paper

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Beiträge zur Jahrestagung des Vereins für Socialpolitik 2013: Wettbewerbspolitik und Regulierung in einer globalen Wirtschaftsordnung - Session: Political Economy, No. C03-V3

Provided in Cooperation with:

Verein für Socialpolitik / German Economic Association

Suggested Citation: Jaronicki, Katharina (2013) : Does female suffrage increase public support for government spending? Evidence from Swiss ballots, Beiträge zur Jahrestagung des Vereins für Socialpolitik 2013: Wettbewerbspolitik und Regulierung in einer globalen Wirtschaftsordnung - Session: Political Economy, No. C03-V3, ZBW - Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationszentrum Wirtschaft, Kiel und Hamburg

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Does female suffrage increase public support for government spending? Evidence from Swiss ballots

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March 1, 2013

Work in progress.

Abstract

Does the enfranchisement of women lead to an increase in public support for government spending? By utilizing a natural experiment from Switzerland, I test this hypothesis empirically. I analyze the voting outcomes of two very similar referendum ballots concerning the federal government's competency to levy income, capital and turnover taxes. The first ballot has taken place shortly before the extension of suffrage to women in February 1971, and the other thereafter. To shed light on the existence of gender gaps in approval for government spending, I first estimate the additional turnout due to the introduction of female suffrage, and then estimate the additional turnout's impact on the percentage of yes votes. Surprisingly, I find that approval for government spending is higher among the male population. To overcome concerns that the results might only hold conditionally on voter participation decisions, I provide additional evidence from a probit analysis of a post-ballot survey. These are conducted for voters and non-voters and confirm that the results extend to the non-voting population.

My results complement the findings of previous literature which suggest that in the analysis of gender preference gaps for government expenditure spending categories like e.g. welfare and non-welfare items should be distinguished.

Keywords: Female suffrage; Gender preference gaps; Voting; Direct democracy

JEL Classification Numbers: J16, H10, D72

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1 Introduction

Meltzer and Richard (1981) famously hypothesized that enfranchising new constituents such that the new median voter is poorer than before, increases the demand for redistribution. Consequently, one would expect that extending the suffrage to women, who on average have lower incomes than men, should have a positive effect on the popular approval for welfare spending. Therefore, the demand for larger governments is typically expected to increase after the enfranchisement of women. This question has been examined in several influential contributions (e.g., Lott & Kenny, 1999). However, the usual approach in literature to analyze gender preference gaps regarding public spending rests on the examination of the development of government spending once women got the right to vote.

This paper provides a direct way of analyzing gender preference gaps for government spending from ballots instead of establishing causality indirectly via higher government expenditures. To this goal I make use of a natural experiment from Switzerland: I analyze the voting outcomes of two very similar referendum ballots concerning state expenditure of which one took place shortly before the extension of suffrage to women in 1971, and the other directly thereafter. The ballot propositions lay down the constitutional basis for the Swiss government to levy income, capital and turnover taxes. Without popular approval at the ballot the Swiss government would be deprived of its competency to levy federal taxes which are crucial for financing state expenditures. While taxation of income and consumption is commonly found all over the world, it is a Swiss particularity that voters even nowadays need to accept it's legislative basis every few years. Therefore, over time plenty of comparable votes on the federal financial system exist. The first proposition end of 1970 with a men-only suffrage was rejected at ballot. But the second proposal, which took place roughly 7 months later with universal suffrage, was accepted.

This setting is suitable to test gender preference gaps for government spending because voters make real choices which can be observed. Also, since the two ballots took place under two distinct suffrage regimes, differences in voting outcomes can be directly attributed to differences in the electorate.

I collected voting data (eligible, voters, yes and no votes) for both ballots from 2.188 Swiss municipalities. Additionally, I assembled a set of control variables from the Swiss 1970 census which is also at municipal level. To isolate female approval for government spending, an approach similar to Lott and Kenny (1999) is employed. First, I estimate the effect the introduction of

female suffrage had on voter turnout defined as voters divided by the Swiss adult population. By construction, turnout jumps after the introduction of female suffrage. This effect depends crucially on the fraction of eligible women in the population, and is controlled for by various socioeconomic variables like age or employment. Also, I take cantonal female voting rights and the male approval rate for female suffrage as turnout controls: cantonal voting rights are independent of federal voting rights and display strong variation among the cantons which makes them likely to influence turnout. Second, I use these estimates to identify the effect the increase in turnout stemming from female suffrage had on the increase in the approval rate for government spending.

Moreover, I take into account that the two ballot proposals are not identical but differ in so far that the second proposal included a time limit whereas the first one did not. This means that even in case of acceptance the second proposal would have required a new ballot after 10 years while the first one did not. Traditionally, permanent federal financial orders have been rejected in Switzerland which suggests that the inclusion of a time limit is an important factor influencing voter decisions. I utilize voting results from a similar ballot in 1963 under the males-only suffrage to control for the difference in the content of the two ballots. A potential problem with the use of this control might be that male preferences for government spending might not have been time constant between 1963 and 1970. Then the difference in male approval might be due to something else than the inclusion of a time limit. I provide additional evidence from comparing two ballots on the same topic from 1953 and 1954. The former was an unlimited proposition while the latter was not. The weighted mean difference in acceptance amounted to 27.7 percent with a statistically highly significant t-test rejecting mean equality. Since concern with time constancy between 1953 and 1954 is negligible, the large difference in approval suggests that the availability of a time limit is crucial for the differences in voting results.

The results show that for a municipality with an average fraction of eligible women, turnout went up by roughly 12.3 percentage points after the enfranchisement of women. This additional turnout increased approval rates between the two ballots significantly: for an average municipality, the fraction of voters approving of the proposition which was attributable to female turnout was about 8.17 percent. However, at the same time the male approval rate increased because of the time limit included in the proposal. Comparing approval rates among voters by gender suggests that men were 8.5 percentage points more likely to favor government spending than women. These results contradict the notion that women are per se more likely to support large governments.

A main concern is that these results might only hold true for the voting population, i.e. be

conditional on the individual decision to go to the polls. I overcome this problem by conducting a robustness check with individual election survey data. They are available for both voting and non-voting respondents for a similar ballot about the federal fiscal order in the year 1993. Results from a probit analysis confirm the above findings that men are more likely to approve government spending than women also for the non-voting population.

This paper adds to the existing literature on the effects of franchise extension on government spending as well as gender preference gaps. The main innovation in my approach is to directly analyze the outcomes of ballots instead of relating suffrage to government spending. With the notable exception of Funk and Gathmann (2012) who explore gender preference gaps for government spending by utilizing ballot votes, literature has so far only analyzed the effect of female suffrage on the size of state expenditure. This approach, however, is imperfect since voters only elect politicians who finally decide upon policies. By analyzing outcomes of referendum ballots, I give evidence for how voters decide directly on government spending. I complement literature which emphasizes the importance of distinguishing between spending items when it comes to analyzing gender preference gaps. While women might be more likely to care for redistributive spending as can be inferred from Meltzer and Richard (1981), they might be opposed or indifferent to other spending categories.

The remainder of the paper is organized as follows. First, the related literature is reviewed in the next section. Section 3 provides information on the natural experiment this paper is based on: I give a short overview of the development of the Swiss federal tax system and the two referendum ballots which constitute the core of my analysis. Data and descriptives are presented in section 4. In section 5, I describe the empirical strategy, the results, and provide a robustness check to substantiate the findings. This paper concludes in section 6.

2 Related literature

The hypothesis that extending the franchise to a poorer part of the population increases the demand for public spending has been tested in several interesting contributions. Husted and Kenny (1997) exploit the repeal of literacy tests and poll taxes in the U.S. which hitherto prevented the poor and foreigners from voting. They find a 15% increase in welfare spending but no effect on non-welfare spending.

Closest to my research, a stream of literature analyzes the extension of franchise to women. With the enfranchisement of women, the new median voter becomes poorer since it is a well-

established fact that women earn less than men.¹ Therefore, women are generally more inclined to support larger government expenditure than men. In marriage, husbands tend to earn more and transfer income to their wives who specialize in household production instead and care for the children. While income differences and specialization are internalized in marriage, the possibility of divorce, however, makes women more vulnerable economically since they might be rendered with a low income to care solely for the children. Alimony usually is too low to sustain the same lifestyle as in marriage. Analyzing historical data from the U.S., Lott and Kenny (1999) find that the introduction of female suffrage raised government spending as gradually more women made use of their voting rights. Following Lott and Kenny (1999), Aidt and Dallal (2008) confirm their results for six western European countries for which the long-run effects are significantly larger than the short-run effects. Similarly, Abrams and Settle (1999) find that the introduction of female suffrage in Switzerland increased government spending on welfare issues by 28%, and also total government spending grew by about 12%. Aidt et al. (2006) confirm these findings for Europe and find in particular that female voting increased spending on health, welfare and education. Miller (2008) documents rising levels of public health expenditure that can be attributed to the enfranchisement of women. In contrast, Stutzer and Kienast (2005) who use variation in the timing of female suffrage in Swiss cantons find that surprisingly enfranchising women decreased government expenditures at cantonal level. They conclude that the negative effect might stem from the existence of direct democracy instruments in Swiss cantons for which previous research shows that they are likely to lead to smaller government size (e.g., Feld and Matsusaka (2003) provide some evidence).

The above literature suggests that women vote differently than men. Edlund and Pande (2002) show that with an increase in divorces women started to vote more leftwing than men. They find that this effect is strongest for middle-income couples: in marriage, husbands transfer income to their wives. After a divorce, the authors show, men become relatively richer and women relatively poorer which increases the women's need for welfare spending and the likelihood of voting leftwing. By analyzing individual voting data for Swiss referendums and initiatives between 1983 and 2003, Funk and Gathmann (2012) find considerable gender differences in preferences for spending on health, environment, defense, and the welfare state. Bertocchi (2011) finds empirical support that allowing women to vote increases government spending, however, only in non-catholic countries in which the cost of disenfranchisement is relatively high. Also Shapiro and Mahajan (1986) find

¹In Switzerland, women earned 51% of the male hourly wage in 1930, 66% in 1971 and 67% in 1995 which shows how big the gender wage gap was despite its tendency to decrease over time. This information is based on data from the Swiss Economic and Social History Online Database.

gender differences regarding policy questions.

Previous literature confirms that women vote more often in favor of higher welfare expenditure, but the outcomes also depend on the the issue the money is spent for. Husted and Kenny (1997) suggest that to analyze the effect of universal enfranchisement on government spending, it is necessary to distinguish welfare and non-welfare spending. While literature predicts higher welfare spending with a poorer median voter, the effect on non-welfare expenditures like public services depends on income and price elasticities of public services.

In my approach, I most closely follow Lott and Kenny (1999) who recognize that the effect of female suffrage on voting outcomes depends on how intensely women make use of their voting rights. Intuitively, when no women go to the ballot even though they potentially could, one would expect no changes in the voting outcomes due to enfranchisement. Therefore, I account for the turnout rate and the number of people going to ballot. I extend their research by overcoming the causality problem that changes in government spending after the introduction of female suffrage might stem from effects other than female voting rights.

As becomes clear from the literature review, the biggest concern is to correctly identify the causal mechanism of female suffrage leading to increases in government expenditure, and showing that a gender preference gap regarding government spending exists. This is crucial since the observed rise in government expenditure might be due to other causes than female enfranchisement. Rising government expenditure could be due to changes in social systems, economic crises, changes in the tax base, and various other reasons. I overcome this problem by examining voting in referendums which has several attractive features that makes it particularly interesting for the analysis. First, voting outcomes are real choices and not just political outcomes of which the exact cause is unknown. While previous research relies on the indirect link that voters voted for parties or candidates and these thereafter implemented policies, I can give direct evidence on what the majority of voters desires.² I analyze two referendum ballots on two very similar propositions concerning the approval for government spending with different suffrage rules: the first ballot was under a males-only rule and the second with universal suffrage. Further, political information about the issues at ballot is available from brochures which are sent to Swiss households before ballots since the 1950ies (Rohner, 2012). Also, newspapers and media report extensively on important political issues. Therefore, the Swiss are likely to make mostly informed decisions when voting. Also, referendums have been

²Lott and Kenny (1999) also look at the politicians' voting behavior in the U.S. and find that after the introduction of female suffrage politicians voted more liberally.

introduced in 1874 (Linder, 2007), so they have become institutions and are strongly positioned in the Swiss society.

In my empirical strategy I follow Lott and Kenny (1999). First, I estimate the immediate effect the enfranchisement of women in Switzerland had on the participation rate. Only by knowing how many women participated in ballot 2 insight into the voting behavior of women in comparison to men can be gained and gender preference gaps identified. This is the goal of the second step in which the effect of the additional participation due to women on the approval rate is estimated.

A further issue is to disentangle the determinants of gender preference gaps: do women have different preferences for government spending because of socioeconomic discrepancies between the sexes? E.g., as suggested by Meltzer and Richard (1981), lower female incomes leading to a poorer median voter after female enfranchisement might be an explanation for the increase in government spending. Or can gender preference gaps be attributed to innate gender gaps which e.g. reflect different degrees of risk aversion? Literature documents that women are more risk averse (e.g., Holt & Laurya, 2002, 2005; Schubert et al., 1999) and dislike competition (Gneezy, Niederle & Rustichini, 2003; Niederle & Vesterlund, 2007). Also, experimental evidence suggests that women are more altruistic, dislike inequality (Andreoni & Vesterlund, 2001; Selten & Ockenfels, 1998), and are more in favor of redistribution than men (Luttmer & Singhal, 2011). My research also sheds light on these questions since I control for socioeconomic gender gaps like differences in employment, independent employment and the age structure which is likely to explain some differences between male and female decisions.

3 Development of the Swiss federal tax until 1971

Beginning with the foundation of the Swiss state in 1848, duties were the main revenue source at federal level.³ It took until the First World War, collapsing international trade and growing state expenditure that an income tax was introduced. But income was only taxed in times of need like during the war, or when budgetary problems got out of hand in the 1930ies. In 1941 the Wehrsteuer (defense tax, an income and capital tax; referred to as direct federal tax in what follows) was introduced to finance growing military expenditure. After the Second World War, the direct federal tax remained in place to finance other state expenditure like the social security system but also

³Information about the history of the Swiss Federal Tax are from Grütter (1968). Oechslin (1967) gives an overview of the overall development of the Swiss tax system.

new spending fields like education and culture. In addition, a turnover tax (Warenumsatzsteuer) on goods but not on services was introduced also in 1941 (Stockar, 2007). However, both taxes lacked a constitutional basis, and were a product of an increased need of state revenue during war and emergency times.

A proposal to allow the state collecting a direct federal tax as well as the turnover tax on a constitutional basis without time limitations was issued in 1953. Since it involved amending a constitutional article, the issue was subject to a mandatory referendum, of which the outcome is binding in Switzerland (Linder, 2007). Since public finances are a core element of a state, there has been a wealth of similar ballots concerning the federal government’s admission to file taxes. Table 1 gives an overview of all relevant ballots between 1953 and 1971. Even until now, it remains a Swiss particularity that citizens have to approve the federal financial order. Without acceptance, the Swiss state would not have the competency to levy federal taxes. However, Switzerland has a strong federal structure which allows the cantons, its 25 states in 1971, and municipalities to collect taxes independently.

The 1953 proposal was rejected. Only one year later, a similar proposal to include the federal competency of levying income, capital and turnover taxes in the constitution but with a time limit of four years was put to the vote, and approved by the people. It was followed by another temporary financial order between 1959 and 1964. The time limit forced the government to prepare new legislation regarding the financial order in 1962. Essentially, it was an extension of the old provision for another 10 years with some minor changes (Bundesblatt 1962 I, p.997)⁴. Again, the proposal was accepted at ballot.

Table 1: Chronology of ballots concerning the Swiss Federal Tax System

Ballot date	Time limit	Decision	% yes votes
06.12.1953	unlimited	rejected	42.0
24.10.1954	1955 - 1958	approved	70.0
11.05.1958	1959 - 1964	approved	54.6
08.12.1963	1964 - 1974	approved	77.6
15.11.1970	unlimited	rejected	55.4
06.06.1971	1972-1982	approved	72.7

⁴All federal announcements (Bundesblatt) are collected by the Swiss Federal Archive (Schweizerisches Bundesarchiv) and published by the Federal Chancellery (Bundeskanzlei). A detailed list and possibility of online access is described in the online references section.

Ballot proposition 1: 15 November 1970

Facing a big budget deficit and the urgent need to ensure government revenue for the next years, the government and parliament proposed to discard the time limit and the maximum taxes from the constitution in the “federal enactment about the amendment of the federation’s financial order”⁵ (Bundesblatt 1969 II, p.749). Besides revenue from duties, the turnover tax and the direct federal tax were the most important revenue sources for the Swiss government. In the 1960ies, roughly 10 to 15 percent of revenue came from the direct federal tax, and around 25 percent from the turnover tax (cf. figure 1). In this decade, revenues from duties dropped by 10 percentage points starting at 25 percent of total revenues (Eidgenössisches Statistisches Amt, 1973). The main reason for this decline was the increasing international integration and general trend to reducing duties in connection with the world trade organization’s rounds (Bundesblatt 1969 II, p.754). The lack of a permanent constitutional basis for levying federal taxes left some uncertainty about how to finance growing government expenditure. The main items of expenditure at federal level were defense and the social security system which accounted for nearly 50 percent of total expenses (cf. figure 2). Other growing and new expenditure categories were infrastructure and energy, as well as culture and sports. Agricultural expenditure remained relatively stable around 10 percent of total expenditure (Eidgenössisches Statistisches Amt, 1974). This means that voters approving of the proposed financial order were also approving the budgetary items which were financed by the taxes.

The new ballot proposition had to take into account that regardless the good but slowing economy federal expenditure was expected to exceed revenue by a large amount. Therefore, income, capital and turnover taxes had to be increased and old rebates reduced. In more detail, the tax burden would be shifted from the direct income tax to the indirect turnover tax such that revenue from the turnover tax would increase considerably and revenue from income taxes would stay roughly constant. The proposition wanted to increase the turnover tax for retailers from 3.6 to 4 percent, and for wholesaler from 5.4 to 6 percent. The income tax set in progressively at an income of 8.500 Swiss Francs after deductions (7.700 Swiss Francs before). It allowed for deductions for married individuals (2.500 Swiss Francs), children under 18 years and dependents (1.200 Swiss Francs) (Bundesblatt 1970 II, p.3). Regarding the income tax, high income households would be worse off with the new regulation than low income households because of a more progressive

⁵Own translation. Original title in German is “Bundesbeschluss über die Änderung der Finanzordnung des Bundes”.

system. Also married couples or families with many children would be better off than with the old regulation.

The government argued that an increase in turnout taxes to generate state revenue was the preferable revenue source for the following reason: it was not a typical consumption tax because of various exemptions for goods of daily use like food. It mainly taxed investment goods purchased by firms and the government, in addition to goods like alcohol, tobacco, and clothing which were purchased by households (Bundesblatt 1969 II, p.778). However, there seemed to be a general uncertainty about who would carry the burden of the higher turnover tax. But presumably the biggest load would be paid by enterprises.

Critics of the proposal mostly pointed to an unsatisfactory regulation concerning the Swiss cantons (Année politique suisse, 2012). Especially it lacked a clear division of revenue and expenditures between the federal government and the cantons because direct income taxes were an important revenue source for cantons and municipalities (Bundesblatt 1969 II, p.773). All major parties, associations and unions recommended their voters to accept the proposal. Exceptions were the small Liberal Party of Switzerland (LPS), and the Labor Party (PdA) who opposed the proposal for not being progressive enough (Année politique suisse, 2012). This almost unanimous positive voting recommendation indicates the importance of the issue at stake.

On 15 November 1970 the Swiss voters - which was the male eligible population at that point - rejected the proposition in a mandatory referendum. Though 55.4% of the voters were in favor the proposal, it failed to accomplish a cantonal majority, i.e., in 13 of 22 cantons the approval rate was below 50 percent. The rejecting cantons were mainly concentrated in non-German speaking areas and small central cantons. Rejection in small cantons came from the fear of centralizing too much fiscal power in the federal government which could be to the disadvantage of small cantons regarding their revenue sources (Bundesblatt 1970 II, p.1583).

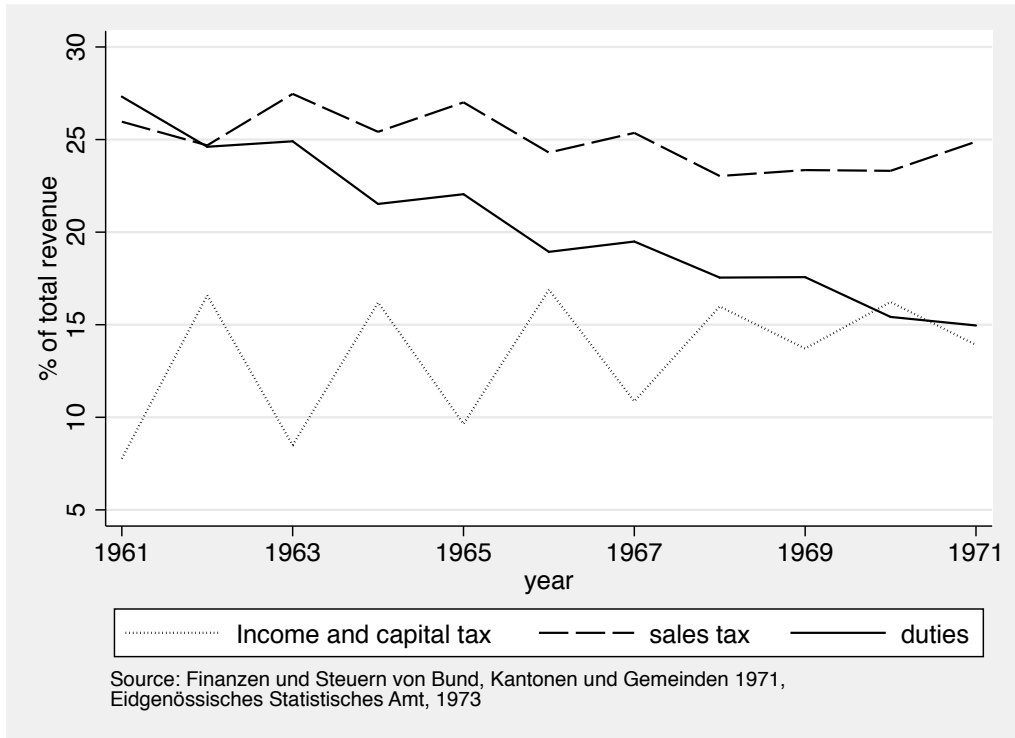


Figure 1: Main federal revenue sources in % of total revenue

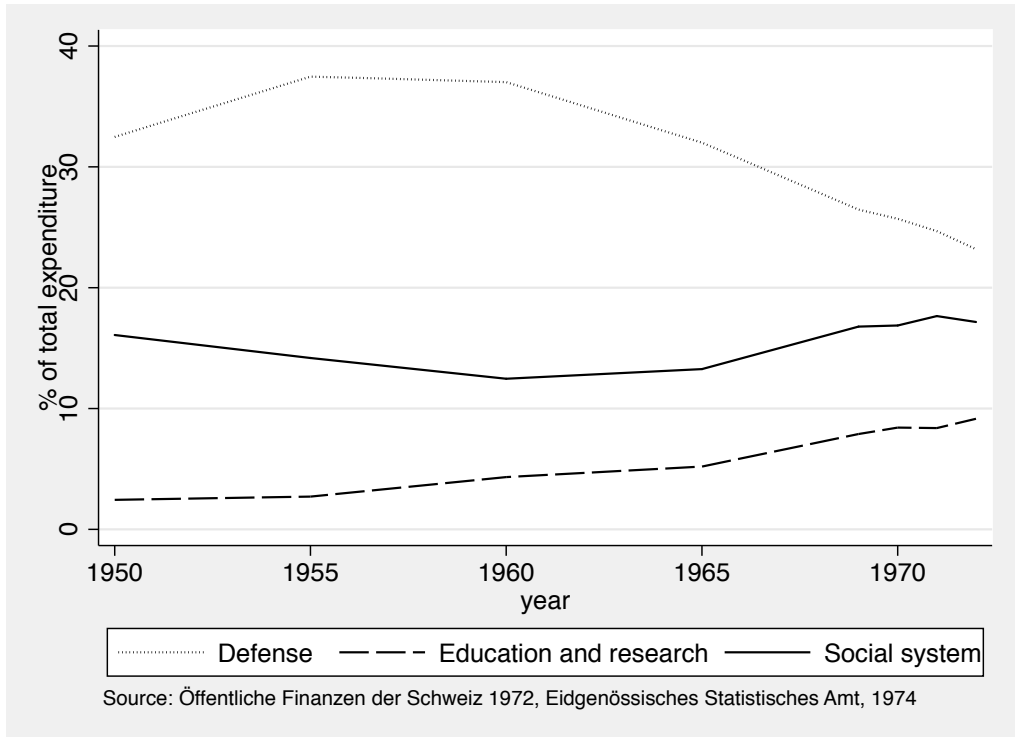


Figure 2: Main federal expenditure items in % of total expenditure

Ballot proposition 2: 6 June 1971

The Swiss government immediately prepared a new proposal⁶ because it urgently needed more revenue sources to finance growing state expenditure (Bundesblatt 1970 II, p.1581). In the major parts the new proposal was identical to the old proposal, but had the following changes. The biggest change included a time limit of 10 years (Bundesblatt 1971 I, p.487). This meant that in the case of approval at the polls, the federal financial order had to be voted upon again in 1980 at the latest. As a further change, income tax ceilings of 9.5 percent for natural persons and 8 percent for legal persons were included. Also, the income tax schedule became more progressive and started to tax individuals at incomes after deductions of 9.000 Swiss Francs. These measures were taken to account for price inflation.

Again, the parties and associations almost unanimously asked the voters to accept the proposal in their voting recommendations. Only the Labor Party (PdA), the Swiss Evangelic Party (EVP), and the Alliance of Independents (PdA) were opposed to the proposal because it disregarded deductions for working wives and was not progressive enough (Année politique suisse, 2012).

The mandatory referendum took place on 6 June 1971 but with a new electorate: Switzerland was the last European country to grant women voting rights at federal level on 7 February 1971. Swiss women were demanding suffrage more intensively in the aftermath of both world wars when democratization was going on all across Europe. They also received support from male politicians who recognized that the women's position in society had changed to a more active role in public life and private employment (Ruckstuhl, 1986). However, female suffrage in Switzerland could only be brought about by a constitutional amendment, which required the male population to hold a vote on extending the franchise. While at a first ballot in 1959 female suffrage was rejected with 66.9% of the male votes,⁷ a second run in 1971 saw the majority of voters and majority of cantons accepting the constitutional amendment.

This time with universal suffrage the ballot proposal concerning the Federal Tax System was accepted by a large margin with 72.7% of the votes, and a majority in all cantons. Figures 3 and 4 show the cantonal approval rates for both ballots. The figures are retrieved from swissvotes.ch⁸.

It is important to note that the only essential change between the first and the second ballot

⁶“Federal enactment about the continuation of the federation's financial order”. Original title in German is “Bundesbeschluss über die Weiterführung der Finanzordnung des Bundes”

⁷Only three francophone cantons, Geneva (60.0%), Neuenburg (52.2%), and Waadt (51.3%) had a majority favoring universal suffrage. They were also the first three cantons to introduce universal cantonal suffrage.

⁸A project of the Institute of Political Science at the University of Bern, Switzerland, and the Année Politique Suisse.

proposition was the inclusion of the time limit. Comparing the precise wording of both legislative texts shows that they are almost identical in all paragraphs. Consequently, if a man changes voting behavior between the ballots, the only reason can be the time limitation of the second proposition.

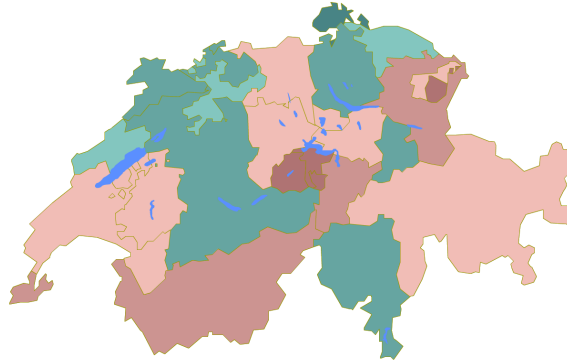


Figure 3: Cantonal approval rates for ballot 1 at 15 November 1970, swissvotes.ch

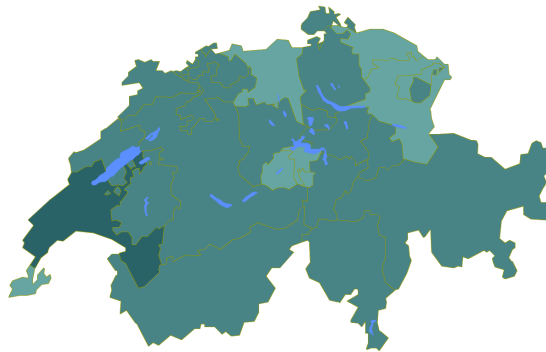
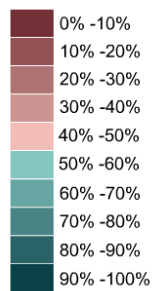


Figure 4: Cantonal approval rates for ballot 2 at 6 June 1971, swissvotes.ch



4 Data and descriptives

I collected a dataset for 2.188 Swiss municipalities with voting information for the relevant ballots. They include the number of yes and no votes, valid votes and eligibles. Data from the three cantons Aargau, Freiburg, and Ticino are not available at municipal level. Instead I include the data from voting districts which comprise several municipalities each for these three cantons. This adds 26 voting districts to the dataset.⁹ All voting data come from the Political Atlas of Switzerland provided by the Swiss Statistical Office. Descriptives of the voting data are reported in table 2.

Since voting data comes from two ballots with a time difference of 7 months, municipal mutations need to be taken into account. I.e., several municipalities have merged during this time. Therefore, I adjust the voting data from ballot 1 such that they are comparable to ballot 2. I do the same for the census data which means that I sum the data from municipalities which have merged between 1970 and 1971. Further, there are two special cases in the cantons Bern and Thurgau. The first one in the canton Bern is that voting results from very small municipalities are counted and reported in some larger municipality nearby. Second, in Thurgau several municipalities which are available separately in the census data form a political municipality with different administrative tasks. Voting data are reported for the latter only. I account for both special cases by adjusting the census data accordingly such that they are comparable.

Table 2: Descriptives of ballots 1 and 2

	Ballot 1				Ballot 2			
	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max
Eligibles	752	353	8	117110	1630	8079	14	267893
Voters	308	1786	2	70874	607	3063	3	109330
% yes votes	0.548	0.149	0	1	0.732	0.074	0.027	1
Turnout	0.410	0.168	0.043	1	0.357	0.372	0.031	0.955
Voters / Swiss >20	0.189	0.078	0.022	0.5	0.372	0.131	0.031	0.955

I use gender, economic, and socioeconomic controls which are likely to affect voter turnout and approval rates.

As explained in the previous section, families with many children and married couples were

⁹I have contacted the cantonal archives of the three cantons in question. For some of the municipalities data exist, and will be included in future estimates. Municipalities for which no data are available will have to be excluded. For robustness, the estimates are repeated excluding the three cantons in question. The results do not change qualitatively and are reported in the appendix.

avored in both ballots when compared to the pre-1970 regulation of the tax system. I define large households as households with five and more persons. A large household thus means that there are several financially dependent persons in the house like children under 18 years or students. The larger the number of children per household, the higher is the potential tax deduction. This should increase the approval for both ballot proposals. Also, I account for the fraction of married individuals in the population. For this control, the expectation goes into the same direction as with large households: with a higher number of married persons tax deductions are higher and thus expected approval which is true for both ballot propositions.

As described above, the new proposals shifted some of the tax burden from income taxes to turnover taxes. This was likely to be paid for by firms and not private households. I control for this by adding the fraction of independently employed workers to my analysis.

I take the percentage of the population employed compared to the total population above age 15 as an economic control. The higher the employment, the lower the approval for government expenditure is expected to be.

Education and income are generally assumed to be positive drivers of turnout (Feddersen & Pesendorfer, 1996, 1999). There are no data available on the educational background per municipality in 1970. Thus, I very crudely account for education by using the percentage of population employed in the service sector as a control. The intuition is that workers in the service sector on average need a higher education level than in the agricultural or industrial sector. To control for income, I include the mean taxable income in the regressions.

I use several demographic controls to account for regional differences in the population. The percentage of the population older than 65 years which accounts for the older population who is eligible to vote is also included. The expectation regarding this control is in line with the general notion that older people are more likely to vote than younger ones and thus should increase turnout (Wolfinger & Rosenstone, 1980).

Urbanization needs to be controlled for since voters in more urban areas face lower voting costs and people probably have other preferences. As a first measure, I include the logarithm of the municipal population accounting for large municipalities. A second measure is the distance in kilometers from the municipality to the next regional center (i.e., to Zurich, Bern, Basel, Winterthur, St.Gallen, Lugano, Lausanne, or Geneva). This captures the notion that some small municipalities may be quite well connected with big cities while others may be located in rural alpine regions. Further, I use the percentage of catholics in the population to account for more traditional and

conservative preferences. The expected effects might be twofold. On the one hand, turnout can be higher in more catholic regions because families can go to the ballot directly after Sunday mass and are seen by their neighbors fulfilling their civic duties. This was the only way of voting, because postal voting was not yet available in Switzerland in the 1970ies (Funk, 2010). On the other hand, the church decidedly opposed female political activity (Hardmeier, 1997) such that women in predominantly catholic regions might have been less likely to participate in the voting. The fraction of the German-speaking population is included to account for cultural differences between municipalities. Especially in the Western cantons French is the dominant language, and Italian in the canton Ticino.

Three controls for which data are available by gender are employment, independent employment which is the proxy for the number of firms, and the fraction of the old. These variables also constitute the controls which are most likely to differ between men and women. T-tests for all three variables reject the hypothesis that the means by gender are not significantly different from zero at a 1% significance level.

The most notable gender gap in these controls is in the employment rate. Women were much less likely to work than their male counterparts. This means that with the introduction of female suffrage the employment rate of the electorate fell by a large amount. Edlund and Pande (2002) suggest that this should increase approval for government expenditure. The most extreme case they cite is when women are housewives and fully depend on their husbands' income which would render them depending on state welfare after a divorce. The data treats part-time and full-time jobs equivalently. Therefore, the true female employment rate is probably even lower than what is estimated here because many women are employed only in part-time occupations (Swiss Statistical Office, 1972).

On average women live longer than men which is supported in the data by a higher fraction of women above 65 years of age than of men. Enfranchising women thus increases the average fraction of the old in the population which has implications for the expectation of voter turnout. On the one hand, it is likely that young women vote more actively because costly political knowledge acquired at a young age can be used for a longer time. However, older women, even though they were not allowed to vote before 1971, have passively gained political experience throughout their lives. Since older people are in general more likely to make use of their voting rights, I expect in a similar vain to Lott and Kenny (1999) the fraction of older women in the population to be positively correlated with the turnout rate.

The descriptives of the controls are in table 3. A detailed description of the data and its sources are included in the appendix.

Table 3: Descriptives of control variables in %

	Mean	Std. Dev.	Min	Max
Log population	6.660	1.430	2.996	12.954
Swiss women	0.506	0.039	0	0.722
Mean taxable income in thousands	22.209	7.542	7.302	138.800
Distance to large city in km	47.811	40.542	0	224.862
Married	0.677	0.069	0.250	0.906
Large households	0.250	0.101	0.000	0.824
Male employment	0.851	0.061	0.364	1.000
Female employment	0.387	0.098	0	0.875
Total employment	0.625	0.065	0.208	0.944
Independent male employment	0.241	0.125	0.024	0.833
Independent female employment	0.061	0.064	0	1
Independent employment	0.188	0.096	0.026	0.692
Employment in service sector	0.316	0.133	0	0.848
Old men	0.111	0.045	0	0.545
Old women	0.138	0.049	0	0.467
Old population	0.124	0.044	0.029	0.462
Catholics	0.429	0.353	0	1
German-speaking	0.610	0.407	0	1

5 Method and results

5.1 The effect of voter turnout

Lott and Kenny (1999) as well as Aidt and Dallal (2008) point out that in the analysis of the effect female suffrage has on government spending it is important to account for the turnout rate and the number of people voting. Intuitively, at the day of the introduction of universal suffrage not all women make use of their new rights immediately. It takes time until women grow accustomed to the possibility of voting. In Lott and Kenny's estimates it takes 9 years to see the full effect of female suffrage.

Turnout is defined as the number of people voting on a particular date divided by the total Swiss population aged 20 and older to visualize the effect of female suffrage on turnout in Switzerland.¹⁰ Since turnout rates for referendums vary a lot (which might be due to the importance of an issue

¹⁰20 was the voting age at that point in time. I take the total number of people above 20 years old from Swiss censuses and interpolate the numbers for the inter-census years. The data are from the Swiss Statistical Office.

or campaigning effects), turnout rates for elections to the Swiss parliament (Nationalrat) between 1951 and 1991 are reported here. In this time period, parliament was elected every 4 years. The x-axis shows the election before and after the introduction of female suffrage in 1971. 0 is defined as the election in 1971. Elections before 1971 have negative x-values and positive afterwards. Turnout in percent as defined above is depicted on the y-axis.

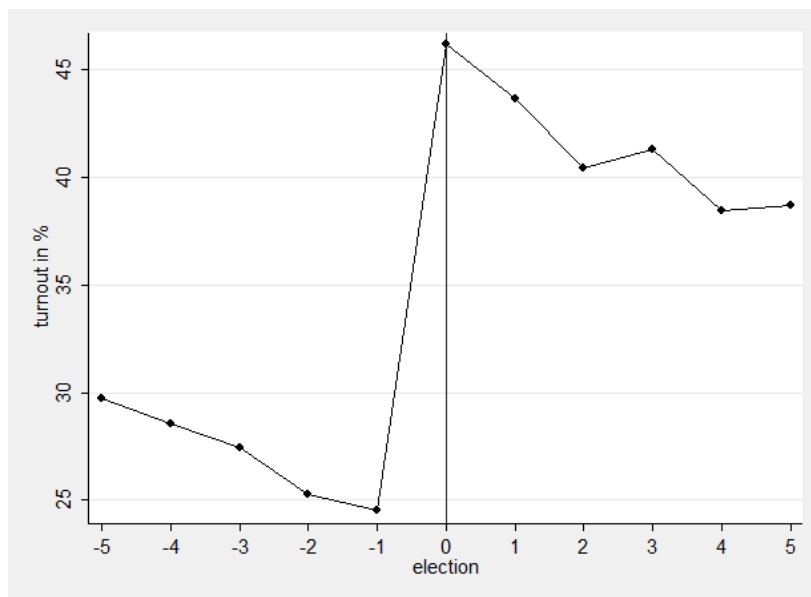


Figure 5: Turnout rate for parliamentary elections without and with female suffrage

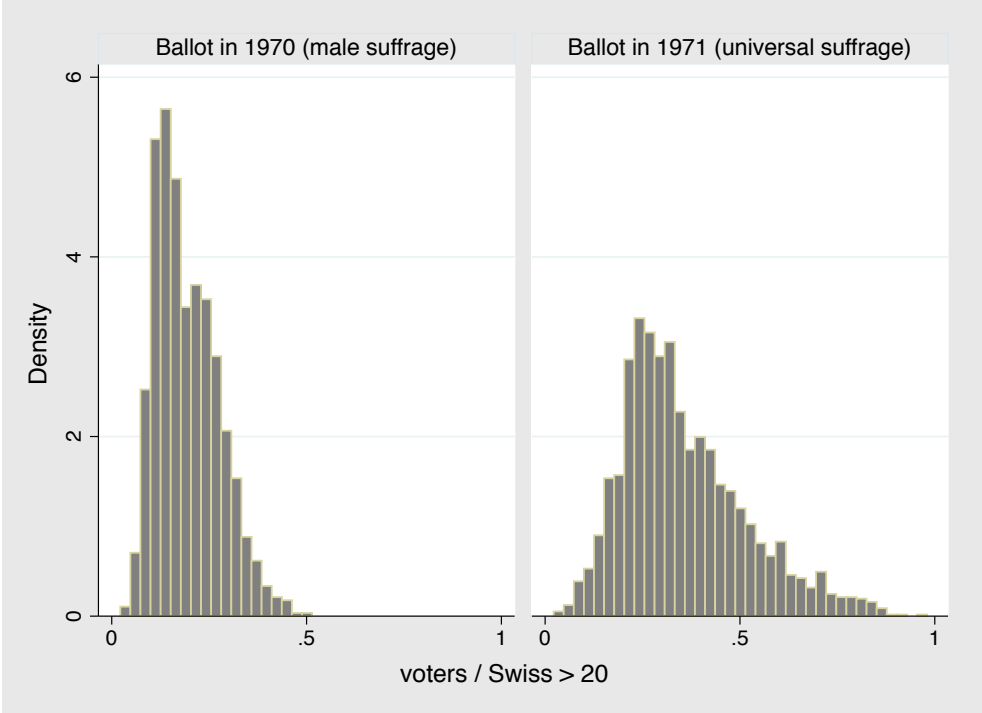
As can be seen in figure 5, the fraction of voters as compared to the total adult population was steadily decreasing before the introduction of female suffrage. As expected, the turnout rate jumps by more than 20 percentage points in the 1971 election. However, afterwards the turnout rate has a decreasing trend. This contrasts with the findings of Lott and Kenny (1999) who show that the turnout rate in the U.S. was increasing a few years after the introduction of female suffrage. Thus on average women in Switzerland made use of their voting rights relatively quickly. This is important for the understanding of the results because ballot 2 is the first federal voting date after the introduction of female suffrage at which voters decided on two bills.¹¹ Since I compare the voting effects in two close ballots, this is an encouraging sign that I can estimate the full effect of female suffrage.

I estimate the effect of female suffrage on turnout defined as voters divided by the total Swiss population age 20 or older. This definition is useful because it gives an intuition for how many women participate in ballots once enfranchised. Turnout without women in ballot 1 is on average

¹¹The other proposition was about the protection of humans and their environment.

18.9 percent in the sample, and it ranges from 2.2 to 50 percent. In fact, this number constitutes the male voter turnout as a fraction of the total eligible population. If no women made use of their voting rights in ballot 2, the turnout rate would remain constant. Should women have voted with the same intensity as men and given that the fraction of Swiss women above 20 years in the population is roughly equal to the male fraction, I would expect turnout to increase to 37.8 percent on average. The average value is slightly lower at 37.2 percent for ballot 2 with a range is from 3.1 to 95.5 percent. Histograms of the dependent variable are depicted in figure 6.

Figure 6: Histogram of turnout



A central question in my regressions is how to estimate the effect of female suffrage on turnout. A suffrage dummy would capture only the average difference between ballots 1 and 2. Intuitively, if there were no women in the population, female suffrage would not have any effect on the turnout rate. I calculate the number of Swiss eligible women in a municipality by taking the difference of eligible voters in ballots 1 and 2. This is implicitly based on the assumption that the number of Swiss eligible men did not change in the seven months between the ballots. While this surely constitutes a simplification, it should not be critical for the results because the time difference between the ballots is small. Thus, the higher the fraction of women in the population, the stronger the effect on turnout potentially can be. I account for this by multiplying a suffrage dummy with the fraction of Swiss women age 20 or older as compared to the total Swiss population that is at least 20 years

old. The basic estimation equation is therefore the following:

$$turnout_{bm} = \beta_0 + \beta_1 \text{suffrage}_b * \% \text{ women}_m + \beta_2 X_{bm} + u_c + \epsilon_{bm} \quad (1)$$

b denotes ballot 1 or 2, m is the municipality identifier, and c is the canton in which the municipality is located. $\text{suffrage}_b * \% \text{ women}_m$ stands for the main independent variable as explained above. X_{bm} are municipality controls, u_c cantonal dummies and ϵ_{bm} the error term.

I estimate the specifications described above to find the effect of female suffrage on turnout. In all regressions, weighted least squares with weights according to the size of the Swiss population older than 20 years are applied. Standard errors are clustered at municipal level. I include cantonal fixed effects u_c in all estimates. They account for all unobserved effects in the cantons which do not vary between the two ballots. One example is the existence of cantonal direct democratic institutions which are likely to affect turnout as well as approval rates. The results are reported in table 5.

As expected, I obtain a highly significant and positive effect of female suffrage on turnout in estimation (1). Taking the coefficient 0.229 from the basic specification (1), the additional turnout due to female suffrage in a municipality with the weighted average percentage of Swiss eligible women of 53.8 percent is 12.34 percent.¹²

Female turnout rates can be influenced by the intensity women want to use their new voting rights, and also by their bargaining power at home. I use two approaches to control for these issues. First, in contrast to federal voting rights, female suffrage at cantonal level was introduced between 1959 and 1990. Eight cantons allowed women to vote on cantonal issues even before 1971 while in Appenzell Innerrhoden universal suffrage at cantonal level had to be imposed by a court of law ruling in 1990. This means that women from these eight cantons already had some voting experience on cantonal issues while in some cantons women had to wait rather long for cantonal voting rights.¹³ I calculate the time in years between 7 February 1971, the first day of federal female suffrage, and the introduction of cantonal voting rights. For the cantons with voting rights before that date values are positive, and zero for cantons which introduced female cantonal voting rights thereafter. I interact this variable with the suffrage dummy and the adult fraction of Swiss women

¹²The effect of female suffrage on turnout is calculated by multiplying the coefficient 0.229 with the average percentage of Swiss females 0.538.

¹³In detail, this means that cantonal and federal voting rights are independent of each other: while all women could vote and elect at federal level since 7 February 1971, it might have been that they still had no cantonal voting rights after that date.

in each municipality. In an additional specification, I add the squared value of time to account for nonlinear effects. The underlying estimation equations become:

$$turnout_{bm} = \beta_0 + \beta_1 suffrage_b * \% women_m + \beta_2 suffrage_{bc} * \% women_m + \beta_3 X_{bm} + u_c + \epsilon_{bm} \quad (2)$$

$$turnout_{bm} = \beta_0 + \beta_1 suffrage_b * \% women_m + \beta_2 suffrage_{bc} * \% women_m + \beta_3 (suffrage_{bc})^2 * \% women_m + \beta_4 X_{bm} + u_c + \epsilon_{bm} \quad (3)$$

$suffrage_{bc}$ is the time since cantonal suffrage for canton c in years as described above for the ballot with universal suffrage, and zero for the first ballot.

For the second approach, I utilize the fact that female suffrage at federal level was introduced voluntarily by a majority of male voters in a majority of cantons. The higher the fraction of men approving female suffrage, the more likely should women be to turn out because the general attitude towards female participation is positive. Compared to the first approach, this control has nonzero values for all municipalities in all cantons. From the Political Atlas of Switzerland published by the Swiss Statistical Office I obtained voting data from the 7 February 1971 ballot, adjusted for municipal mutations, and use the approval rates at municipal level as an additional turnout control. As with the controls above, I multiply it with the suffrage dummy and the adult fraction of Swiss women. In table 4 the dates of the introduction of cantonal female suffrage and the approval rates in the 1971 ballot are reported. The fourth estimation equation thus is

$$turnout_{bm} = \beta_0 + \beta_1 suffrage_b * \% women_m + \beta_2 male approval_{bc} * \% women_m + \beta_3 X_{bm} + u_c + \epsilon_{bm} \quad (4)$$

Again, in estimations (2)-(4) the coefficient of female suffrage is positive and significant. The coefficients for the time since cantonal suffrage in specifications (2), and (3) are significant and negative. Against the first intuition turnout in cantons with female cantonal voting rights was smaller than in cantons lacking these right. This might indicate that women who have never voted before in their lives were more eager to go to the ballot once they had the chance to. The positive and significant coefficient of the squared term in specification (3) suggests, however, that among cantons with cantonal female suffrage those who introduced it earlier have higher female turnout as compared to cantons who introduced it relatively shortly before February 1971. The results show that in cantons which have not introduced cantonal female suffrage, the additional turnout rate was around 14.54. In comparison, the additional turnout rate from female suffrage in cantons with

Table 4: Introduction of female suffrage at cantonal level, and approval for federal female suffrage

Canton	Cantonal Suffrage	Yes-votes 1971 in %
Aargau (AG)	7 February 1971	50.2
Appenzell A.-Rh. (AA)	30 April 1989	39.9
Appenzell I.-Rh. (AI)	27 November 1990	28.9
Basel Land (BL)	23 June 1968	79.9
Basel City (BS)	26 June 1966	82.2
Bern (BE)	12 December 1971	66.5
Freiburg (FR)	7 February 1971	71.1
Geneva (GE)	6 March 1960	91.1
Glarus (GL)	2 May 1971	41.3
Graubünden (GR)	5 March 1972	54.8
Luzern (LU)	25 October 1971	62.7
Neuenburg (NE)	27 September 1959	82.0
Nidwalden (NW)	30 April 1972	55.8
Obwalden (OW)	24 September 1972	46.7
Schaffhausen (SH)	7 February 1971	56.7
Schwyz (SZ)	5 March 1972	42.2
Solothurn (SO)	6 June 1971	64.1
St.Gallen (SG)	23 January 1972	46.5
Tessin (TI)	19 October 1969	75.3
Thurgau (TG)	12 December 1971	44.1
Uri (UR)	30 January 1972	36.3
Waadt (VD)	1 February 1959	83.9
Wallis (VS)	12 April 1970	79.9
Zug (ZG)	7 February 1971	59.9
Zurich (ZH)	15 November 1970	66.8

cantonal female suffrage was considerably lower at 9.46 percent.

Similarly to the results in (2) and (3), the coefficient of the male approval rate for federal female suffrage in estimation (4) is significantly negative. This means that women turned out at a higher rate in municipalities where men disapproved of female participation. Though puzzling at first sight, it might show that women in less liberal municipalities valued their new political rights by a higher degree.

In accordance with earlier results from other literature, turnout rates are higher in richer municipalities and in municipalities with a larger fraction of the old population. Also the number of large households is positively correlated with turnout. I find significantly negative effects for the distance to large cities, employment, independent employment, and the fractions of catholics and German-speaking citizens in the municipality.

There are no significant results for population size, the fraction of married people, and employ-

Table 5: Effect of female suffrage on voter turnout

	(1)	(2)	(3)	(4)
Suffrage dummy * Swiss women >20	0.229*** (0.032)	0.258*** (0.039)	0.275*** (0.041)	0.273*** (0.026)
Years of cantonal suffrage * Swiss women >20		-0.007*** (0.002)	-0.049** (0.023)	
(Years of cantonal suffrage) ² * Swiss women >20			0.004* (0.002)	
Male approval rate for suffrage * Swiss women >20				-0.000*** (0.000)
Log of total population	-0.000 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.001 (0.002)
Mean taxable income	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Distance from large city in km	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Male approval rate for suffrage * Swiss women >20	0.015 (0.073)	0.015 (0.073)	0.022 (0.073)	0.000 (0.071)
Large households	0.228*** (0.043)	0.236*** (0.044)	0.234*** (0.044)	0.239*** (0.043)
Employment	-0.237*** (0.072)	-0.200** (0.080)	-0.189** (0.083)	-0.154*** (0.060)
Independent employment	-0.176*** (0.030)	-0.182*** (0.029)	-0.173*** (0.030)	-0.173*** (0.029)
Old population	0.127 (0.091)	0.166* (0.100)	0.177* (0.104)	0.263*** (0.074)
Employment in service sector	-0.033 (0.025)	-0.028 (0.026)	-0.027 (0.026)	-0.018 (0.024)
Catholic population	-0.056*** (0.011)	-0.056*** (0.011)	-0.054*** (0.011)	-0.054*** (0.011)
German-speaking population	-0.029*** (0.011)	-0.029*** (0.011)	-0.029*** (0.011)	-0.030*** (0.011)
Canton fixed effects	yes	yes	yes	yes
Adjusted R ²	0.807	0.810	0.813	0.809
Number of observations	4'376	4'376	4'376	4'376

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable turnout is defined as the number of votes divided by the Swiss eligible population older than 20 years. Weighted least squares according to Swiss eligible population size. Clustered standard errors at municipal level.

ment in the service sector. The last results is unexpected since the expectation was that employment in the service sector is a proxy for the fraction of educated people who are usually more likely to turn out. This is surprising since e.g. Wolfinger and Rosenstone (1980) find education to be one of the strongest predictors of turnout. A possible explanation is that this proxy is not well chosen because there are many occupations in the service sector which do not require academic degree, like

hairdresser, or restaurant personnel. The measure may hence be too broad and encompass many occupations with varying educational levels.

5.2 The effect on approval for government expenditure

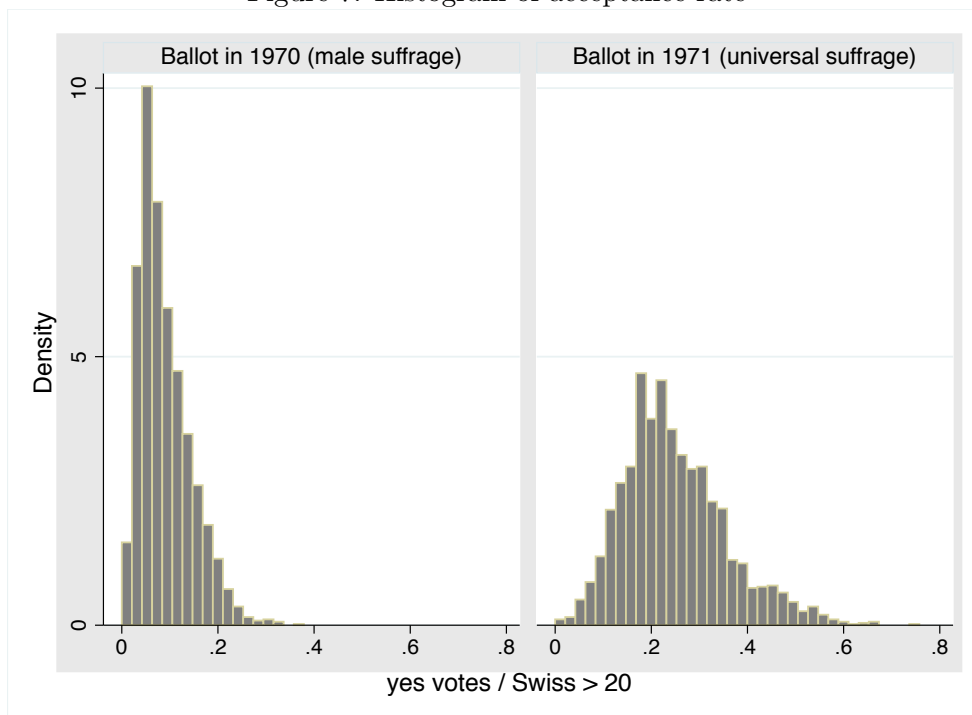
In the second step, I estimate the effect of additional turnout due to female suffrage on the approval rate of policy proposals regarding federal expenditure. Coefficients from specifications (1) and (3) above are used to construct a variable of additional turnout for each municipality. While the coefficient from (1) shows an average effect for all municipalities, specification (3) has the merit that it is possible to distinguish between more and less liberal cantons regarding female voting rights. Obviously, the variable is 0 for ballot 1. This is the independent variable of interest. Similarly to the first stage, I use the number of yes votes related to the total Swiss population which is at least 20 years old as the dependent variable. This measure is small for ballot 1, and represents the fraction of yes votes as commonly defined for ballot 2. The intuition is that the measure should not change if all women rejected the proposal, and increase should some of the women be in favor of the proposal. Histograms of the dependent variable by ballot are viewed in figure 7. The basic estimation equation is:

$$approval_{bm} = \beta_0 + \beta_1 female\ turnout_{bm} + \beta_2 X_{bm} + u_c + \epsilon_{bm} \quad (5)$$

What makes the analysis more complicated is the fact that the ballots are not entirely identical. As explained above, the main difference between the proposals is a time limit of ten years in the second proposal. I have noted before that proposals regarding the federal financial order including time limits have also been approved by the male voting population, e.g., like in 1954, 1958, and 1963. This means that not only women are expected to be more likely to vote in favor of the proposal but also some men should change their minds and vote yes instead of no. To account for the fact that the second proposal is less extreme than the first, I take the difference between the approval rates for ballot 1 and the ballot proposition in 1963 which also included a time limit and was accepted by a large margin. In this manner, I can proxy the change in male approval rates when propositions include a time limit or not.

The validity of this proxy relies on the assumption that male preferences regarding government spending are time constant between 1963 and 1970 and differences in acceptance due to the inclusion of a time limit in the 1963 proposition and the lack of it in the latter. To substantiate this claim,

Figure 7: Histogram of acceptance rate



I provide evidence from two comparable ballots in 1953 and 1954. Again, the first one had no time limit and was rejected, while the second one had a time limit and was approved by the then male electorate. The weighted average difference in approval rates for the two propositions was 27.7 percentage points which is substantial. A t-test of the difference is highly significant. Because preferences between 1953 and 1954 can be assumed time constant, this significant difference in acceptance shows that the inclusion of a time limit is indeed responsible for much higher shares of yes votes among the male population.

The variable is multiplied with the suffrage dummy such that it becomes 0 for the first ballot.¹⁴ Controls are the same as in the first step. Similarly to above, the final estimation equation is the following:

$$approval_{bm} = \beta_0 + \beta_1 female\ turnout_{bm} + \beta_2 \Delta\ male\ preferences_{bm} + \beta_3 X_{bm} + u_c + \epsilon_{bm} \quad (6)$$

Results are reported in table 6. Additional turnout due to female suffrage has a statistically significant and large positive effect on the female approval rate. The overall effect on the acceptance rate for a municipality with the average additional turnout of 12.34 percent is 8.17 percentage

¹⁴More details about the construction of this variable can be found in the appendix.

points. For a municipality in a canton with cantonal female suffrage with an average additional turnout of 9.46 percent, the effect on the approval rate is 5.70 percentage points, as compared to 8.77 percentage points in municipalities in cantons lacking these rights. Also as expected, additional male approval for the proposition with a time limit is positive and highly significant.

Regarding the other control variables I find significant coefficients with the expected sign for the fraction of married, large households, employment, and independent employment. Puzzlingly the results show that in municipalities with higher mean taxable income the approval rate is higher. The coefficients for married and large households have a positive sign because they profit from the new regulation as compared to the old one. In line with expectations, the employed and independently employed were more likely to reject the proposals because they were expected to carry a larger part of the tax burden.

Municipalities with a larger German-speaking population and more catholics were less likely to approve the proposals. There are no significant effects for the population size, employment in the service sector, and the fraction of the old.

5.3 Interpretation of the results

The core of this paper is to answer the question whether a gender preference gap for government spending exists. Therefore it is of main interest to compare the acceptance rate between women and men for the two ballot propositions. Preferences are only observable for those individuals who turned out to vote. Hence, I can analyze gender preference gaps only among those who have voted. The empirical strategy first assessed how many women made use of their voting rights. In the second step, the estimation procedure showed how many of those women who turned out actually accepted the second ballot proposition. What follows is that the coefficient of additional turnout due to female suffrage can directly be interpreted as the acceptance rate of those women who turned out to vote. My estimates suggest that the average acceptance rate among women was 66.2 percent. Note that the coefficient from estimation 4 should be interpreted as the average acceptance rate when taking into account cantonal voting rights. The reason is that this coefficient is estimated from the specification including the years of cantonal suffrage and its square which both have positive means.

For the calculation of the male acceptance rate I assume that whoever favored ballot proposition 1 should also accept the second proposition. The male acceptance rate should therefore be at least

Table 6: Additional approval due to female suffrage

	(1)	(2)	(3)	(4)
Turnout due to female suffrage	0.761*** (0.152)	0.662*** (0.118)	0.797*** (0.156)	0.603*** (0.126)
Δ male acceptance		0.888*** (0.080)		0.803*** (0.099)
Log of total population	-0.000 (0.002)	0.002 (0.002)	-0.000 (0.002)	0.002 (0.002)
Mean taxable income	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Distance from large city in km	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Married population	0.103* (0.058)	0.134** (0.057)	0.104* (0.057)	0.141** (0.057)
Large households	0.134*** (0.033)	0.107*** (0.031)	0.137*** (0.034)	0.115*** (0.031)
Employment	-0.260*** (0.075)	-0.151*** (0.058)	-0.203** (0.081)	-0.165*** (0.059)
Independent employment	-0.217*** (0.022)	-0.220*** (0.020)	-0.213*** (0.022)	-0.219*** (0.020)
Old population	0.014 (0.096)	0.074 (0.079)	0.061 (0.107)	0.085 (0.086)
Employment in service sector	-0.013 (0.022)	0.003 (0.021)	-0.006 (0.023)	0.002 (0.021)
Catholic population	-0.076*** (0.008)	-0.090*** (0.008)	-0.075*** (0.008)	-0.087*** (0.008)
German-speaking population	-0.026*** (0.007)	-0.030*** (0.007)	-0.026*** (0.007)	-0.029*** (0.007)
Canton fixed effects	yes	yes	yes	yes
Adjusted R ²	0.820	0.841	0.829	0.842
Number of observations	4'376	4'286	4'376	4'286

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable acceptance is defined as the number of yes votes divided by the Swiss eligible population older than 20 years. Weighted least squares according to Swiss eligible population size. Clustered standard errors at municipal level.

54.8 percent which is the percent of yes votes in ballot 1. As explained above, I expect that some voters rejecting the first proposition changed their voting behavior because the second proposition included a time limit. By constructing a variable based on the difference in male acceptance between the vote in 1963 and ballot 1, I am able to quantify the change in male preferences. This change is equal to $\gamma * \Delta male\ acceptance$ where γ is the estimated coefficient. For the whole sample the weighted average of the difference in male acceptance rates is 22.46 percent which gives an increase in male acceptance of 19.94 percent. Adding both numbers gives an estimated male acceptance rate of 74.74 percent.

The results reject the hypothesis that women are more likely to favor government expenditure. At first sight this is a surprising result because the expectation goes into the opposite direction. At second glance, however, there might exist several explanations for this findings. The most important one is that the ballot propositions at questions concerned government expenditure as an aggregate and did not distinguish separate spending issues. Literature examining gender preference gaps cited above suggested that women should be e.g. more likely to favor government spending on redistribution or health. Both are items which concern women more directly, either via lower employment rates and wages, or via the care for their children (e.g., Funk & Gathmann, 2012; Miller, 2008). I discuss the findings in more detail in the concluding section.

A further issue might be that my analysis is based on preferences of the politically active population and disregards the opinion of the abstainers. To account for this possibility, I propose a robustness check in the next section.

5.4 Robustness check: supporting evidence from a probit analysis

The result above that men support government spending with a higher probability than women is based on the analysis of voting behavior of the participating part of the population. Hence, the main concern is that the voting results might not properly aggregate preferences of the whole eligible population, and my results consequently hold only for the politically active citizenry. Literature on turnout probabilities documents that citizens turn out because of various reasons. Among them are socioeconomic variables, political and personal interest, information availability, cost of voting, and voting history to mention just a few. Citizens who do not participate because they have no interest in the topic and thus do not form any particular preferences about government spending, are of no concern. However, abstention due to too high voting cost, lack of information etc. might

pose a problem, especially since the second ballot took place soon after female enfranchisement.

I therefore conduct a robustness check based on individual data from a post-election survey. Such surveys are conducted after all referendum and initiative ballots at national level in Switzerland since 1977. The project is called Vox-survey, and the data are being published by the Swiss foundation for research in social sciences.¹⁵ Randomly chosen respondents answer a questionnaire by telephone. Among the information included are the voting behavior and various socioeconomic controls as well as contextual information. The advantage of these polls is that until the end of 1999 voters as well as eligible citizens who did not go to the polls answered the questions. Importantly, they include the hypothetical answer of the nonparticipating respondents to the question of how they would have decided if they had voted. This allows me to conduct a probit analysis of voters and nonvoters by gender to analyze if the above results extend towards the politically inactive population.

As becomes clear from above, the Swiss have to approve the federal financial order, i.e. the federal government's competency to levy federal taxes, by popular vote. This has not changed until now since all propositions without a time limit have been rejected so far. For my analysis, I choose the ballot proposition which was voted on 28 November, 1993 which is the latest ballot concerning the federal financial order before 1999. Though tax rates and deductions have of course changed since the ballot propositions in 1971, the matter is in fact identical to the propositions analyzed above. Since the proposition includes a time limit for the federal financial order until 2006 (Bundesblatt 2003, p.1540), ballots in 1971 and 1993 are comparable to each other. While in the above analysis it was of concern that women have not yet grown accustomed to their voting rights and might have hesitated to participate, in 1993 female voting rights were already well established.

The dataset comprises answers of 842 individuals of which 590 have turned out to vote and 252 have not. To make the results comparable to the main analysis above, I choose similar control variables. Most importantly, I control for gender which is the main variable of interest. The other controls are a dummy for employment, a dummy if the respondent's age was 65 or more, a dummy for tertiary education, dummies for being catholic or German-speaking, and household income increasing on a 1 to 5 scale. Though there exists information about the independent work status of the respondents, this variable has too many missings which would render the sample size unnecessarily small. The descriptives by gender and participation can be found in tables 7 and 8. The number of observations varies slightly because the full information is not available for all

¹⁵Data are available online on the following homepage: <http://nesstar.sidos.ch/webview/index.jsp>

respondents.

Table 7: Descriptives for male respondents

	Not participating			Participating		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Employment	119	0.706	0.458	323	0.731	0.444
Income	110	2.536	1.246	289	2.830	1.185
Married	122	0.443	0.499	328	0.655	0.476
Catholic	120	0.458	0.500	319	0.476	0.500
German-speaking	122	0.746	0.437	330	0.745	0.436
Old	122	0.156	0.364	330	0.191	0.394
Education	120	0.350	0.479	326	0.445	0.498

Table 8: Descriptives for female respondents

	Not participating			Participating		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Employment	129	0.605	0.491	257	0.525	0.500
Income	116	2.422	1.112	237	2.502	1.195
Married	129	0.535	0.501	258	0.620	0.486
Catholic	124	0.444	0.499	256	0.434	0.497
German-speaking	130	0.708	0.457	260	0.762	0.427
Old	130	0.077	0.268	258	0.151	0.359
Education	127	0.236	0.426	255	0.322	0.468

Two widely met concerns with electoral survey data are the reporting and non-response bias. The latter does not constitute a problem here because data for voters and non-voters are available. For the former, Funk (2012) finds that in Vox-surveys concerning federal finances no reporting bias exists. Nevertheless, I compare self-reported voting with the true aggregate voting outcomes from the homepage of the Swiss Statistical Office. On election day, the proposal was accepted by a majority of 66.7 percent. In the sample, 68.47 of respondents who turned out voted in favor of the proposal which shows that the sample is representative with respect to the voting outcome. Among those respondent who have not participated the acceptance rate would have been 67.9 percent which is slightly below the value of the voting respondents. This gives a hypothetical acceptance rate of 68.29 percent in the whole sample of respondents.

Among the participating, 44.1 percent were women. Of these 66.9 percent favored the proposition, compared to 69.7 percent among the male respondents. Thus, among the participating the acceptance rate is higher for men than for women. In the group of nonparticipating, the fraction of women was 51.6 percent. Of these, 63.8 percent would have voted yes, while 72.1 percent of men would have done so. These descriptives already suggests that a stronger preference for government

spending among men persists in the sample of the nonvoting population. I estimate the following equation:

$$approval_i = \beta_0 + \beta_1 woman_i + \beta_2 X_i + u_c + \epsilon_i \quad (7)$$

The dummy acceptance takes the value 1 if individual i voted yes. The value 1 for the dummy women indicates a female respondent. X_i is a set of socioeconomic controls as mentioned above, and ϵ_i is the error term. u_c are canton dummies to account for canton fixed effects. In a probit estimation, I now regress the voting decision of the respondents on gender and the aforementioned controls for three groups: the total sample (1), the participating (2), and nonparticipating respondents (3). Further, I estimate the following equation including an interaction term between women and participation.

$$approval_i = \beta_0 + \beta_1 woman_i + \beta_2 participation_i + \beta_3 woman_i * participation + \beta_4 X_i + u_c + \epsilon_i \quad (8)$$

Results are reported in table 9. In all estimation the coefficient of the female dummy is negative, and significant at the five or ten percent significance level. The marginal effect of being a women on approving the proposition in the whole sample is -0.087, -0.081 for participating respondents, and -0.112 in the subsample of nonparticipating respondents. In the estimations including the interaction between being female and having participated, the interaction term is not significant. However, the coefficient of being female and the interaction term are jointly significant at a five percent significance level. Since the coefficient of the interaction term is positive, this shows that women who have abstained are even less likely to approve the ballot proposition.

These estimates confirm the above results that men are more likely to approve government spending than women. In more detail, my results to not hinge upon observing only preferences of the voting population but can also be extended towards the whole population.

6 Concluding remarks

The aim of this paper is to provide direct evidence for gender preferences for government expenditure from ballot analysis. This method is preferable to analyzing indirect links between the electorate, politicians, and their subsequent choice of budgets and policies because they constitute direct voter choices. I find that approval for government spending is higher among men than

Table 9: Evidence from probit analysis

	Whole sample	Voters	Non-voters	Whole sample
Woman	-0.270** (0.108)	-0.261* (0.134)	-0.346* (0.209)	-0.345* (0.192)
Participation				-0.116 (0.168)
Woman*participation				0.106 (0.228)
Employed	-0.321** (0.137)	-0.402** (0.173)	-0.033 (0.257)	-0.315** (0.138)
Income	0.109** (0.051)	0.132** (0.064)	0.017 (0.095)	0.110** (0.051)
Married	-0.067 (0.111)	-0.146 (0.142)	0.159 (0.219)	-0.055 (0.113)
Catholic	-0.155 (0.119)	-0.033 (0.148)	-0.438* (0.242)	-0.155 (0.119)
German-speaking	-0.846 (0.516)	-5.392 (151.336)	-0.117 (0.792)	-0.869* (0.520)
Old	-0.073 (0.174)	-0.081 (0.208)	-0.138 (0.381)	-0.063 (0.175)
Higher education	0.167 (0.120)	0.177 (0.144)	0.180 (0.261)	0.173 (0.121)
Adjusted R ²	0.086	0.123	0.095	0.086
Number of observations	719	507	212	719

Note: *** p<0.01, ** p<0.05, * p<0.1.

The dependent variable turnout is defined as a dummy taking the value 1 if the respondent voted yes. Probit regression.

among women. A robustness check from a post-ballot survey confirms that this result can readily be extended towards the non-voting population. While this result seems surprising at first, it might stem from the fact that the object of my analysis is the aggregate government expenditure. The estimation results suggest that the expected gender preference gap does not exist when looking at the total of what governments spend.

While these findings contrast with Lott and Kenny's analysis, they are compatible with other results from literature: Abrams and Settle (1999) find particularly strong effects of female suffrage on welfare spending in Switzerland. Similarly, Aidt et al. (2006) show increases in health, welfare, and education spending which are categories for which typically women would care for. Also Funk and Gathmann (2012) discover gender preference gaps from individual data for health, environmental issues, defense and welfare spending. The decrease in cantonal public expenditure after enfranchising women found by Stutzer and Kienast (2005) might also reflect the fact that the authors analyze aggregate spending.

After the enfranchisement of women, public support for a larger government budget from people who are eligible to elect politicians is not larger than before. Regarding the outcome of the vote, namely acceptance, female suffrage does not change anything because women are not pivotal in this case. Most likely, the male population alone would have also approved the proposition. Democratic legitimization of government expenditure does not increase per se but only for spending categories which are more important for women than for men.

For future research, my results emphasize the need to put more effort into understanding for which spending categories gender preference gaps exist and what their determinants are.

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Appendix

Federal announcements / Bundesblätter

The federal announcements are accessible online via <http://www.amtsdruckschriften.bar.admin.ch>.

- Bundesblatt 1962 I, pp. 997-1014. Botschaft des Bundesrates an die Bundesversammlung über die Weiterführung der Finanzordnung des Bundes.
- Bundesblatt 1969 II, pp. 749-807. Botschaft des Bundesrates an die Bundesversammlung über die Änderung der Finanzordnung des Bundes.
- Bundesblatt 1970 II, pp. 1-5. Bundesbeschluss über die Änderung der Finanzordnung des Bundes.
- Bundesblatt 1970 II, pp. 1581-1608. Botschaft des Bundesrates an die Bundesversammlung über die Weiterführung der Finanzordnung des Bundes.
- Bundesblatt 1971 I, pp. 486-491. Bundesbeschluss über die Weiterführung der Finanzordnung des Bundes.
- Bundesblatt 2003 I, pp. 1531-1565. Botschaft über die neue Finanzordnung.

Information about mutations of the municipalities are taken from the historical municipality register of the Swiss Statistical Office available online [http : //www.bfs.admin.ch/bfs/portal/de/index/infothek/nomenklaturen/blank/blank/gemliste/02.html](http://www.bfs.admin.ch/bfs/portal/de/index/infothek/nomenklaturen/blank/blank/gemliste/02.html)

The Année politique suisse (2012) is accessible online (<http://www.anneepolitique.ch/de/aps-online.php>) and provides additional background information on ballots.

Data used from Swiss census (1970)

- Catholics
- Households with 5 and more persons
- Married
- Male population

- Men working
- Men employed in service sector
- Men independently employed
- Men age 15 and older
- Female population
- Women working
- Total workers independently employed
- Total employment in service sector
- Total population
- Total population age 15 and older

The variable “difference in male approval” is constructed the following way: $suffrage_b * \% men_m * (\% yes\ in\ ballot\ 1963_m - \% yes\ in\ ballot\ 1_m) * male\ turnout_m$. It is necessary to interact the difference in acceptance rates with the municipal male fraction as well as male turnout in ballot 1 to make it comparable with the measure of additional turnout from female suffrage.

Variable “distance to large city” is from the Federal Office for regional planning in the year 2000. The data were received from Maréchal and Bütler (2012). Framing Effects in Political Decision Making: Evidence From a Natural Voting Experiment. Working Paper.

Variable “mean taxable income” is from the Eidgenössische Steuerverwaltung (Federal Tax Administration) in Bern. It is measured for the years 1973/1974. Earlier municipal data are not available.

Information about municipalities counting votes together in the canton Bern, and political municipalities in the canton Thurgau were received by email from the Swiss Statistical Office. They are available from the author upon request.

Voting data are from the Political Atlas of Switzerland of the Swiss Statistical Office. They were retrieved for the following ballots:

- Bundesbeschluss vom 27.09.1963 über die Weiterführung der Finanzordnung des Bundes (Verlängerung der Geltungsdauer von Art.41ter BV und Ermässigung der Wehrsteuer). Ballot on 8 December 1963.
- Bundesbeschluss vom 24.06.1970 über die Änderung der Finanzordnung des Bundes. Ballot on 15 November 1970.
- Bundesbeschluss vom 09.10.1970 über die Einführung des Frauenstimm- und Wahlrechts in eidgenössischen Angelegenheiten. Ballot on 7 February 1971.
- Bundesbeschluss vom 11.03.1971 über die Weiterführung der Finanzordnung des Bundes. Ballot on 6 June 1971.

Table 10: Effect of female suffrage on voter turnout excluding district data from Aargau, Freiburg, Ticino

	(1)	(2)	(3)	(4)
Suffrage dummy * Swiss women >20	0.227*** (0.031)	0.253*** (0.038)	0.264*** (0.040)	0.272*** (0.025)
Years of cantonal suffrage * Swiss women >20		-0.006*** (0.002)	-0.033* (0.017)	
(Years of cantonal suffrage) ² * Swiss women >20			0.002* (0.001)	
Male approval rate for suffrage * Swiss women >20				-0.000*** (0.000)
Log of total population	-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)	0.002 (0.002)
Mean taxable income	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Distance from large city in km	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Married population	0.029 (0.075)	0.030 (0.076)	0.034 (0.076)	0.018 (0.073)
Large households	0.235*** (0.045)	0.241*** (0.046)	0.240*** (0.046)	0.248*** (0.045)
Employment	-0.226*** (0.071)	-0.196** (0.077)	-0.187** (0.079)	-0.139** (0.059)
Independent employment	-0.181*** (0.030)	-0.185*** (0.030)	-0.179*** (0.030)	-0.177*** (0.030)
Old population	0.158* (0.091)	0.189* (0.100)	0.197* (0.102)	0.302*** (0.076)
Employment in service sector	-0.034 (0.025)	-0.030 (0.026)	-0.029 (0.026)	-0.019 (0.024)
Catholic population	-0.061*** (0.012)	-0.061*** (0.012)	-0.060*** (0.012)	-0.057*** (0.012)
German-speaking population	-0.030** (0.013)	-0.030** (0.013)	-0.030** (0.013)	-0.031** (0.013)
Canton fixed effects	yes	yes	yes	yes
Adjusted R ²	0.785	0.788	0.789	0.788
Number of observations	4'324	4'324	4'324	4'324

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable turnout is defined as the number of votes divided by the Swiss eligible population older than 20 years. Weighted least squares according to Swiss eligible population size. Clustered standard errors at municipal level.

Table 11: Additional approval due to female suffrage excluding district data from Aargau, Freiburg, Ticino

	(1)	(2)	(3)	(4)
Turnout due to female suffrage	0.759*** (0.152)	0.664*** (0.117)	0.777*** (0.165)	0.599*** (0.126)
Δ male acceptance		0.947*** (0.083)		0.895*** (0.097)
Log of total population	0.000 (0.002)	0.002 (0.002)	-0.000 (0.002)	0.002 (0.002)
Mean taxable income	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Distance from large city in km	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Married population	0.120** (0.059)	0.158*** (0.058)	0.122** (0.058)	0.164*** (0.058)
Large households	0.148*** (0.034)	0.122*** (0.032)	0.151*** (0.034)	0.127*** (0.032)
Employment	-0.250*** (0.073)	-0.141** (0.057)	-0.210** (0.083)	-0.157*** (0.059)
Independent employment	-0.224*** (0.022)	-0.225*** (0.020)	-0.222*** (0.022)	-0.225*** (0.020)
Old population	0.046 (0.096)	0.108 (0.079)	0.080 (0.106)	0.113 (0.085)
Employment in service sector	-0.011 (0.022)	0.003 (0.021)	-0.007 (0.023)	0.001 (0.021)
Catholic population	-0.087*** (0.008)	-0.104*** (0.008)	-0.086*** (0.008)	-0.102*** (0.008)
German-speaking population	-0.030*** (0.008)	-0.033*** (0.008)	-0.030*** (0.008)	-0.033*** (0.008)
Adjusted R ²	0.811	0.831	0.816	0.831
Number of observations	4'324	4'234	4'324	4'234

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable acceptance is defined as the number of yes votes divided by the Swiss eligible population older than 20 years. Weighted least squares according to Swiss eligible population size. Clustered standard errors at municipal level.