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Does Female Suffrage Increase Public Support for Government Spending? Evidence from Swiss Ballots

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Abstract

In this paper, I analyze the voting outcomes of two very similar Swiss referendum ballots concerning the federal government's competency to levy income, capital and turnover taxes to find out how the enfranchisement of women influences public support for government spending. The first ballot took place shortly before the extension of suffrage to women in February 1971, and the other shortly thereafter. I estimate the impact of introducing female voting on the difference in acceptance rates for the two propositions. Surprisingly, I find that approval for government spending is higher among the male population. I provide additional evidence from post-ballot surveys after similar ballots to overcome potential strategic voting problems which cannot be answered by analyzing aggregate data. My results suggest rethinking the notion that female suffrage caused public spending to increase.

JEL-Code: J160, H100, D720.

Keywords: female suffrage, gender preference gaps, voting, direct democracy.

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1 Introduction

Several influential contributions have found a positive relation between female enfranchisement and a subsequent rise in government spending and revenue pointing towards the existence of stronger female preferences for large governments (e.g., Abrams & Settle, 1999; Aidt & Dallal, 2008; Aidt, Dutta, & Loukoianova, 2006; Lott & Kenny, 1999). Female risk aversion with the increased need for insurance from the state, or the breakdown of the family leading to higher divorce rates constitute some of the most commonly provided explanations.

However, this literature does not convincingly show where gender gaps originate from: are they due to "being female" or can they partly be explained by observable differences between men and women? For example, Meltzer and Richard (1981) famously hypothesized that enfranchising new constituents such that the median voter is poorer than before, increases the demand for redistribution. Consequently, one would expect that extending suffrage to women, who on average have lower incomes than men, should have a positive effect on redistributive spending. Not controlling for such socioeconomic gaps might falsely attribute some of the effects to the fact that women can vote, instead of having enfranchised a new group which is on average poorer than the former electorate.

Also, the existent literature relies on analyses in representative democracies. A potential causal mechanism through which female voting could increase government spending is through politicians' behavior. These either change their policies, or women elect new, more spending-friendly politicians. To understand whether the relationship between higher expenditures and female voting is causal or influenced by a third force, e.g. more liberal thinking, the analysis of elections and politicians would be required. Yet, the literature is relatively silent on the causal mechanism which would lead to higher expenditures.

Literature confirms that women vote more often in favor of higher welfare expenditure, but the outcomes also depend on 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. On the one hand, literature predicts higher welfare spending with a poorer median voter. On the other hand, the effect on non-welfare expenditures like public services critically depends on income and price elasticities of public services. So, while there exist clear-cut predictions and empirical evidence for gender preference gaps on several spending categories, explaining why women would prefer larger governments per se turns out to be more difficult.

This paper provides a direct way of analyzing gender preference gaps for government spending from referendum ballots instead of establishing causality indirectly via higher government expenditures. The merit of examining direct democratic ballots lies in the fact that voters make real, observable choices and reveal their preferences in this way. To this goal, I analyze the voting outcomes of two very similar referendum ballots in Switzerland concerning federal taxation 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. They are a measure of preferences for the federal government's spending. Without popular approval at the ballot the Swiss government would be deprived of its authorization 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 particular-

ity that voters even nowadays need to accept it's legislative basis every few years. Therefore, over time a large number of comparable votes on the federal financial system exist.

The first proposition in November 1970 with a men-only suffrage was rejected at ballot. But the second proposal, which took place 7 months later with universal suffrage, was accepted. Since the two ballots took place under two distinct suffrage regimes, differences in voting outcomes can be directly attributed to differences in the electorate. The main question to be answered in this paper is where the increase in approval comes from and whether it can be ascribed to gender preference gaps for government spending.

The analysis is based on data from 2.188 Swiss municipalities, and a set of control variables from the Swiss 1970 census. To isolate female approval for government spending, a similar reasoning to Lott and Kenny (1999) is employed. How much of the increase in voter approval for government spending can be explained by female voting depends crucially on the intensity with which women made use of their voting rights. Therefore, I first estimate the effect the introduction of female suffrage had on voter participation defined as voters divided by the Swiss adult population. This yields the additional participation which is due to female suffrage. 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 participation stemming from female suffrage had on the increase in the approval rate for government spending. By controlling for employment, independent employment, and fraction of the old, I take into account important socioeconomic gender gaps which might partly explain gender differences in voting.

Moreover, I take into account that the two ballot proposals, though very similar, 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 proxy for the difference in the content of the two ballots which might have led to some men changing their voting behavior between the two ballots.

The results show that men were between 8.5 and 12.5 percentage points more likely to favor taxation and thus government spending than women. These results contradict the notion that women are per se more likely to support large governments.

Two main concerns are that these results might only hold true for the voting population, i.e. be conditional on the individual decision to go to the polls. Second, women might have hesitated to use their newly gained voting rights immediately such that the results underestimate true female preferences. I overcome these problems by extending the analysis to individual post-ballot survey data. They are available for both voting and non-voting respondents for three similar ballots about the federal fiscal order in 1981, 1991 and 1993. Results 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 and revenue 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 different spending categories 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 provide evidence for how voters decide directly on taxation and consequently 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 indifferent or even opposed 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 institutional setting 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. Also, I describe the data. The empirical strategy and the results are presented in section 4. I provide additional evidence from post-ballot surveys which substantiate the main findings in section 5. The paper concludes in section 6.

2 Related literature

The hypothesis that extending the franchise to a poorer part of the population increases public spending and revenue 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 and its impact on government spending and revenue. With the enfranchisement of women, the new median voter becomes poorer since it is a well-established fact that women have lower employment rates and 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 (e.g., Becker, 1974). 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 and revenue 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

[1] In 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.

can be attributed to the enfranchisement of women. 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.

In contrast, Stutzer and Kienast (2005) who use the variation in the timing of female suffrage in Swiss cantons, i.e. the 26 states in Switzerland, 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). This literature does not provide a convincing rationale for how female voting lead to increased government spending which would have required the analysis of elections and politicians' behavior.[2]

Another stream of research finds evidence 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.

One concern might be that preference gaps could falsely be ascribed to gender which in truth stem from socioeconomic differences. 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. However, this would not be a particularly "female" effect but would be also expected after enfranchising a poorer part of the male population. 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 are likely to explain some differences between male and female voting decisions. In this way I make sure that parts of the gender preference gap which are due to socioeconomic gender differences are not mistakenly attributed to "being female".

Research based on experimental techniques examines gender gaps other than socioeconomic differences which might explain why women could have different preferences for government than men. 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).

[2]Lott and Kenny (1999) also look at the politicians' voting behavior in the U.S. senate and find that after the introduction of female suffrage politicians voted more liberally. However, they fail to show that women were more likely to vote for liberal politicians and did so because they desired higher government spending.

3 Institutional setup and data

3.1 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 before 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 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.

Besides revenues 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 revenues came from the direct federal tax, and around 25 percent from the turnover tax. 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 the 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 together accounted for nearly 50 percent of total expenses. Other growing and new expenditure categories were infrastructure and energy, as well as culture and sports. Agricultural expenditure remained relatively stable at around 10 percent of total expenditure (Eidgenössisches Statistisches Amt, 1974).

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, a wealth of similar ballots concerning the federal government's admission to file taxes exists. 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. In addition, 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

[3] Information 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.

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

Ballot date	Time limit	Decision	% yes votes	Accepting cantons
06.12.1953	unlimited	rejected	42.0	3
24.10.1954	1955 - 1958	approved	70.0	21
11.05.1958	1959 - 1964	approved	54.6	17 1/2
08.12.1963	1964 - 1974	approved	77.6	22
15.11.1970	unlimited	rejected	55.4	10
06.06.1971	1972-1982	approved	72.7	22

For approval, the referendum needs more than half of total votes and more than 13 accepting cantons. Data about acceptance are available on the homepage of the Swiss Federal Chancellery, http://www.bk.admin.ch. The time limits are from Federal Announcements published by the Swiss Federal Archive. See appendix for information on how to access the Federal Announcements.

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.

The first of the two ballots at the core of the analysis took place on 15 November 1970. The second 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 Feburary 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 live 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,[5] a second run in 1971 saw the majority of voters and majority of cantons accepting the constitutional amendment. The next paragraphs describe the propositions and voting results in more detail.

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"[6] (Bundesblatt 1969 II, p.749).

The new ballot proposition had to take into account that regardless of the good economy federal expenditures were expected to exceed revenues by a large amount. Therefore, income, capital and turnover taxes had to be increased and old rebates reduced. In more detail, the tax burden

[4]All 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.

[5]Only 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.

[6]Original title in German is "Bundesbeschluss über die Änderung der Finanzordnung des Bundes".

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 wholesalers 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 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 turnover 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 enterprizes.

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). These almost unanimously positive voting recommendations indicate 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.

Ballot proposition 2: 6 June 1971

The Swiss government immediately prepared a new proposal[7] 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. It is important to note that the only essential change between the first and the second ballot proposition was the inclusion of the time limit. Comparing

[7] "Federal enactment about the continuation of the federation's financial order". Original title in German is "Bundesbeschluss über die Weiterführung der Finanzordnung des Bundes"

the precise wording of both legislative texts shows that they are almost identical in all paragraphs.[8] Consequently, if a man changes voting behavior between the ballots, content-wise the only obvious reason can be the time limitation of the second proposition.

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).

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. Figure 1 shows the cantonal approval rates for both ballots. The maps are retrieved from swissvotes.ch[9].

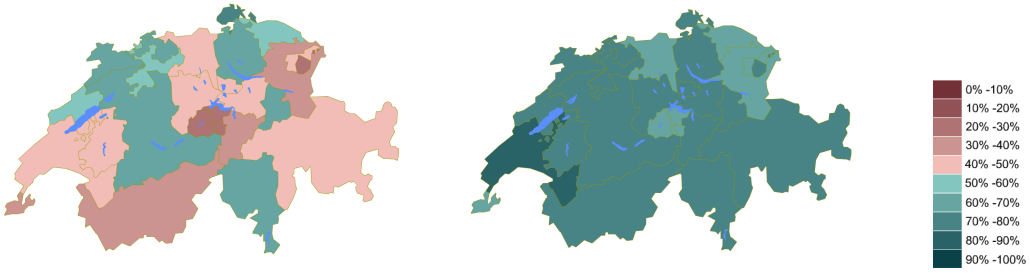

Figure 1: Cantonal approval rates for ballots 1 (15 November 1970) and (6 June 1971), source: swissvotes.ch

3.2 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.[10] All voting data come from the Political Atlas of Switzerland provided by the Swiss Statistical Office.

Since voting data come 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

[8] The comparison is available from the author on request.

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

[10] I 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.

in some larger nearby municipality. Second, in Thurgau several municipalities which are available separately in the census data together 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.

I use three groups of control variables. First, I include socioeconomic and demographic controls which are typically included in turnout and voting research (education, income, employment, old population) or are particular for Switzerland (catholic and German-speaking population). Second, I control for large households, fraction of married and independent employment which are variables explicitly mentioned in the legal text of the propositions to be affected differently. The descriptives of the controls are presented in table 2. A detailed description of the data, the control variables as well as their exact definitions, and its sources are included in the appendix. Descriptives of the voting data are reported in table 3.

Table 2: Descriptives of control variables

	Mean	Std. Dev.	Min	Max
Gender gaps				
Male employment	0.843	0.044	0.364	1
Female employment	0.416	0.063	0	0.875
Employment	0.625	0.042	0.208	0.944
Independent male employment	0.134	0.083	0.024	0.833
Independent female employment	0.041	0.029	0	1
Independent employment	0.104	0.064	0.026	0.692
Old men	0.096	0.028	0	0.545
Old women	0.134	0.037	0	0.467
Old population	0.116	0.032	0.029	0.462
Other controls				
Employment in service sector	0.439	0.155	0	0.848
Average taxable income	25.999	6.576	7.302	138.8
Catholic population	0.487	0.264	0	1
German-speaking population	0.655	0.342	0	1
Large households	0.169	0.090	0	0.824
Married population	0.663	0.065	0.250	0.906
Log of total population	9.600	1.967	2.996	12.954
Distance to large city in km	26.721	30.025	0	224.862

Note: The values are weighted averages according to Swiss adult population size in the municipalities. If not stated otherwise, the control variables are in %.

Table 3: 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
Voters / eligibles	0.410	0.168	0.043	1	0.357	0.372	0.031	0.955
Voters / Swiss adults	0.189	0.078	0.022	0.5	0.372	0.131	0.031	0.955

Note: In ballot 1 only men are eligible. In ballot 2 there is universal suffrage. The variable in the last row describes the number of voters divided by the whole Swiss adult population and thus includes women also in ballot 1. The values are weighted averages according to Swiss adult population in the municipalities.

4 Empirical strategy and results

In this section, I first develop a baseline model based providing the main intuition for the empirical strategy and show the main results. Further, I extend the model to account for heterogeneous effects on female participation in cantons and municipalities.

4.1 Baseline model

The biggest challenge in the literature concerning gender preference gaps for government spending is to correctly identify the causal mechanism of female suffrage potentially leading to increases in government expenditure and revenue. This is crucial since observed rises in government expenditure over time might be due to other causes than female enfranchisement: they could be due to changes in social security, economic crises, changes in the tax base, and various other reasons not necessarily connected with female voting. 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. I analyze two referendum ballots on two very similar propositions concerning approval for federal taxation 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. Referendums have been introduced in 1874 (Linder, 2007), so they have become institutions and are strongly positioned in the Swiss society.

In my empirical strategy I follow the idea of 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 direct changes in the voting outcomes due to enfranchisement. The intuition for the empirical strategy is that changes in voting behavior can be explained by changes in the electorate's composition. The main independent variable in the analysis is thus the voter participation in the two ballots and the dependent variable the voter approval.

Participation is defined as the number of people voting in a municipality m on a particular date t divided by the total Swiss population aged 20 and older.[11]

$$participation_{tm} = \frac{voters_{tm}}{adults_{1971,m}} \ , \ t \in \{1970, 1971\} \tag{1}$$

Note that for ballot 2 this definition of participation coincides with the standard definition of turnout $voters_{tm}/eligibles_{tm}$. To visualize the effect of female suffrage on voter participation in Switzerland participation rates for elections to the Swiss parliament (Nationalrat) between 1951 and 1991 are presented in figure 2 since participation for referendums varies a lot (which might be due to the importance of an issue or campaigning effects). 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. Participation as defined above is depicted on the y-axis. 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. The fraction of voters as compared to the total adult population was steadily decreasing before the introduction of female suffrage. As expected, the participation rate jumps by more than 20 percentage points in the 1971 election with universal suffrage. However, afterwards the participation rate has a decreasing trend again. This contrasts with the observation of Lott and Kenny (1999) who show that the turnout rate in the U.S. continued increasing many 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.[12] Therefore, selection into voting by women should not pose a large problem.

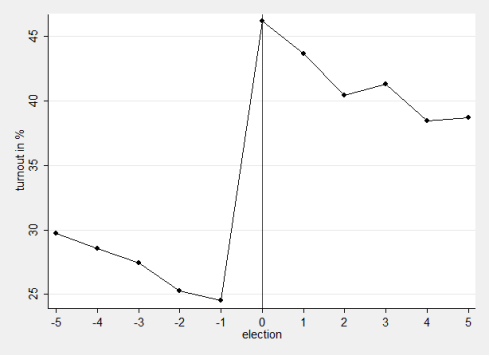

Figure 2: Participation rate ($voters_t$ / $Swiss\ adult\ population_t$) for parliamentary elections without and with female suffrage

The definition of voter participation applied in this paper is useful because it gives an intuition for how many women participate in ballots once enfranchised. Participation without women in ballot 1 is on average 18.9 percent in the sample and it ranges between 2.2 and 50 percent, i.e., 18.9 percent of the Swiss adult population showed up at the voting booth. In fact, this number constitutes the male voter participation as a fraction of the total Swiss adult population. If no

[11] 20 was the voting age at that point in time.

[12] The other proposition was about the protection of humans and their environment.

women made use of their voting rights in ballot 2, the participation rate would have remained constant. Should women have voted with the same intensity as men and given that the fraction of Swiss women older than 20 in the population is roughly equal to the male fraction, participation would be expected to double to 37.8 percent on average. The average observed value is slightly lower at 37.2 percent for ballot 2 with a range from 3.1 to 95.5 percent. On average, the difference in participation between the two ballots $\frac{participating\ men\ and\ women_{1971} - participating\ men_{1970}}{adults_{1971}}$ amounts to 18.34 percentage points. Histograms of the dependent variable by ballot are depicted in figure 4.1.

The identifying assumption in my empirical analysis is the following

Assumption 1 *Additional participation in ballot 2 comes from the female part of the population.*

Or put differently: men are not more likely to participate once women are enfranchised. This might be due to a decrease in the marginal benefit to vote when the electorate roughly doubles. Further evidence which confirms that men are unlikely to increase their participation comes from comparing participation rates of the two similar ballots in 1953 and 1954, both with male suffrage only. For the first ballot in 1953 which did not include a time limit and was highly contested 60.27% of the male eligible population turned out. In contrast, the less contested proposition including a time limit of 4 years in 1954, drew only 46.77% of eligible men to the polls. Hence, I am confident that the additional participation is likely to be a lower bound for female participation.

I define the dependent variable $acceptance_{tm}$ as the number of yes votes yes_{tm} divided by the total Swiss population which is at least 20 years old $adults_{1971,m}$.

$$acceptance_{tm} = \frac{yes_{tm}}{adults_{1971,m}}\ ,\ t \in \{1970, 1971\} \tag{2}$$

This measure is small for ballot 1, and represents the fraction of yes votes as commonly defined for ballot 2. The intuition for the dependent variable is that the measure should not change if all women rejected the proposal. In contrast, it would increase should some women approve of the proposal. Histograms of the dependent variable by ballot are viewed in figure 4.1. They visualize that the distribution of acceptance has moved to the right. The difference in approval rates between both ballots $\frac{yes\ votes_{1971} - yes\ votes_{1970}}{adults_{1971}}$ is 15.79 percentage points.

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. The variable is denoted by $\Delta\ male\ acceptance^{b}_{mc}$ with a population-weighted mean of 22.5 percent and a standard deviation of 13.9. In this manner, I can proxy the change in male approval rates when propositions include a time limit or not. The variable is multiplied with the male participation rate, the male fraction of the population older than 20, and a suffrage dummy such that it becomes 0 for the first ballot.[13]

[13]More details about the construction of this variable can be found in the appendix.

The validity of this proxy relies on the assumption that male preferences regarding government spending are relatively time constant between 1963 and 1970 and differences in acceptance are due to the inclusion of a time limit in the 1963 proposition and the lack of it in the latter. To substantiate this claim, I provide evidence from two comparable ballots on the federal financial order in 1953 and 1954. Recall, 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 higher shares of yes votes among the male population. This leads to the second assumption.

Assumption 2 *Men who have approved of the first proposition should also be in favor of the second one which includes a time limit and is thus less radical.*

Theoretically, some men might be radical and vote against the second proposition even though they supported the first one to protest and signal dissatisfaction. However, based on the supporting evidence from past ballots that including a time limit on average increases voter support this should seldom be the case.

In my estimation strategy, I proceed in two steps. In the first, I estimate the additional participation due to female suffrage by regressing my measure of participation on a suffrage dummy $suffrage^b$ which captures the average difference between the first and the second ballot. A set of control variables X^b_{mc} as described above is included in the regressions. Canton fixed effects u_c account for all unobserved factors 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 participation as well as approval rates. Thus, the estimation equation is the following:

$$participation^b_{mc} = \alpha + \beta_1 suffrage^b + \delta X^b_{mc} + u_c + \epsilon^b_{mc} \tag{3}$$

m denotes the municipality, and c is the canton in which the municipality is located. b denotes ballot 1 or 2. ϵ^b_{mc} is the error term. In the second step, a new variable of additional participation due to female suffrage is generated from the previous estimates by interacting the estimated coefficient of interest $\hat{\beta}_1$ with the suffrage dummy.

$$female\ participation^b_{mc} = \hat{\beta}_1 suffrage^b \tag{4}$$

This is the new independent variable of interest which is subsequently used to estimate its effect on voter approval.

$$acceptance^b_{mc} = \alpha + \gamma_1 female\ participation^b_{mc} + \gamma_2 \Delta\ male\ acceptance^b_{mc} + \delta X^b_{mc} + u_c + \epsilon^b_{mc} \tag{5}$$

In the next section, the results of the baseline model are presented. For clarity, the estimates of the participation equation (3) are reported in the appendix.

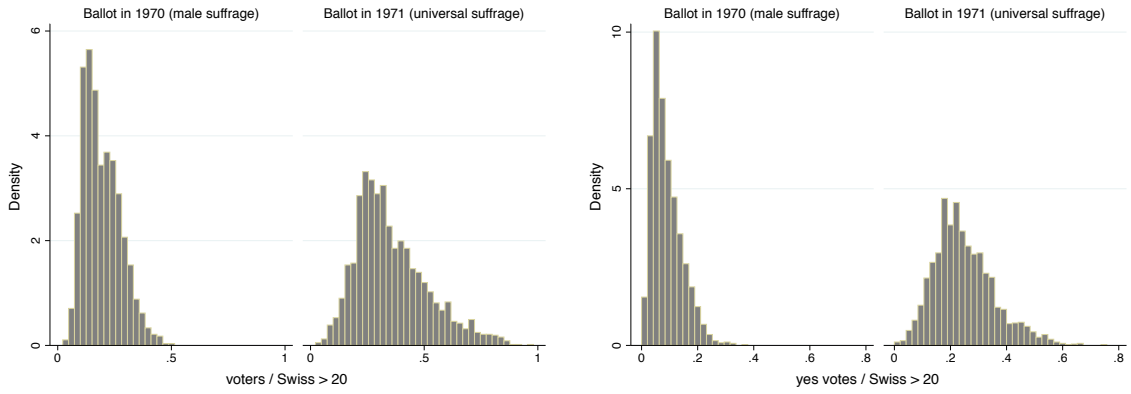

Figure 3: Histograms of voter participation and acceptance rate by voting regime

4.2 Baseline results

In all regressions, weighted least squares with weights according to the size of the Swiss adult population are applied. Standard errors are clustered at cantonal level and bootstrapped to account for the fact that the main independent variable $female\ participation^{b}_{mc}$ itself is already an estimated variable.

Baseline results are reported in table 4. The two main variables participation due to female suffrage and the change in male acceptance have both positive and highly significant coefficients. 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. The empirical strategy first assessed how many women made use of their voting rights (results are reported in table 9 in the appendix). In the second step, the estimation procedure showed how many of those women who turned out actually accepted the second ballot proposition. From this it follows that the coefficient of additional participation due to female suffrage in estimation (1) can directly be interpreted as the acceptance rate of those women who turned out to vote. Recall that the dependent variable was constructed in such a way that it would have remained constant had all women rejected the second proposition. The estimates suggest that the average acceptance rate among women was 62.5 percent.

For the calculation of the male acceptance rate, recall the identifying assumption 1 that whoever favored ballot proposition 1 should also accept the second proposition. The male acceptance rate should therefore be at least 54.8 percent which is the percent of yes votes in ballot 1.[14] As explained above, I expect that some male 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 $\hat{\gamma_2} * \Delta male\ acceptance$ where $\hat{\gamma_2}$ is the estimated coefficient of additional male approval. For the whole sample the weighted average of the difference in male acceptance rates is 22.5 percent which gives an increase in male acceptance

[14] Even though content-wise the presence of women in the electorate should not alter mens' opinion about the propositions, it might be that it influenced the male participation decision: men might be more likely to turn out in order to offset the voting behavior of women. In this case, my results would overestimate female participation and thus female acceptance rates. My results should therefore be seen as a lower bound for the gender preference gap.

of 19.1 percentage points. Adding both numbers gives an estimated male acceptance rate of 73.9 percent. This means that the acceptance rate women was 11.4 percentage points lower than the male one in the vote for ballot proposition 2. Hence, the baseline model suggests that on average women have lower preferences for government spending than women.

Table 4: Additional approval due to female suffrage - baseline estimates

	(1)
Participation due to female suffrage	0.625***
	(0.169)
Delta male acceptance	0.849***
	(0.122)
Employment	-0.144
	(0.131)
Independent employment	-0.225***
	(0.043)
Old population	0.092
	(0.084)
Controls	yes
Canton fixed effects	yes
Adjusted R^2	0.840
Number of observations	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 cantonal level. Standard errors for participation due to female suffrage are bootstrapped.

4.3 Heterogeneous effects

In this part, I present a strategy to capture heterogeneous effects of female suffrage on the distinct municipalities and cantons. I propose two extensions of the baseline model. In a first step, more refined measures of additional participation due to female suffrage than the average effect of participation are developed and subsequently used as independent variables to explain additional acceptance in ballot 2.

A central question in my regressions is how to correctly estimate the effect of female suffrage on voter participation. A suffrage dummy captures 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 participation rate. Even though the weighted average fraction of women in the population amounts to 53.8 percent, it varies between 0 and 72.2 percent. I hence calculate the number of Swiss adult women in a municipality by taking the difference of eligible voters in ballots

1 and 2.[15] Thus, the higher the fraction of women in the population, the stronger the effect on participation potentially can be. I account for this by multiplying the suffrage dummy $suffrage^b$ with the fraction of Swiss women age 20 or older as compared to the total Swiss population that is at least 20 years old $\%women_{mc}$.

The equation for estimating additional participation due to female suffrage is therefore the following:

$$participation^b_{mc} = \alpha + \beta_1 suffrage^b * \% \; women_{mc} + \beta_2 X^b_{mc} + u_c + \epsilon^b_{mc} \tag{6}$$

For the second extension of the baseline model it is important to notice that female participation rates can be influenced by the intensity with which women want to use their new voting rights, and also by their bargaining power at home. 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.[16] 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 eight cantons with positive values the average number of years with cantonal female suffrage amounts to 6.8 years with a standard deviation of 5.5. For the cantons with voting rights after that date values are zero. I interact this variable with the suffrage dummy and the adult fraction of Swiss women in each municipality. The underlying estimation equation for voter participation becomes:

$$\begin{aligned} participation^b_{mc} \;=\; & \alpha + \beta_1 suffrage^b * \% \; women_{mc} + \beta_2 cantonal \; suffrage_{mc} \\ & * suffrage^b * \% \; women_{mc} + \beta_3 X^b_{mc} + u_c + \epsilon^b_{mc} \end{aligned} \tag{7}$$

$cantonal \; suffrage_{mc}$ is the time since cantonal suffrage for canton c in years as described above for the ballot with universal suffrage. It is multiplied with the suffrage dummy $suffrage^b$ such that it becomes zero for the first ballot. In an additional specification, I add the squared value of cantonal suffrage to account for nonlinear effects. In table 5 the dates of the introduction of cantonal female suffrage and the approval rates in the 1971 ballot are reported.

In the second step, I estimate the effect of additional participation due to female suffrage on the approval rate of policy proposals regarding federal expenditure by using coefficients obtained from specifications (6) and (7) including the square of cantonal suffrage years to construct a variable of additional participation for each municipality similarly as in the baseline model. While the coefficient from (6) shows an average effect for all municipalities, specification (7) has the merit that it is possible to distinguish between more and less liberal cantons regarding female voting rights.

[15] 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.

[16] In 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 depending on their canton of residence. Dates of cantonal female voting rights can be found in official documents on http://www.ekf.admin.ch/dokumentation/00444/00517/index.html?lang=de

It is also the estimation with the highest fit. The variable is 0 for ballot 1. As in the baseline model, the measure of additional male approval is used to account for an increased likelihood of men to accept the second proposition.

Table 5: 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

4.4 Results from heterogeneous model

Results are reported in table 6. In column (1), the results are based on the participation estimation from equation (6) and from equation (7) in column (2). Additional voter participation due to female suffrage has a statistically significant and large positive effect on the approval rate also in the heterogeneous model. The coefficients differ slightly from the baseline estimation because they take into account variation in variables which are heterogeneous between municipalities and cantons. Nevertheless, the results regarding the gender preference gap are qualitatively identical: men are more likely to accept the second ballot proposition by 8.5 or 12.5 percentage points in both specifications respectively.

The results reject the hypothesis that women are more likely to favor taxation and thus government expenditure. At first sight, this is a surprising result because based on findings from e.g. Lott

and Kenny (1999) the expectation goes into the opposite direction. Also, for Switzerland Abrams and Settle (1999) find that public spending rose after enfranchising women in 1971. At second glance, however, there might exist several explanations for these 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).

Since the analysis is based on data from Switzerland which has a strong federal structure, a substitution effect from preferences for federal spending to cantonal spending due to female suffrage is of concern. However, the results of Stutzer and Kienast (2005) suggest that cantonal spending decreased with female suffrage which is evidence against a substitution effect. Hence, preferences captured in my analysis are not particularly for federal government expenditure but for government expenditure in general.

A further issue might be that my analysis is based on preferences of the politically active population and disregards the opinion of the abstainers. This might be a problem if not all women made use of their newly acquired voting rights immediately. Also, my empirical strategy relies on aggregate data which makes it difficult to control for potential strategic voting motives of the male population. To account for this possibility, I propose to extend the analysis to data at the individual level in the next section.

Table 6: Additional approval due to female suffrage

	(1)	**(2)**
Participation due to female suffrage	0.662***	0.603***
	(0.099)	(0.078)
Delta male acceptance	0.888***	0.803***
	(0.120)	(0.151)
Employment	-0.151	-0.165
	(0.129)	(0.108)
Independent employment	-0.220***	-0.219***
	(0.043)	(0.041)
Old population	0.074	0.085
	(0.086)	(0.071)
Controls	yes	yes
Canton fixed effects	yes	yes
Adjusted R^2	0.841	0.842
Number of observations	4'286	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 cantonal level. Standard errors for participation due to female suffrage are bootstrapped.

5 Supporting evidence from post-ballot surveys

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 name just a few (c.f. Wolfinger and Rosenstone (1980) for an extensive analysis). 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 high voting cost, lack of information etc. might pose a problem, especially since the second ballot took place only four months after female enfranchisement. The participation decision is thus a selection into voting based on the citizens' utility from voting. I therefore extend the analysis to include evidence based on individual data from post-ballot surveys. This also overcomes the problem of vote aggregation in the above analysis which made it impossible to account for strategic or extreme voting motives.

Post-ballot surveys are conducted after all referendum and initiative ballots at national level in Switzerland since 1981. The project is called VOX-survey, and the data are being published by the Swiss foundation for research in social sciences.[17] 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 an 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 always been rejected so far. My analysis is based on all three votes regarding the federal financial order between 1981 and 1999. These are the ballots voted on 29 November 1981, 2 June 1991, and 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. The propositions of 1981 and 1993 include time limits for the federal financial order until 1994 (Bundesblatt 1981 II, p.561) and 2006 (Bundesblatt 2003, p.1540) respectively. The 1991 proposition does not have a time limit. 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, for the later ballots female voting rights were already well established. Also, any potentially strategic male voting behavior stemming from the introduction of female suffrage should have ceased to exist by then.

In total, the dataset comprises answers of 1825 individuals of which 1159 have turned out to vote and 666 have not. The main variable of interest is a gender dummy. To make the results comparable to the main analysis above, I choose similar control variables as before. The 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, and German-speaking. Though there exists information about income

[17] Data are available online on the following homepage: http://nesstar.sidos.ch/webview/index.jsp

and the independent work status of the respondents, these variables have too many missings which would render the sample size unnecessarily small.[18]

Two concerns with electoral survey data are the reporting and non-response bias. The latter cannot be accounted for because response is voluntary. For the former, Funk (2012) finds that in VOX-surveys concerning federal finances no reporting bias exists on average. Nevertheless, I compare self-reported voting with the true aggregate voting outcomes from the homepage of the Swiss Federal Chancellery. On election day, the proposals received 69.0 (1981), 45.6 (1991), and 66.7 (1993) percent of yes votes in the total population. In the sample, 79.9 (1981), 43.9 (1991) and 68.5 (1993) of respondents who turned out voted in favor of the proposal. This shows that the sample is representative with respect to the voting outcomes for the ballots in 1991 and 1993. However, self-reported voting behavior exceeds the true voting result for the 1981 ballot. A possible explanation might be the relatively small sample size of 538 as compared to 726 and 842 in the other two surveys.

In the pooled sample from all three ballots, among the participating 43.8 percent were women. Of these 58.5 percent favored the propositions, compared to 64.1 percent among the male respondents. Thus, among the participating the acceptance rate is higher for men than for women, however, the difference is only weakly significant. In the group of nonparticipating, the fraction of women was 47.1 percent. Of these, 49.7 percent would have voted yes, while 55.1 percent of men would have done so. The descriptives by gender and participation including t-statistics by gender can be found in table 7.

I estimate the following equation:

$$approval_i = \alpha + \beta_1 female_i + \delta X_i + u_c + \epsilon_i \tag{8}$$

The dummy $acceptance_i$ takes the value 1 if individual i voted yes. The value 1 for the dummy $female_i$ indicates a female respondent. β_1 is then the effect of being female on approval. If the aggregate results hold true, β_1 is expected to have a negative sign. 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.

Further, I estimate the following specification including an interaction term between women and participation.

$$approval_i = \beta_0 + \beta_1 female_i + \beta_2 participation_i + \beta_3 female_i * participation + \beta_4 X_i + u_c + \epsilon_i \tag{9}$$

The marginal effect of being a women should be negative for participants as well as non-participants if the main results extend to the non-voting population.

The main estimates are conducted with ordinary least squares because coefficients can be interpreted directly. Results are reported in table 8. Estimates of equation (8) are in column (1), those of equation (9) in column (2). In columns (3) and (4) control variables are added in the regressions.

In all estimations the coefficient of the female dummy is negative and significant at the one, five or ten percent significance level. The marginal effect of being a women on approving the proposition ranges from -0.064 to -0.060. Being a women thus decreases the probability of voting

[18] Rerunning the regressions for the subsample of respondents for whom information on income are available does not change the results qualitatively.

Table 7: Descriptives for (non)participating respondents

	Participating men		Participating women		t-statistic
	Mean	Std. Dev.	Mean	Std. Dev.	Difference
Yes votes	0.641	0.480	0.585	0.493	1.943*
Employed	0.719	0.450	0.535	0.499	6.564***
Married	0.676	0.468	0.654	0.476	0.780
Catholic	0.419	0.494	0.404	0.491	0.5422
German	0.786	0.410	0.754	0.431	1.311
Old	0.226	0.418	0.142	0.349	3.645***
Education	0.364	0.482	0.281	0.450	2.980***

	Nonparticipating men		Nonparticipating women		t-statistic
	Mean	Std. Dev.	Mean	Std. Dev.	Difference
Yes votes	0.551	0.498	0.497	0.501	1.401
Employed	0.767	0.423	0.599	0.491	4.751***
Married	0.528	0.500	0.561	0.497	-0.829
Catholic	0.469	0.500	0.385	0.487	2.175**
German	0.688	0.464	0.777	0.417	-2.608***
Old	0.162	0.369	0.124	0.330	1.384
Education	0.244	0.430	0.153	0.360	2.954***

Note: Descriptives based on data from VOX-survey no. 161, 421, and 511. Data available on http://nesstar.sidos.ch/webview/index.jsp. 651 male and 508 female participating respondents. 352 male and 314 female non-participating respondents. T-statistics by gender. *** p<0.01, ** p<0.05, * p<0.1.

yes by 6.4 to 6.0 percent. In the estimations including the interaction between being female and having participated (2) and (4), the interaction term between female gender and participation is not significant. However, the coefficients of being female, participating and the interaction term are jointly significant at a five percent significance level. The marginal effect of being a women conditional on participation in columns (1) and (3) in the election lies between -0.055 and -0.052.[19] This means that among the participating population women were between 5.2 and 5.5 percent less likely to accept the proposition than men. Conditional on non-participation, the effect is even larger: being a women decreases the probability of acceptance by 7.2 to 7.3 percent respectively.

The marginal effect of being a women is slightly larger in specifications (1) and (2) than in specifications (3) and (4) which include control variables. This means that including covariates explains some of the difference in voting behavior between men and women, however, the effect is not large.

For robustness, I repeat the regression without canton fixed effects which is not critical to the results. Additionally, I conduct probit regressions and calculate average marginal effects which would be the correct model specification since the dependent variable has a 0-1 binary outcome. They produce extremely similar results which are reported in the appendix in table 10. Also, I estimate the equations for each of the three ballot propositions separately to avoid problems with proposition-specific effects, e.g. due to the lack of a time limit in the 1991 proposition. The results

[19]The effect is calculated by adding -0.073+0.018 (specification 2) or -0.072+0.020 in specification 4.

are very similar for each proposition.[20] However, the estimates for the 1981 ballot are insignificant. Again, this might have to do with the smaller sample size in this survey.

These estimates confirm the above results that men are more likely to approve taxation and the federal financial order than women. In more detail, my results do not hinge upon observing only preferences of the voting population but can also be extended towards the whole population. It does not pose a problem that ballot 2 took place soon after female enfranchisement and women hesitated to go to the polls, or any systematic problems with selection into voting. Also, estimates from individual voting data dispel doubts that the above results might hinge on estimations with aggregate data.

Table 8: Evidence from post-ballot survey - least squares regression

	(1)	**(2)**	**(3)**	**(4)**
Female	-0.064***	-0.073*	-0.060**	-0.072*
	(0.023)	(0.038)	(0.024)	(0.038)
Participation		0.077**		0.054*
		(0.032)		(0.032)
Female*participation		0.018		0.020
		(0.047)		(0.047)
Controls	no	no	yes	yes
Canton fixed effect	yes	yes	yes	yes
Adjusted R^2	0.040	0.046	0.065	0.068
Number of observations	1'825	1'825	1'825	1'825

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable acceptance is defined as a dummy taking the value 1 if the respondent voted yes. Least squares regression. Canton fixed effects included.

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 since the causal relation between preferences and subsequent voting behavior is much clearer. I find that approval for government spending is higher among men than among women. Further evidence from post-ballot surveys confirms that this result can readily be extended towards the non-voting population.

My findings contrast e.g. with Lott and Kenny's (1999) results. It might be that the timing of female voting and the takeoff of government spending correlates in their examination, however, this does not necessarily mean that women display stronger preferences for larger governments than men.

While my results might seem surprising at first, they 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. My findings are compatible with other results from literature which shows that gender

[20] Estimation results are available from the author on request.

preference gaps exist but only for certain spending categories. This suggests that the scope of government might matter more in the analysis of gender preference gaps than size of government. E.g., 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 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.

This paper also shows that it is important to account for socioeconomic gender differences when analyzing gender preference gaps for the size of government. Otherwise some of the voting differences which are due to differences in employment are taken to be caused by gender, and could overestimate female preferences for government.

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

Tables and figures

Table 9: Effect of female suffrage on voter participation

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Suffrage dummy	0.134***				
	(0.031)				
Suffrage dummy		0.229***	0.258***	0.275***	0.415***
* Swiss adult women		(0.056)	(0.066)	(0.069)	(0.070)
Years of cantonal suffrage			-0.007*	-0.049	
* Swiss adult women			(0.004)	(0.033)	
(Years of cantonal suffrage)^2				0.004	
* Swiss adult women				(0.003)	
Male approval rate for suffrage					-0.238***
* Swiss adult women					(0.076)
Controls	yes	yes	yes	yes	yes
Canton fixed effects	yes	yes	yes	yes	yes
Adjusted R^2	0.808	0.807	0.810	0.813	0.812
Number of observations	4'376	4'376	4'376	4'376	4'376

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable participation 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 cantonal level.

Table 10: Evidence from post-ballot survey - probit regression

	(1)	(2)	(3)	(4)
Female	-0.064***	-0.071*	-0.061***	-0.070*
	(0.022)	(0.037)	(0.023)	(0.037)
Participation		0.077**		0.055*
		(0.032)		(0.032)
Female*participation		0.016		0.015
		(0.047)		(0.046)
Employed			-0.073**	-0.072**
Controls	no	no	yes	yes
Canton fixed effect	yes	yes	yes	yes
Adjusted R^2	0.040	0.045	0.062	0.065
Number of observations	1'825	1'825	1'825	1'825

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable acceptance is defined as a dummy taking the value 1 if the respondent voted yes. Probit regression. The table reports marginal effects. Canton fixed effects included.

The effect on voter participation

The estimates of additional participation due to female suffrage are in table 9. As expected, I obtain a highly significant and positive effect of female suffrage on voter participation in all estimations. I use the coefficients to construct measure of additional participation due to female suffrage. E.g., in specification (2) the coefficient is 0.229. The additional participation due to female suffrage in an average municipality with 53.8 percent of Swiss adult women in the population is 12.34 percent.[21] This means that after enfranchising women, in an average municipality additionally 12.34 percent of the eligible population turned out to vote.

The coefficients for the time since cantonal suffrage in columns (3) and (4) are significant and negative. Against the first intuition, participation 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. In specification (4) the squared measure of cantonal suffrage does not have a significant effect. The results show that in cantons which have not introduced cantonal female suffrage until 1971, the additional participation rate was around 13.9 percent. In comparison, the additional participation rate from female suffrage in cantons with cantonal female suffrage was considerably lower at 5.9 percent. Hence, heterogeneous effects depending on cantonal voting rights exist.

Difference in male approval

Some men who rejected the proposition in ballot 1 are likely to change their opinion because of the inclusion of a time limit in the second proposition. To account for this, I create a new variable. First, I calculate the difference in acceptance between a ballot with a time limit in 1963 and ballot

[21] The effect of female suffrage on participation is calculated by multiplying the coefficient 0.229 with the average percentage of Swiss females 0.538.

1. Next, I multiply the difference with the fraction of Swiss eligible men and male turnout in ballot 1. This is necessary to make the variable comparable to the additional participation due to female suffrage. Finally, I multiply it with a suffrage dummy such that it become 0 for the first ballot. The variable "difference in male approval" is thus constructed the following way: $suffrage_b * \%\ men_m * (\%\ yes\ in\ ballot\ 1963_m - \%\ yes\ in\ ballot\ 1970_m) * male\ turnout_m$.

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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.
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- Bundesblatt 2003 I, pp. 1531-1565. Botschaft ber 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*

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

Controls

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.

Choice of controls

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

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 old 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).

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 1970 (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.

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

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 size 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.

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 average 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.