

**Do Female Representatives
Adhere More Closely to Citizens' Preferences
Than Male Representatives?**

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Do Female Representatives Adhere More Closely to Citizens' Preferences Than Male Representatives?#

David Stadelmann
(University of Fribourg, CREMA)

Marco Portmann
(University of Fribourg)

Reiner Eichenberger
(University of Fribourg, CREMA)

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Abstract

We analyze whether female or male members of parliament adhere more closely to citizens' revealed preferences with quasi-experimental data. By matching individual representatives' voting behavior on legislative proposals with real referenda outcomes on the same issues, we identify the effect of gender on representatives' responsiveness to revealed preferences of the majority of voters. Overall, female members of parliament tend to adhere less to citizens' preferences than male parliamentarians. However, when party affiliation is controlled for, the effect of gender vanishes. These results are consistent with other evidence showing that women are more socially minded and tend to affiliate themselves more with left parties.

Key words: Gender, Discrimination, Voter Preferences, Political Economy.

Political Science Classification: Representation and Electoral Politics, Political Behavior.

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Contact: University of Fribourg, Department of Economics, Bd. de Pérolles 90, 1700 Fribourg (Switzerland), +41 (0)26 300 93 82, david.stadelmann@unifr.ch, marco.portmann@unifr.ch, reiner.eichenberger@unifr.ch; CREMA - Center for Research in Economics, Management and the Arts, Switzerland

1 Introduction

Political representation is usually regarded as the activity of making citizens' voices present in the political process (see Pitkin 1967). Thus, it is important that representatives respond to citizens' interests. Large deviations of parliamentary decisions from citizens' preferences have been reported in the literature (see Gerber and Lewis 2004). Economists and political scientists have studied the effects of the most diverse political institutions on representation of citizens' preferences, such as open vs. closed list elections, media and campaigning regulations, lobbying regulations, majoritarian vs. plurality party systems, term restrictions and many more (see Persson and Tabellini 2002 or Mueller 2003 for overviews).

The influence of personal characteristics and, in particular, of gender on political representation in parliament has been comparatively understudied. This is astonishing for at least three reasons: Firstly, differential gender effects have been documented to exist in many areas of human behavior (see, among others, Blau and Kahn 2001 for wages; Croson and Gneezy 2009 for experimental evidence; Davis et al. 2006 for other socio-economic gender effects). Secondly, in parliaments around the world the share of women holding parliamentary seats has increased fourfold during the last decades to an average of approximately 19 % of representatives in 2010 according to the Inter-Parliamentary Union. Finally, there is evidence that women affect political processes differently than men and that women in politics are more socially minded (see Dollar et. al 2001; Chattopadhyay and Duflo 2004; Gagliarducci and Paserman 2008). However, so far, we have little knowledge about gender effects in parliaments and no knowledge at all whether female parliamentarians represent revealed preferences of voters differently. In the present paper we contribute to filling this important gap.

We econometrically analyze whether female or male members of parliament adhere more closely to revealed preferences of the majority of voters. Switzerland offers a unique quasi-experimental setting for a comparative analysis of representatives' behavior and citizens' preferences. Like other democratic countries, members of the Swiss national parliament vote on amendments of laws and the constitution. But in contrast to other countries, all law amendments are subject to 'facultative referenda', i.e. a relatively small number of Swiss citizens (50'000 from a total of almost 8 million inhabitants) can demand a popular vote on the respective amendments before they are enacted. Moreover, all constitutional amendments are subject to 'mandatory referendum'. i.e. there must pass a popular vote. In addition, a group of citizens (100'000) can also start an initiative and demand a specific constitutional

amendment. Members of parliament then have to express their opinion on all the proposed amendments before the population votes on them.

Citizens reveal their preferences for policy outcomes in referenda by ranking law proposals against the status quo (see Frey 1994, Besley and Coate 2008). Referenda data can be matched with voting data from female and male members of parliament on exactly the same political issues with the identical wording. This fact makes Switzerland an ideal field to study the influence of gender on the responsiveness of representatives to citizens' preferences because we can directly observe whether members of parliament have voted in the same way as the majority of the voters. More specifically, our data allow us to identify empirically whether representatives of either gender respond differently to citizens' preferences in legislative decisions controlling for other personal characteristics, political and economic controls, party position etc.

We use a logistic regression model with clustering for individual representatives to explain whether gender influences the behavior of members of parliament towards the majority of citizens. Our empirical results indicate that women adhere less to the majority's preferences than men when political affiliation is not accounted for. We also analyze the effect of women holding other personal characteristics constant and we especially focus on marital status, age and whether a member of parliament has children. If female members of parliament have children they tend to adhere more closely to the preferences of the majority of voters.

However, when we control for a member of parliament's party affiliation, women's lower responsiveness to voters' preferences vanishes which points to gender specific party affiliation patterns. In particular, women tend to affiliate rather with left parties. However, left (similar to right) parties deviate more often from the majority of voters than center parties. Differences in party affiliation fully explain why female representatives adhere less to citizens' preferences than their male counterparts. Our results are consistent with other experimental and empirical evidence which indicates that women are more socially minded. Analyzing results within left, center and right parties separately, we find evidence consistent with a stronger left alignment of women than of men.

The remainder of this paper is structured as follows: Section 2 provides a literature review on representation of voter preferences and gender effects in parliamentary representation. Our econometric model and data on Swiss referenda and parliamentary decisions are discussed in Section 3. Empirical results for all members of parliament in 118 national referenda over the years 1996 to 2009 are presented in Section 4. Finally, Section 5 offers some concluding remarks and potential policy consequences.

2 Literature

Representation of voter preferences

Political representatives deviate systematically from voters' positions (see Levitt 1996; Matusaka 1995; Gerber and Lewis 2004). Theoretical and empirical contributions suggest that representatives react to the most diverse stimuli apart from voters' positions such as campaign contributions (see, e.g., Stratmann 1992), district magnitude, i.e. the number of representatives (see, e.g., Portmann et al. 2011), political parties (see, e.g., Carey 2007), diverse subsets of the constituents (see, e.g., Jung et al. 1994), as well as the national electorate and its subsets. However, the effect of a member of parliament's gender on representation of revealed preferences of the voter majority has never been analyzed.

In general, Stratmann (1995), Gerber and Lewis (2004), and Golder and Stramski (2010) among others argue that a major problem of empirical studies analyzing representation is to determine voters' preferences with respect to law proposals and to match them with decisions or positions of members of parliament. We overcome such measurement problems by comparing real decisions in parliament with referenda results on precisely the same issues with the identical wording. Thus, we are able to identify how the gender of a representative affects the probability that she or he votes with the majority of voters.

While gender differences in parliamentary representation are understudied, socio-economic gender differences and their effects have been analyzed and documented in many areas including the welfare state, family, education, labor markets, and politics (see Davis et al. 2006). For instance, experimental results of variants of prisoner's dilemma games show that differences in preferences (see Croson and Gneezy 2009 for a review) between women and men exist and may also affect representatives' behavior and policy outcomes.

Effects of gender on policies and parliaments

Focusing on policy consequences, Aidt et al. (2006) examine the effect of female suffrage on public spending in Western Europe and show that it increased public spending on health, education, housing, redistribution and social insurance. Similar evidence is presented by Aidt and Dallal (2008). While Lott and Kenny (1999) argue that the adoption of the female suffrage coincided with increases in expenditures and more liberal voting patterns for federal representatives, Stutzer and Kienast (2005) find no direct effect of female suffrage on total expenditure. Funk and Gattmann (2008) suggest that women in Switzerland tend to favor a

different composition of government spending which focuses on social welfare, health and the environment. Edlund and Pande (2003) explain female preferences with respect to redistribution and more left policies by the decline in marriage rates which made women relatively poorer than men.

Turning to representatives' behavior, Washington (2008) provides evidence that representatives' behavior is affected by personal characteristics. Thus, their propensities to vote more liberally, particularly on reproductive right issues, increases with their number of daughters. Using a random allocation of council head positions in India, Chattopadhyay and Duflo (2004) show that women's policy decisions are different from men's decisions which affects the types of public goods provided. Milyo and Schosberg (2000) suggest that, due to barriers to entry faced by female candidates, female incumbents tend to be of higher quality than male incumbents on average. Women also try to moderate discussions in committees and the perceived atmosphere is more consensual according to Jones et al. (2008). Drawing on a cross-country dataset Dollar et al. (2001) conclude that increases in the share of women in parliament coincide with decreases in the overall level of corruption. Gagliarducci and Paserman (2008) find that the probability of early termination of legislature in Italian municipal governments is higher when the council is entirely male.

All these studies confirm that women have different preferences and act differently than men in parliament, that they are overall more socially minded and politically more to the left. However, the important question in democracies is how preferences of citizens are represented and, in particular, how the majority of voters independent of gender is represented. Majority decisions by voters serve as a natural benchmark to evaluate legislative decisions by representatives since the majority rule is probably the most widely accepted decision rule for social choice. Thus, we analyze the central question whether women in parliament represent the preferences of the majority of voters differently than men.

3 Data and estimation strategy

3.1 Matching representatives' choices with voters' preferences

Our measure contrasts real policy decisions by female and male members of parliament with the preferences of the majority of voters. In referenda, Swiss citizens regularly vote on law and constitutional proposals which have passed national parliament with exactly the same wording. Thus, referenda results determine policy outcomes but also reveal the preferences of the citizens for these outcomes over the status quo.

Similar to the United States, Switzerland is one of the oldest democracies with a federal constitution dating back to 1848. The Swiss National Council, i.e., the lower house, has 200 members. The parliamentary services record the voting behavior of each member of parliament and make them publicly available since 1996. In parliament the law proposals and constitutional amendments are adopted if they are approved by the majorities of both the National Council and the Council of States (i.e., the upper house or senate).

However, proposals adopted by parliament do not necessarily turn into law. If a legislative proposal aims to change the constitution, a popular vote is mandatory.¹ If parliament intends to change or enact a new law, a popular vote is not mandatory. But Swiss citizens may demand a referendum (“facultative referendum”) on the proposed legislation by collecting at least 50’000 signatures out of approximately 4.9 million registered voters. The proposed law change is rejected if 50% of the population votes against it in a referendum. Citizens may also demand a constitutional amendment by referendum (called “initiative”) by collecting at least 100’000 signatures, i.e. only approximately 2% of registered voters. Members of parliament are required to vote on the text of an initiative. While parliament cannot annul an initiative unless it violates formal rules it can work out a counter-proposal to the initiative which is presented to the voters at the same time as the respective initiative.

Referenda results are provided for the whole period of analysis from the years 1996 to 2009 by the Swiss Federal Statistical Office and the Swissvotes Database. As decisions in parliament usually precede referenda by several months, the respective parliamentary decisions were made from 1995 to 2009. We compare legislative decisions by female and male members of parliament with referendum outcomes on exactly the same legislative issues and with the same wording. Thus, we observe decisions of citizens and members of parliament in the unique policy dimension which is defined by the referendum itself. This permits us to test empirically whether female and male members of parliament represent the preferences of the majority differently.

As the dependent variables we employ an indicator variable. The indicator takes the value of one when a member of parliament does not vote in the same way as the majority of the Swiss voters ($MP \neq Citizens$) and zero if she or he votes as the majority.² Thus, the dependent

¹ For such mandatory referenda a double majority is required: the majority of the national electorate as well as a majority of the electorate in 11 and a half-canton (“Ständemehr” in German) have to agree to the proposed change.

² For instance, a member of parliament who voted “yes” on the “Law on Family Allowances” did not deviate from the preferences of the majority of citizens as more than 50 percent of Swiss voters voted “yes” in the referendum on November 26, 2006 (i.e. the indicator variable is 0). We also analyzed

variable measures how female and male members of parliament adhere to the will of the majority of the people. The use of such a direct measure of congruence has recently also been suggested by Matsusaka (2010) for the United States. Brunner et al. (2011) apply it to Californian data and advocate that results may generalize to other US states.³

3.2 Estimation strategy

Our econometric logistic model explains deviations from the majority's preferences and is given by:

$$P(MP \neq Citizens) = \Lambda(\alpha_0 + \alpha_1 Female + \sum_j \alpha_j x_j + \varepsilon) \quad (1)$$

We use a logistic (logit) model ($\Lambda = \exp(X)/(1 + \exp(X))$ with X as design matrix) because the dependent variable is a binary measure. The model estimates the probability that a member of parliament votes against the majority of citizens ($MP \neq Citizens$). If female members of parliament respond less to the preferences of the majority of voters than male members of parliament, it follows $\alpha_1 > 0$. If male members adhere less to the majority of voters than females, it follows $\alpha_1 < 0$. Finally, an insignificant coefficient for α_1 would indicate that male and female members of parliament do not represent the preferences of the majority of voters differently. x_j stands for other control variables. All estimates control for legislation fixed effects. For each coefficient we estimate robust standard errors. Standard errors are clustered for individual representatives.

Control variables

Political decisions of members of parliament are not only influenced by their respective gender. Therefore, we include a number of other personal, political and economic control variables in the model. Their different impacts are represented by the coefficients α_j . The empirical analysis includes data on personal characteristics, district matches, and type of referenda. In further specifications we also include party affiliations of members of parliament, left-right patterns of parties as well as other economic variables.

We are also interested in other additional personal characteristics of representatives. Thus, we include whether a representative is married or not (*Married*). Children have also been shown

whether a member of parliament deviates from her/his district voters. The qualitative results remain the same.

³ In thematically completely different contributions we also discuss how this congruence measure generalizes (see Stadelmann et al. 2011, 2012).

to have an influence on representatives' behavior (see Washington 2008) and we control for this by including the number of children (*Children*) a representative has. Finally, we also control for the age of representatives in years (*Age*).

Apart from personal characteristics, we always take account of whether the majority of the voters from the respective canton has voted in the same way as the national population by including a dummy variable which equals one if this is the case (*Canton=Country*). Elected representatives to the national parliament may not only represent national interests as their mission would suggest. They may also try to please their cantonal voters or engage in pork barrels (Milesi-Ferretti et al. 2002). Therefore, we expect that a member of parliament adheres more (negative sign) to the national majority if her/his canton votes in line with the majority of the national population.

Out of 118 referenda analyzed, 21 are constitutional changes initiated by the parliament. As mentioned above, constitutional proposals require mandatory referenda. With mandatory referenda, politicians know in advance that citizens have to confirm legislative decisions in a referendum; otherwise such proposal cannot be enacted. They know for sure that their decisions are compared with the majority's will. Thus, we include a dummy variable taking the value one for mandatory referenda (*RefMandatory*). Similarly, we include a dummy variable to control for the influence of the 53 initiatives (*RefInitiative*) on responsiveness of members of parliament regarding citizens' preferences. Initiatives are often advanced by small political groups with specific interests. They are often clearly rejected by members of parliament and the majority of citizens. The 37 facultative referenda and 7 counter-proposals form the omitted category.

In further analyses we look at female and male members of parliament's sorting patterns into specific parties. In our setting the center party called Christian Democrats (Christlich Demokratische Volkspartei CVP, in German) forms the omitted group. On a left-right scale, the major Swiss parties are commonly ordered as follows: Greens (GPS, Grüne Partei Schweiz, left), Social democrats (SP, Sozialdemokratische Partei, left); Christian Democrats (CVP, center) and Liberals (FDP, Freisinnig Demokratische Partei, center-right); Swiss Peoples Party (SVP, Schweizerische Volkspartei, right). There is also a number of smaller parties with only very few representatives in parliament. We can control for these smaller parties and their political positions with separate dummies for small left, small center and small right parties.

Generally, we observe that the number of female representatives is far higher in left parties than in center and right parties. This might be explained by female preferences for left parties

(see Edlund and Pande, 2002), by the experimental observations that women are more socially minded, greater openness to women of left parties, etc. To measure the effects of party affiliation of female members of parliament on how they adhere to the preferences of the majority we include dummies for left and right parties (center parties form the omitted category).

From a theoretical perspective, district magnitude, i.e., a district's number of seats in parliament, determines incentives for representatives. Members of parliament from cantons with many seats and proportional representation may win elections by proposing policies pleasing their specific voters and thus often aiming at the boundaries of the electoral spectrum. Conversely, members of parliament from districts with a limited number of seats or close to plurality systems tend to propose platforms which appeal to the majority of voters (see Portmann, Stadelmann and Eichenberger 2011). We control for such effects by including the cantonal number of seats (*Seats*).

The cost of individual female and male representatives to depart from the majority's position are the lower the more confident they are about re-election. Thus, new members of parliament may try to satisfy the majority more thoroughly than longtime representatives. We control whether a representative is new to parliament or not (*NewToParliament*). We expect a positive effect of being new to parliament on responsiveness to the majority's preferences.

Apart from controlling for the heterogeneity of politicians and parties, economic and social heterogeneity within a canton (Swiss region) may play a role. We control for heterogeneity by including population density (*Density*), income inequality (*Inequality*), and regional income (*Income*). Swiss voters are allowed to alter party lists by substituting their preferred candidates from other parties for less preferred candidates on the list (panachages) as well as by listing specific candidates twice on the list and, thus, giving them two votes (cumulation). This may induce extensive competition between candidates for seats. We control for the extent of panachage and cumulation by including the number of changed ballot papers (*ChangedBallotPapers*). In line with existing empirical work on Switzerland, we always use a dummy for the Latin (i.e., French and Italian speaking) cantons. This dummy picks up cultural differences between those and the German speaking cantons.

Descriptive statistics and indicative results

Matching referendum data with individual voting records in parliament allows us to study 20811 individual decisions of members of parliament in all 118 referenda from 1996 to 2009. Note that members of parliament may be absent at votes due to sickness, voyage or other

duties. Data for the independent control variables were obtained from the Federal Statistical Office, the Swissvotes Database and the Swiss Parliamentary Services.⁴ All variables, their sources, and a number of descriptive statistics are given in Table A1 in the Appendix.

Over the whole dataset, individual members of parliament deviate from the preferences of the majority of voters in approximately a third of their observed decisions. The upper panel of Figure 1 provides a histogram for average individual deviations of members of parliament from the preferences of the majority of voters.

< Figure 1 here >

Overall, responsiveness to citizens' preferences is different between male and female representatives. The lower panel of Figure 1 provides the respective boxplots. Female members of parliament tend to adhere less to citizens' preferences as is shown by the first quartile, the median, and the third quartile. On average, male members of parliament deviate from the majority of voter in 31.72 percent of all votes. In contrast, female members of parliament deviate on average in 37.15 percent of all votes from the preferences of the majority of voters.

Of course, there are several possible sources for these differences in responsiveness to citizens' preferences. One explanation is a substantial dissimilarity in party affiliation between women and men. Table A2 in the appendix provides more detailed information on the composition of parties such as the percentage of females, the percentage of married representatives, the percentage of representatives with children and the average number of children, as well as the representatives' average age. The pie chart of Figure 2 indicates the average percentage of women for all parties in parliament over the period of analysis.

< Figure 2 here >

In Switzerland, as in many other Western countries, the share of female members of parliament is particularly high in left parties. 42.28% of representatives in left parties are women compared to only 9.62% and 21.89% in right and center parties, respectively. During the whole period of analysis the share of women in the major right party, the SVP, was only 8.66%. With almost 60% female representatives the Greens have the highest share and the Socialist Party exhibits a self-imposed female quota of 40% since 1992.⁵ Representatives from left parties make up approximately one third of parliament. The three box plots below

⁴ See <http://www.bfs.admin.ch/> (Federal Statistical Office), <http://www.swissvotes.ch/> (Swissvotes), and <http://www.parlament.ch> (Swiss Parliamentary Services) for the respective databases and contact information.

⁵ Even before 1992 almost 30% of the Socialist Party's representatives were women.

the pie chart indicate individual deviations within left, right and center parties. As expected, representatives from left and right parties generally tend to adhere less to the majority's preferences than representatives from center parties. Average divergence is 45.75% for members of left parties, 23.74% for members of center parties, and 34.60% for members of right parties. Thus, controlling for party affiliations may help to explain differences in the responsiveness to the majority's preferences between female and male members of parliament as women tend to be members of left parties which adhere less to the preferences of the majority of citizens.

4 Empirical results

4.1 Effect of gender on divergence

Table 1 presents our empirical results focusing on personal characteristics without controlling for party affiliation. All specifications report robust standard errors with clustering for individual representatives. We also report the change in the probability to diverge from the majority's preferences for the variable *Female* (and the other personal characteristics when introduced). The discrete effect represents a change from zero to one for the variable *Female* while all other variables are held fixed at their medians. As we are also interested in the significance of the discrete effects we calculate robust standard errors for the changes in the probability using the delta method.⁶

< Table 1 here >

Turning to specification (1), we find that female members of parliament adhere significantly less to the majority's preferences than men, i.e., the variable *Female* has a positive sign and is significant at the 1%-level. As indicated in the row below the coefficients, a discrete change from male to female increases the probability of a member of parliament to vote against the majority's preferences by 5.95 percentage points when all remaining variables are at their median values. If the decision of the majority of voters from the representative's canton coincides with the decision of the nationwide majority of voters, members of parliament are less likely to disagree with citizens as indicated by the negative and significant coefficient of (*Canton=Country*). In mandatory referenda (*RefMandatory*) and initiatives (*RefInitiative*) members of parliament deviate less from citizens' preferences compared to the base category of facultative referenda.

⁶ Especially for interaction effects of logistic models Ai and Norton (2003) suggest the delta method to calculate standard errors of discrete effects for correct estimation.

Gender and other personal characteristics

In specifications (2) to (4) we include other personal characteristics step by step. In each of these three specifications the variable *Female* remains significant and only changes slightly in size. Female members of parliament always tend to adhere less to the preferences of the majority of voters than their male counterparts. Specification (2) shows that marriage exerts, *ceteris paribus*, a negative and marginally significant influence on deviations between members of parliament and citizens' preferences. Married members of parliament are 1.98 percentage points more likely to represent the preferences of the majority of voters than unmarried representatives. The same holds for members of parliament with children. The higher the number of children, the lower the probability to deviate as shown in specification (3). Increasing the number of children from zero to two reduces the probability of divergence by 2.87 percentage points. Finally, older members of parliament tend to be significantly closer to the voter majority as indicated in column (4). The effect of age on deviation from citizens' preferences is significant and negative. A discrete change in age from 35 to 65 years reduces the probability of a member of parliament to deviate from the preferences of the majority of voters by 6.73 percentage points.

In specification (5) we check whether the effects of personal characteristics on divergence also hold jointly, i.e., we include *Female*, *Married*, *Children*, and *Age* at the same time. The effect of gender on responsiveness to citizens' preferences still holds at the 1%-level. The discrete effect for the variable *Female* amounts to 4.15 percentage points. However, the effect of marriage on divergence vanishes and the effect of children is only marginally significant. A politician's age still has a negative and significant impact.

Interaction effects

Finally, we study interaction effects between gender and all other personal characteristics. Only the interaction between gender and the number of children turns out to be significant in specification (6). In contrast, age and being married has no differential effect on the behavior of female and male representatives (not shown in table 1). The variable *Female* still exerts a positive and significant influence on overall divergence from the majority's preferences. It also increases in size, i.e. the discrete effect now indicates that of females without children are 7.71 percentage points more likely to adhere less to the majority's preferences than male members of parliament. The base effect of children is not significant any more. Note that as the coefficient of the variable *Children* is insignificant, male representatives with children do not deviate less from the majority's preferences than men without children. However, women

with children tend to adhere more to voters' preferences than women without children. The interaction effect between gender and the number of children is significant and negative. The discrete effect for women with two children on divergence is 2.84 percentage points and thus lower than the discrete effect for women without children.

These results indicate that female members of parliament tend to respond less to preferences of the majority of voters than male members of parliament. However, observed divergence could be a result of affiliation to political parties. Especially left parties have higher shares of female representatives than center and right parties. Due to different preferences, political pressure, discrimination in center and right parties, or other institutional influences such as openness and quotas, women in politics rather affiliate themselves with left parties which are generally known to deviate more from the majority of voters. We have information on party affiliation and can analyze whether it explains observed patterns of responsiveness between female and male representatives. Thus, we can check whether the responsiveness of women to the majority's preferences really depends on their gender or rather on induced party affiliation patterns.

4.2 Gender effects and party affiliation

Controlling for party affiliation

Table 2 reports results which include different controls for parties and other variables. The literature on women in politics shows that women tend to be more socially minded than men which, among other factors such as discrimination in the past, political openness, etc., lead them to rather affiliate themselves to left parties.

< Table 2 here >

In specification (1) we include dummy variables for each individual representative's party affiliation in the Swiss parliament. Once taking account of a member of parliament's party affiliation women's lower responsiveness to voters' preferences vanishes along with the effects of all other personal characteristics. All effects on differences in responsiveness previously captured by personal characteristics are now captured by party affiliations. Thus, how female members of parliament represent the majority's preferences does not directly depend on their gender but indirectly on their party affiliations. Female politicians are more often members of parties which tend to adhere less to the preferences of the majority.

In specifications (2) and (3) we include subsequently a number of additional political and economic control variables. First, we look at the effect of district magnitude. The higher the

number of seats assigned to a canton, the more individual politicians deviate from the majority's preferences as discussed by Portmann, Stadelmann and Eichenberger (2011). The effects of personal characteristics, and in particular the variable *Female*, remain insignificant as before. Specification (3) includes several other controls. Again, gender does not exert a significant influence as soon as we control for party affiliation.

We analyze party affiliation of women more closely and instead of including separate dummy variables for all major parties, we identify three categories commonly used in the literature: left, center, right. Center party affiliation forms the omitted category. The coefficients in specification (4) reveal that all personal characteristics, and especially the variable *Female*, are insignificant once controlling for left and right parties. Descriptive statistics in Table A2 of the Appendix and Figure 2 indicate that women are indeed more present in left than in center and right parties. Our results show that compared to center parties, members of parliament from either left or right parties tend to adhere less to the preferences of the majority of voters. Thus, observed overall deviations are not driven directly by gender but instead indirectly by the fact that more women tend to be in left parties which diverge more from voters than center parties (and than right of center parties).⁷ This is also confirmed when including additional political and economic control variables in specifications (5) and (6).

Gender effects within parties

We explore differential gender effects in greater detail by splitting the sample of observations into left, center and right parties. Results are presented in Table 3. In specifications (1) and (2) we look at the sample of left parties, in specifications (3) and (4) at the sample of right, and in specifications (5) and (6) at the sample of center parties only.⁸

< **Table 3 here** >

Women in left parties tend to adhere less to revealed preferences of the majority of voters than their male counterparts as indicated by the positive coefficient of the variable *Female* in specifications (1) and (2). A female representative in a left party is 1.44 percentage points more likely to deviate from the majority's preferences than a male representative according to the discrete effect of specification (1).

The opposite holds true in right parties in particular, i.e. female representatives in right parties tend to adhere *more closely* to preferences of the majority in referenda than males in right parties. The coefficient for *Female* is negative and highly significant in specifications (3) and

⁷ Absolute divergence from the majority's preferences is smaller in right than in left parties.

⁸ Specifications with an even column number include additional control variables,

(4). A similar result holds also for center parties in specifications (5) and (6) but the effect is smaller compared to right parties and only marginally significant. While female representatives in right parties are almost 11 percentage points more likely to vote according to the will of the majority of the population than men, the discrete effect of being female in a center party is only approximately 2 percentage points. Thus, in particular, women in right parties tend to deviate significantly *less* than male representatives from the right.

These results from real legislative choices in parliament and revealed preferences in referenda allow interesting interpretations for women in parliament which are consistent with experimental evidence about women in general. Women are often identified as being more socially minded and further to the left than their male counterparts. This is one reason among others why more women are found in left parties. More importantly, our results are consistent with the view that women in parliament are, independent of their party affiliation more to the left than men. Being more to the left in a generally left party leads to *more* divergence from the majority of voters while being more to the left in a generally right party leads to *less* divergence from the majority of voters.⁹ This pattern is fully confirmed by our empirical results in Table 3.

5 Conclusions

Summary

We provide a comparative econometric analysis which indicates whether female or male members of parliament adhere more to voters' preferences. The existing literature points to differential gender effects which have political and economic consequences such as different provision of public goods by women. Women were also shown to be more socially minded and rather on the left of the political spectrum. However, no study has so far analyzed whether female members of parliament represent the preferences of the majority of voters differently than men even though representation of the majority's preferences is central in democracies.

To analyze whether gender differences exist in political representation we match Swiss referenda with voting data from members of parliament on exactly the same issues with the identical wording. Swiss referenda reflect voting behavior of citizens and thus how the

⁹ In center parties women and men should be similar regarding their responsiveness to citizens preferences. Our results show that this is likely to be true but that women in center parties tend to be marginally closer to the majority of citizens.

majority of voters value legislative proposals against the status quo. They serve as a measure for revealed preferences of the majority of citizens.

Results indicate that female representatives tend to adhere less to the preferences of the majority of voters than men when not controlling for party affiliation. However, when party affiliation of representatives is accounted for, the direct effect of gender on representation voters' preferences vanishes. This highlights the importance of differential patterns of party affiliation between women and men.

Empirical evidence across countries shows that left parties tend to have far higher shares of women in parliament than center and right parties. This also holds for Switzerland. Sorting into parties may occur due to different gender preferences, political pressure, discrimination in center and right parties, or other institutional influences such as party specific promotion of female candidates or quotas in certain parties. Overall gender differences between female and male members of parliament with regard to how they represent citizens' preferences can be fully explained by party affiliation.

When analyzing left, center and right parties separately, we observe that female representatives from center and, in particular, from right parties adhere more to the majority's preferences than men from these respective parties. Women from left parties deviate more from the preferences of the majority than their male counterparts. These results are consistent with the view that women in parliament, independent of their party affiliation are more socially minded and further to the left than men. This brings, in particular, women from right parties closer to the majority's preferences and moves women in left parties away from them which results in no overall gender specific divergence from voters once controlling for party affiliation.

Policy conclusions

Women and men do not represent the majority's preferences differently when political party positions are taken into account. If anything, women in center and right parties seem to more closely adhere to the preferences of the majority of voters. Thus, overall divergence of parliamentary representatives from citizens' preferences is not a direct result of gender differences but an indirect one due to gender specific patterns of political party affiliation.

Given the objective of a more even distribution of women and men in parliament and the aim to bring more women into parliament, it is important to achieve openness towards women within all parties symmetrically. Especially within center and right parties the share of women is still (too) low. Prejudices or discrimination against women in the past may still be present

today and may restrain women from joining certain parties. Identifying the reasons for low shares of female representatives in center and right parties is an important question for further research. Abolishing still existing prejudices and providing information for potential female candidates may induce more women to join center or right parties.

If a quota of women in parliament was politically considered to be necessary, such an active intervention to promote women in parliament would need to consider a symmetric quota for parties instead of a quota of women in parliament in general or a quota in a single party only.¹⁰ This could increase the number of women in non-left parties and thereby lead to a more even distribution of female political positions in parliament which could foster a better overall representation of the electorate. Women and men in the electorate are more evenly distributed over the political spectrum than women and men in today's parliaments who are concentrated on the left and right respectively.

Having more women in parliament could entail additional advantages with respect to aggregate representation of the citizens' majority. Our analysis focuses on individual voting behavior by female and male politicians. However, in parliament it is not only individual decision which matter but how the majority decides (see Stadelmann et al. 2011). A more pluralistic and differentiated parliament considering gender may generate better aggregate decisions than a parliament with a strong majority of men (or women). Finally, we have so far little knowledge how gender differences affect the process of decision making and finding. Consequently, it is possible that gender may have additional positive indirect effects on policy outcomes which might be explored in future research.

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¹⁰ Remark that any quota may always induce different selection problem which can lead to unintended outcomes.

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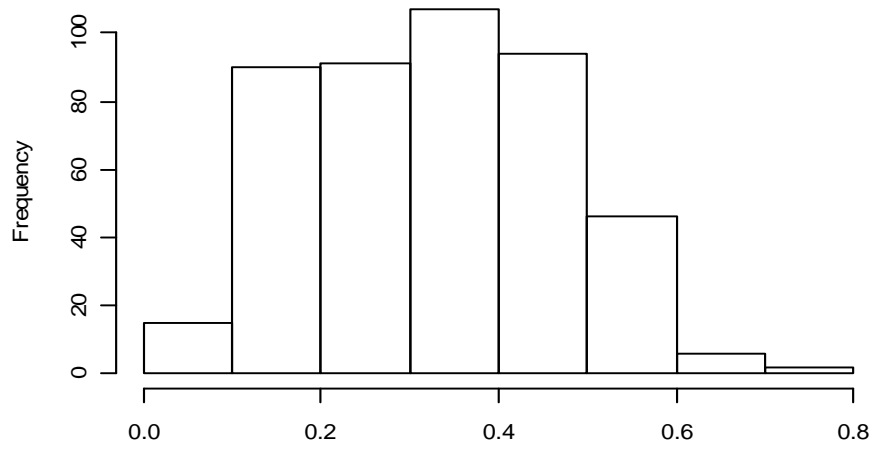
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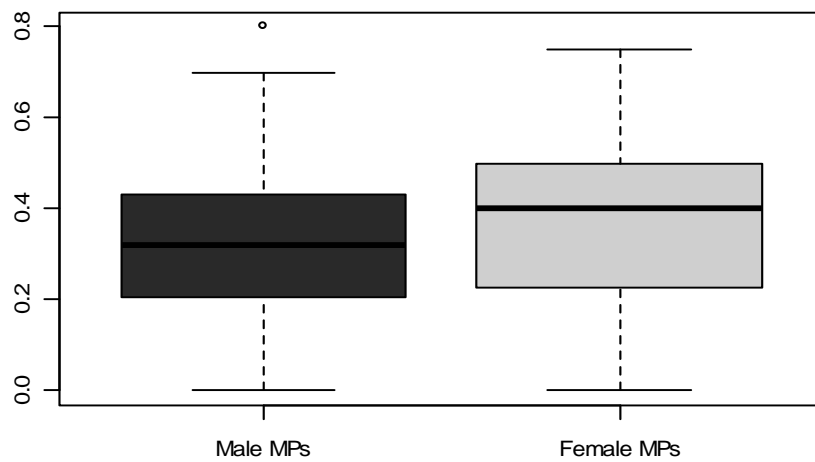
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Figure 1: Probability of divergence between members of parliament and majority's preferences



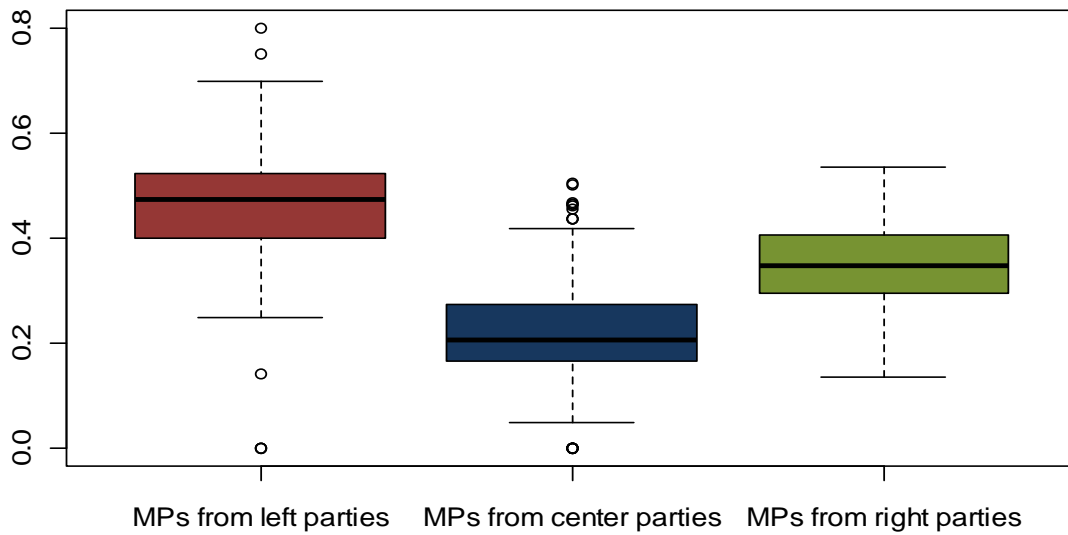
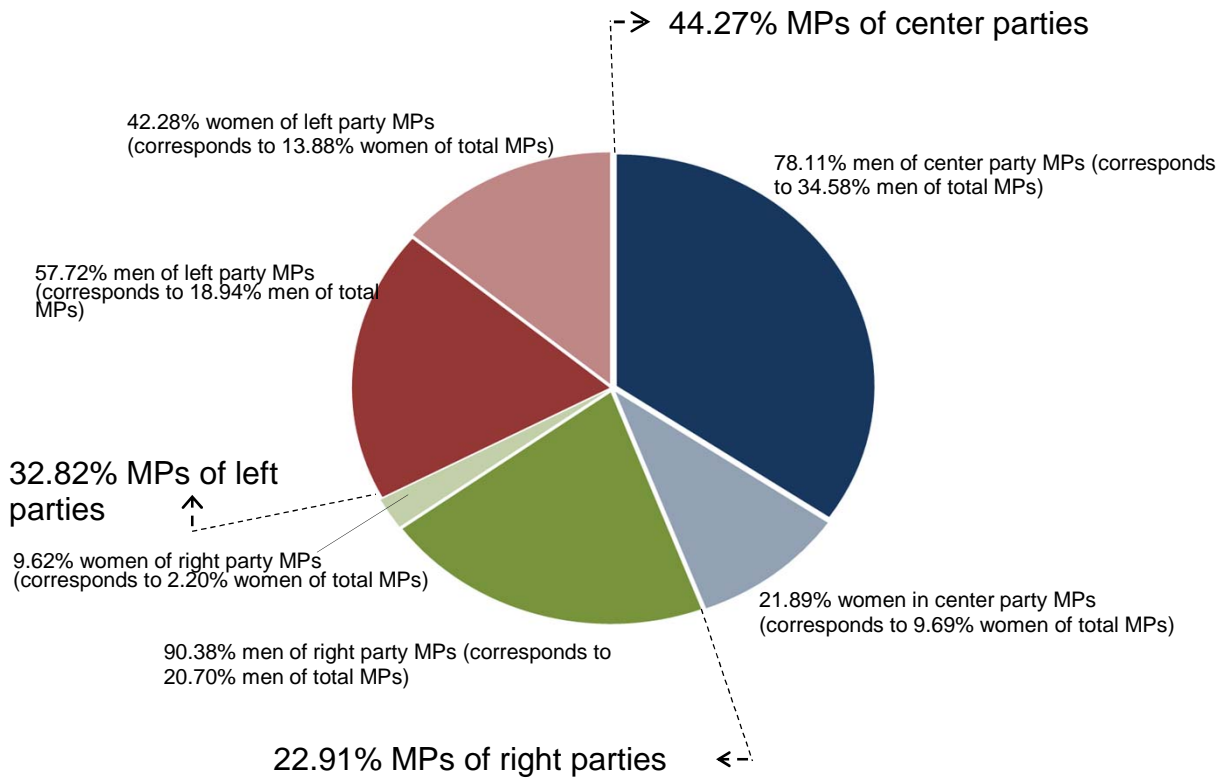
Histogram of Variable MP#Citizens for Male and Female Subset



Boxplots of Variable MP#Citizens for Male and Female Subset

Notes: Histogram and boxplot are based on the average number of times an individual member of parliament votes against the majority of Swiss voters over the years 1996 to 2009.

Figure 2: Women and men in different parties and the probability of divergence of party members from citizens' preferences



Notes: Piechart is based on averages over the years 1996 to 2009. Boxplot is based on the average number of times an individual member of parliament votes against the majority of Swiss voters over the years 1996 to 2009.

Table 1: Female members of parliament and the majority's preferences

	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.279*** (0.087)	0.253*** (0.087)	0.214** (0.088)	0.240*** (0.088)	0.197** (0.086)	0.346*** (0.123)
Married		-0.097 (0.078)			0.028 (0.089)	0.039 (0.089)
Children			-0.069*** (0.023)		-0.062** (0.027)	-0.042 (0.029)
Age				-0.011*** (0.004)	-0.009** (0.004)	-0.009** (0.004)
Female x Children						-0.105* (0.057)
Canton=Country	-0.657*** (0.081)	-0.660*** (0.081)	-0.659*** (0.081)	-0.658*** (0.081)	-0.658*** (0.081)	-0.657*** (0.081)
RefMandatory	-0.529*** (0.071)	-0.529*** (0.071)	-0.530*** (0.071)	-0.528*** (0.071)	-0.530*** (0.071)	-0.530*** (0.071)
Refinitiative	-0.118** (0.056)	-0.118** (0.056)	-0.119** (0.056)	-0.118** (0.056)	-0.119** (0.056)	-0.119** (0.056)
Latin	0.032 (0.079)	0.037 (0.079)	0.027 (0.078)	0.019 (0.077)	0.016 (0.078)	0.024 (0.077)
Legislature Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Discrete changes in percentage points	male to female: 5.95	male to female: 5.33	male to female: 4.53	male to female: 5.08	male to female: 4.15	male to female with 2 children: 2.84
		unmarried to married: -1.98	0 children to 2: -2.87	35 to 65 years: -6.73		male to female with 0 children: 7.71
N	20811	20811	20811	20811	20811	20811
Pseudo-R2	0.044	0.044	0.047	0.046	0.048	0.049
Brier	0.216	0.216	0.215	0.215	0.215	0.215
Log-Likelihood	667.901	676.081	712.571	700.855	732.346	749.100

Notes: Dependent variable is MP#Citizens. Robust standard errors for logistic models using clustering at individual level are given in parenthesis below the coefficient. All estimates include an intercept.

*** indicates a significance level of below 1 %; ** indicates a significance level between 1 and 5 %; * indicates significance level between 5 and 10 %.

Table 2: Controlling for parties - Female members of parliament and the majority's preference

	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.016 (0.045)	-0.026 (0.044)	-0.029 (0.046)	0.002 (0.046)	-0.050 (0.045)	-0.050 (0.048)
Married	0.032 (0.043)	0.063 (0.042)		0.025 (0.044)	0.064 (0.043)	
Children	-0.003 (0.012)	-0.008 (0.012)		-0.005 (0.012)	-0.011 (0.012)	
Age	0.002 (0.002)	3.6e-04 (0.002)		0.002 (0.002)	1.1e-04 (0.002)	
PartyLeft				1.273*** (0.046)	1.259*** (0.044)	1.259*** (0.042)
PartyRight				0.623*** (0.053)	0.538*** (0.055)	0.541*** (0.055)
Party Fixed Effects	Yes	Yes	Yes	No	No	No
Seats		0.003* (0.002)	0.004** (0.002)		0.005*** (0.002)	0.006*** (0.002)
NewToParliament			-0.047 (0.040)			-0.052 (0.041)
Density			4.4e-05* (2.6e-05)			4.7e-05* (2.6e-05)
Inequality			-0.522 (0.653)			-0.655 (0.662)
Income			-9.6e-07 (2.1e-06)			-9.9e-07 (2.1e-06)
ChangedBallotPapers			0.340 (0.208)			0.432* (0.221)
Canton=Country	-0.733*** (0.084)	-0.724*** (0.085)	-0.727*** (0.085)	-0.726*** (0.083)	-0.723*** (0.084)	-0.728*** (0.085)
RefMandatory	-0.543*** (0.069)	-0.543*** (0.074)	-0.543*** (0.074)	-0.541*** (0.069)	-0.541*** (0.073)	-0.542*** (0.073)
RefInitiative	-0.169** (0.069)	-0.126** (0.059)	-0.126** (0.059)	-0.170** (0.069)	-0.126** (0.059)	-0.127** (0.059)
Latin	0.064 (0.047)	0.040 (0.047)	0.110 (0.074)	0.036 (0.048)	0.031 (0.047)	0.119 (0.076)
Legislature Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
n. Obs.	20811	20811	20811	20811	20811	20811
R2	0.112	0.125	0.126	0.107	0.12	0.12
Brier	0.204	0.203	0.203	0.205	0.204	0.204
Log-Likelihood	1752.394	1968.987	1974.564	1670.356	1879.892	1889.112

Notes: Dependent variable is MP≠Citizens. Robust standard errors for logistic models using clustering at individual level are given in parenthesis below the coefficient. All estimates include an intercept.

*** indicates a significance level of below 1 %; ** indicates a significance level between 1 and 5 %; * indicates significance level between 5 and 10 %.

Table 3: Gender effects within parties and representation of the majority's preferences

	<i>Sample of left parties</i>		<i>Sample of right parties</i>		<i>Sample of center parties</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.079** (0.037)	0.076** (0.038)	-0.440*** (0.169)	-0.447** (0.175)	-0.126* (0.066)	-0.142* (0.073)
Married	0.017 (0.041)	0.032 (0.041)	0.083 (0.088)	0.125 (0.095)	0.192*** (0.074)	0.201** (0.086)
Children	-0.015 (0.013)	-0.023* (0.014)	-0.018 (0.023)	-0.014 (0.023)	-0.016 (0.022)	-0.012 (0.024)
Age	0.001 (0.002)	0.001 (0.002)	-0.001 (0.004)	-0.006 (0.004)	0.006 (0.005)	0.006 (0.005)
Other control variables	No	Yes	No	Yes	No	Yes
Legislature Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Discrete changes in percentage points	male to female: 1.44	male to female: 1.35	male to female: -10.96	male to female: -11.10	male to female: -2.15	male to female: -2.32
n. Obs.	6806	6806	5324	5324	8681	8681
R2	0.123	0.124	0.209	0.223	0.11	0.111
Brier	0.226	0.226	0.187	0.186	0.159	0.159
Log-Likelihood	660.976	663.794	868.639	932.073	644.438	650.425

Notes: Dependent variable is MP#Citizens. Robust standard errors for logistic models using clustering at individual level are given in parenthesis below the coefficient. All estimates include an intercept. "Other control variables" include all control variables of Table 2(3).

*** indicates a significance level of below 1 %; ** indicates a significance level between 1 and 5 %; * indicates significance level between 5 and 10 %.

Table A1: Descriptive Statistics

<i>Variable</i>	<i>Description & Source</i>	<i>Mean</i>	<i>SD</i>
MP≠Citizens	Indicator variable: Member of parliament votes against majority of Swiss voters. Swiss Parliamentary Services and Final Votes Dataset.	0.334	0.472
Female	Indicator variable: If member of parliament is a woman value is 1. Swiss Parliamentary Services.	0.244	0.429
Married	Indicator variable: If member of parliament is married value is 1. Swiss Parliamentary Services.	0.713	0.452
Children	Member of parliament's number of children. Swiss Parliamentary Services.	1.954	1.511
Age	Member of parliament's age. Swiss Parliamentary Services.	52.600	7.899
<i>Parties in analysis</i>	Separate indicators used for SVP (Swiss People's Party), FDP (Free liberals), CVP/CSP (Christian Democratic People's Party), SP (Socialists) and the Greens. Smaller parties are captured by dummies for small left, small center and small right parties. Swiss Parliamentary Services.		
PartyLeft	Indicator variable: If member of parliament belongs to a party from the left value is 1.	0.327	0.469
PartyCenter	Indicator variable: If member of parliament belongs to a party from center and smaller parties or independents value is 1.	0.417	0.493
PartyRight	Indicator variable: If member of parliament belongs to the to party from the right value is 1.	0.256	0.436
Canton=Country	Indicator variable: If majority decision in MP's district matches majority decision of all Swiss voters value is 1. Federal Statistical Office.	0.905	0.293
RefMandatory	Indicator variable: If referendum is an obligatory referendum value is 1 (necessary for an amendment to the constitution initiated by the parliament). Swissvotes Database.	0.186	0.389
RefFacultative	Indicator variable: If referendum is a facultative referendum value is 1. Swissvotes Database.	0.310	0.463
RefInitiative	Indicator variable: If referendum is an initiative value is 1. Swissvotes Database.	0.442	0.497
Latin	Indicator variable: If the canton is largely French or Italian speaking value is 1. Federal Statistical Office.	0.274	0.446
Seats	Canton's number of seats in the national council. Federal Statistical Office.	15.770	10.829
NewToParliament	Indicator variable: If MP is a member of parliament for less than a legislature value is 1. Swiss Parliamentary Services.	0.407	0.491
Density	Inhabitants per km ² in a canton. Federal Statistical Office.	511.100	861.932
Inequality	Cantonal Gini coefficient of income inequality in 2003. Federal Statistical Office.	0.390	0.041
Income	Cantonal income ("Volkseinkommen") per Capita in 2005 Swiss Francs. Federal Statistical Office.	52890.00	13026.51
ChangedBallotPapers	Share of ballot papers which have been altered (e. g. cross voting) by the voters in the last election of the canton's National Councilors. Federal Statistical Office.	0.546	0.108

Notes: Descriptive statistics are based on 20811 decisions of members of parliament on 118 referenda from 1996 to 2009. Data sources indicated next to variable descriptions.

Table A2: Differences between parties

	Female	Married	Parent	Children (mean)	Age (mean)
CVP	21.41%	83.89%	84.59%	2.48	53.08
FDP	18.04%	75.05%	77.96%	2.00	54.81
GPS	58.47%	38.20%	56.30%	1.13	50.79
SP	41.67%	63.80%	62.47%	1.40	49.90
SVP	8.66%	73.43%	75.64%	2.33	53.40
SmallCenter	10.17%	82.81%	81.60%	2.28	55.61
SmallLeft	31.25%	87.19%	76.25%	1.85	51.26
SmallRight	0.00%	65.25%	69.49%	1.80	52.10
Left	44.08%	60.11%	62.03%	1.38	50.16
Center	18.93%	78.51%	79.99%	2.17	54.01
Right	8.05%	73.14%	75.80%	2.33	53.30