

# Dangerous liaisons: Interest groups and politicians' votes. A Swiss perspective \*

Stefano Puddu<sup>†</sup>  
Martin Péclat<sup>‡</sup>

August 27, 2015

## Abstract

Using a unique dataset based on the 49<sup>th</sup> Swiss Legislature, we assess whether lobbying has an effect on politicians' votes. Counsellors' ties are approximated by their mandates in legal entities, while political representatives' fidelity to their political group is measured with a proximity indicator dummy variable. Using alternative techniques, our results suggest that lobbying matters. Specifically, once controlled for individual features and political group affiliation, we find that having mandates in the energy, banking, insurance, and transportation sectors reduces counsellor proximity. Furthermore, being male, younger, or elected in a French- or Italian-speaking canton negatively affects the proximity measure. Finally, we also document that proximity increases over time, as the legislature comes to a close.

**Keywords:** Interest groups, lobbying, special interests, Swiss Parliament, voting behaviour.

**JEL Classification:** D7, H7

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\*This study should not be reported as representing the views of the University of Neuchâtel. The views expressed are those of the authors and do not necessarily reflect those of the University of Neuchâtel. We are grateful to Ivan Guidotti and Sylvain Weber for their comments and to Daniel Schwarz of Smartmonitor for providing us information about vote classification. We thank the participants of the 2015 Swiss Economic and Econometric Conference. All remaining errors are our own.

<sup>†</sup>Corresponding author. Université de Neuchâtel, Institut de recherches économiques, Rue A.-L. Breguet 2, CH-2000 Neuchâtel, e-mail: stefano.puddu@unine.ch

<sup>‡</sup>Université de Neuchâtel, Institut de recherches économiques, Rue A.-L. Breguet 2, CH-2000 Neuchâtel, e-mail: martin.peclat@unine.ch

# 1 Introduction

*“To influence me, it would take a little more than this trip.”*

Walter Müller, Swiss parliamentarian and member of the Foreign Affairs Committee

The quote above refers to the reaction of Swiss counsellor Müller after that the *Neue Zürcher Zeitung*<sup>1</sup> revealed that in May 2014 he had travelled to Astana, the capital of Kazakhstan, and paid just a tenth of the travel expenses. Who covered the rest of the cost of the trip is unknown. Several criticisms followed the disclosure of this information. Their main point was that the counsellor’s political behaviour should have been influenced by the “gift” received.

The influence of lobbying on politicians’ activities has always been a hot research topic, which acquires greater visibility and media interest as elections approach. This trend also holds for Switzerland, characterized by a unique political system. In fact, the majority of Swiss parliamentarians are not professional politicians and run private businesses in parallel to their political activities. It is exactly this fusion between public function and private interests that represents a source of potential conflict of interests and a channel through which companies could exert lobbying activity.<sup>2</sup>

This paper investigates the influence of lobbying on politicians’ votes by combining original data on Swiss counsellors’ mandates in legal entities with information about all the votes held at the National Council during the 49<sup>th</sup> Legislature.<sup>3</sup>

Quantifying lobbying activity is not an easy task, due to difficulties in measuring counsellors’ political group fidelity and lobbying activity. Moreover, additional problems are related to the approximation of politicians’ viewpoints and to the

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<sup>1</sup>For more details, see “Ausländischer Politiker zahlte Reise für Schweizer Nationalrat”, *Neue Zürcher Zeitung*, 8 May 2015.

<sup>2</sup>Using US data, Kimballa et al. (2012) show the divergence between lobbying and public agendas by issue (e.g. health, economics, security).

<sup>3</sup>The 49<sup>th</sup> Legislature refers to the period 2011–2015. The dataset about politicians’ mandates have been created by Peclat and Puddu (2015). Additional information about votes is available at [www.parlament.ch](http://www.parlament.ch).

isolation of lobbying effect. We approximate political fidelity with a political group by an agreement index (AI), as well as an individual proximity indicator (PI). The former takes on values between 0 and 100, with larger values implying more homogeneous behaviours among politicians within groups; the latter takes on a value of 0 or 1, depending on whether a politician votes with the majority of his or her political group.

We assess lobbying effect in several ways: (i) using a bootstrapping approach, which allows us to assess the impact of the interest groups agreement index on that of the political groups, isolating interest group effect from group composition effect; (ii) comparing the interest groups agreement index (based on members voting) with the so-called pseudo-agreement index, obtained using the agreement index of political groups weighted by the fraction of members of each political group in the interest group; and (iii) estimating the effect of belonging to an interest group on an individual proximity indicator, using a panel probit random effects model and controlling for individual characteristics such as gender, age, origin, and political affiliation.

The three approaches all detect a lobbying effect. Despite each approach having its own specificity, a common result emerges: In all cases, the banking group exerts a significant and sizable impact on counsellors' votes. Focusing particularly on the econometric approach results, our findings highlight that regarding specific voting issues,<sup>4</sup> once controlled for political affiliation, having a mandate in the correspondent group of interests reduces politician's proximity to their political group. We also find that being male or originating from a French- or Italian-speaking canton decreases individual political proximity. The impact of a counsellor's age depends on the specification. Furthermore, we find that belonging to the Social Democratic group or to the Green Liberal group increases the proximity measure with respect to the benchmark (Swiss Peoples group), while the opposite is true for the Christian

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<sup>4</sup>We focus on the issues concerning health, law, the economy, transportation, energy, and entertainment.

Democratic group. For the other political groups the effect is not statistically different from that of the benchmark group. Finally, we find that political cohesion increases as the legislature approaches its close. This is true for all political groups, regardless of the measure employed.

The remainder of the paper is structured as follows. Section 2 puts our contribution into perspective with respect to previous studies. Section 3 describes the data sources, documents the main descriptive statistics, and defines the cohesion measures. Section 4 explains the techniques employed (bootstrapping, pseudo-agreement index, and econometric approaches) to assess the lobbying effect and discusses the results. Section 5 concludes the paper.

## 2 Literature review

Our contribution is not the first to investigate the impact of lobbying on politicians' votes. In US studies, lobbying activity has been approximated by campaign contributions to politicians. Campaign contributions are interpreted as explicit investments to obtain favourable policies. Since money (contributions) is valuable to politicians (facilitating their (re)election by attracting votes), assuming that they are utility maximizers, it follows that they are willing to deviate from their voters' preferences when receiving contributions.

Silberman and Durden (1976) are among the first to assess the link between campaign contributions and US politicians' voting decisions. Focusing on the minimum wage issue, they find that the donations of political action committees (PACs), such as labour and trade unions, positively impacted the support for the 1973 amendment for an increase in the minimum wage.<sup>5</sup>

Other studies conclude that campaign contributions have a more limited effect on political outcomes. For instance, focusing on the US House Committee on Ways and Means and the US Committee on Agriculture, Wright (1990) assesses

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<sup>5</sup>The amendment refers to the Fair Labour Standards Act.

the impact of lobbying efforts and campaign contributions from coalitions on representatives' votes. The author finds that the total number of lobbying contacts (regardless of origin) received by a representative is a good explanatory variable for politicians' votes in the Committee on Ways and Means. Furthermore, the findings suggest that it is not money but, rather, lobbying connections that affect politicians' decisions.

Potters and Sloof (1996) document the results of several studies (based on US data) on the topic. Although the results do not always go in the same direction, they identify some main patterns. In particular, politicians' votes are affected by campaign contributions and lobbying. This is especially true for bills, which have low public visibility. That is, the lobbying impact is lower in the case of a well-informed electorate and strong political pressure. These findings contradict those of Smith (1995), who claims that the results of previous studies conflict with each other and are based on doubtful methodological strategies.

More recently, Ansolabehere et al. (2003) focus on about 40 studies, always using US data, aiming to quantify the effect of PAC donations on politicians' votes. The authors find little evidence of an effect of PAC contributions: In 75 per cent of the studies analyzed, the effect is not significant or has the "wrong" expected sign. However, the authors underline the difficulties in interpreting these results due to lack of information about the data and the main descriptive statistics.

Using a meta-analytical approach,<sup>6</sup> based on the same studies analyzed by Ansolabehere et al. (2003), Stratmann (2005) finds that the meta-analysis results revert those obtained by the individual studies. More precisely, the hypothesis that campaign contributions have no effect on voting behaviour can be rejected at the 1 per cent level.

In summary, the majority of the studies based on US data approximate lobbying

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<sup>6</sup>According to Djankov and Murrell (2002), the meta-analysis method collects the signs of the coefficients and their significance levels found in the literature to assess whether the aggregate analysis leads to similar results found in the studies considered individually.

activity throughout campaign contributions. Moreover, as shown by Ansolabehere et al. (2003), they focus on specific issues. Finally, the results are not always consistent and the empirical strategies employed are sometimes questionable.

As noted by Dür (2008), only a few contributions focus on European data, despite the subject's relevance. The author's survey finds contradictory results for the impact of lobbying activity on political outcome.<sup>7</sup> More precisely, the effectiveness of the lobbying activity depends on the interest groups' resources, the quality of the political institutions, and the type of issue, among others.

In studies about Swiss politicians, due to lack of data, lobbying activity is approximated by the politician's affiliation to a particular interest group. Lüthi et al. (1991) classify Members of Parliament into categories of interest based on individual interviews, while political outcome is measured by roll call votes from 1981 to 1989 (more precisely, the authors focus on 155 votes). Based on the construction of a cohesion index, the results highlight the existence of interest groups, displaying cohesion levels higher than those of political groups.

As documented by Peclat and Puddu (2015), since 2002, counsellors' mandates in legal entities are publicly available on the Parliament's website. Using this information, Schwarz and Linder (2007) find that the influence of interest groups is less than that found by Lüthi et al. (1991). Finally, focusing on 30 counsellors belonging to the 46<sup>th</sup> Legislature, Blanchard et al. (2009) find that the impact of interest groups on politicians' votes is lower than that of political parties.

Our contributions share some similarities with previous studies, even if there are several important differences. First, to our knowledge, this is the first contribution exploiting the full dataset of votes of the Swiss 49<sup>th</sup> Legislature. More precisely, we focus on counsellors' behaviour regarding about 3,000 votes, classified in 20 issues. This is a huge difference with respect to not only studies focusing on Swiss data,

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<sup>7</sup>Dür focuses on several political outcomes, such as European Commission decisions and trade agreements.

but also those referring to the United States.<sup>8</sup>

Second, we improve the concept of affiliation with an interest group. We approximate it by politicians' mandates in legal entities, using the dataset created by Peclat and Puddu (2015). This dataset has the advantage of being constructed from data of the Federal Commercial Registry Office and the Swiss Official Gazette of Commerce, among other sources, making it more reliable.

Third, to our knowledge, this is the first attempt, at the Swiss level, to assess a lobbying effect on politicians' decisions using a quantitative approach based on a panel random effect probit model.

Last but not least, we provide new qualitative and quantitative tools (a bootstrapping and a pseudo-random approach) to assess the lobbying effect on counselors' votes.

## 3 Dataset

### 3.1 Sources

The dataset is the combination of information from several sources. Data about Parliament Members' mandates is from a database created by Peclat and Puddu (2015), while politicians' vote data, as well as gender, age, and political group affiliation, were downloaded from the Swiss Parliament's website.<sup>9</sup> Finally, vote classification by issue was provided by Smartmonitor.<sup>10</sup>

The final dataset covers 18 sessions of the 49<sup>th</sup> Legislature (from winter 2011 to the 2015 Special Session) of the Swiss Parliament. Overall, the dataset covers 1,108 affairs and 3,024 votes. Several votes may refer to the same affair. Affairs and votes refer to activity of the National Council. Due to the lack of data on the

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<sup>8</sup>See, for instance, Table 1 of Ansolabehere et al. (2003).

<sup>9</sup>See <http://www.parlament.ch/e/dokumentation/curia-vista/pages/default.aspx>

<sup>10</sup>See "The Swiss Legislative Database", <http://www.smartmonitor-database.ch>, last updated 23 March 2015.

Council of States, our dataset contains information only on the 200 counsellors of the National Council.

### 3.2 Variable definitions and descriptive statistics

According to Smartmonitor’s classification, the votes are grouped into 20 different issues. Finance, the economy, law, health, transportation, and energy are the main issues in which the votes and affairs are classified, as illustrated in Figure 1.a.

Votes are reported as percentages by session in Figure 1.b. A clear trend cannot be defined, even if the highest percentages are related to the autumn sessions and the lowest percentages to special sessions (probably because of their shorter duration). Finally, as documented in Figure 1.c, affairs have different sources. In the majority of cases, they refer to motions, government bills, and individual initiatives. These three affair sources together constitute more than 90 per cent of the overall affairs voted during the 49<sup>th</sup> legislature.

For each vote, the decision of each parliamentary representative is summarized by the variable *vote*, that is, whether the counsellor voted in favour or against a bill (1 and 0, respectively), was absent, decided to abstain, or was excused (2, 3, and 4, respectively). Moreover, we provide additional personal information for each parliamentary representative: *Gender* is a dummy variable that takes the value 1 if the counsellor is male and 0 otherwise, *age* refers to the age of the elected official at the moment of a specific vote, and *origin* is a dummy variable that equals 1 if the parliamentary representative was elected in a French- or Italian-speaking canton and 0 otherwise.<sup>11</sup> Parliamentary representatives can belong to one of seven political groups.<sup>12</sup> For each group, we generate a dummy variable taking the value 1 if a counsellor belongs to that group and 0 otherwise. Political affiliation is, of

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<sup>11</sup>These cantons are Geneva, Wallis, Vaud, Fribourg, Neuchatel, Jura, and Ticino.

<sup>12</sup>The seven political groups in the Swiss parliament are the Swiss People’s group (SVP), the Social Democratic group (SPS), the Radical–Liberal group (FDP), the Christian Democratic group (CVP), the Conservative Democratic group (BDP), the Green group (GPS), and the Green Liberal group (GLP).



course, exclusive, so that each representative can belong to only one group. Each group can contain more than one party.<sup>13</sup> A detailed list of the variable definitions and their labels is provided in Table 1.

Following Peclat and Puddu (2015), we approximate politicians' ties by their mandates in legal entities. Companies are classified into 28 categories based on Nomenclature Générale des Activités économiques (NOGA) 2008 codes.<sup>14</sup> Table 2 documents the number of counsellors with mandates in each Noga category and the relative importance of each political group (measured by the number of its members) in the Noga group. The number of counsellors is not homogeneous across Noga groups. The manufacturing, energy, wholesale, banking, insurance, lawyers and consultancies, health, and scientific categories have the highest numbers of representatives.<sup>15</sup> In the quantitative analysis, we focus on a sub-sample of Noga groups, focusing on those with at least 20 counsellors and at least one counsellor from each of the largest groups (SVP, SPS, CVP, and FDP).

As reported in Table 3, women are a minority in the National Council, representing only 30 per cent of the sample. The average age in the National Council is around 51 years. A total of 29 per cent of the representatives were elected in the French- or Italian-speaking part of Switzerland. Finally, the Swiss People's group is the biggest political group in our sample, followed by the Social Democrat group. Each of them counts more than 20 per cent of our sample. The Christian Democratic counsellors and Radical-Liberal representatives together account for about 30 per cent of the sample, equally split between the groups. Finally, the Green, Green Liberal, and Conservative Democratic groups together represent about 17 per cent of all the counsellors in the sample.

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<sup>13</sup>This is the case for the Christian Democratic group, which includes the Christian Democratic People's Party of Switzerland, the Evangelical People's Party of Switzerland, and the Christian Social Party of Obwalden; and the Swiss People's Party, which groups the Lega del Ticino, the Geneva Citizens' Movement, and the Democratic Union of the Centre.

<sup>14</sup>For additional details on mandate classifications, see Peclat and Puddu (2015).

<sup>15</sup>Note that Noga category 28, which includes associations, foundations, and other similar organizations, was dropped from the analysis, because it was not possible to go deeper into the analysis and maintain an objective classification approach.

Table 3 also documents political group composition by gender and origin. Focusing on gender, we find male over-representation in all the groups. The Social Democrat group is the only exception, with a balanced composition between men and women. When looking at group composition by origin, we find another clear pattern: Generally, there are two German-speaking counsellors for each counsellor of Latin origin, with the important exceptions of the Conservative Democratic and the Green Liberal groups, with no and just one French- or Italian-speaking elected representative, respectively.

### 3.3 Agreement index and proximity measure

We measure political cohesion at the group level with a modified version of the Rice index.<sup>16</sup> More precisely, the agreement index is defined as

$$AI_{ij} = 100 * \frac{\max(y_{ij}, n_{ij}, a_{ij}) - 0.5[tot_{ij} - \max(y_{ij}, n_{ij}, a_{ij})]}{tot_{ij}} \quad (1)$$

where  $i$  refers to vote,  $j$  to the political group. Furthermore,  $y$ ,  $n$ , and  $a$  denotes the vote being for, against, or abstaining, respectively, while  $tot$  refers to the sum of all votes in favour, against, or abstaining. The index takes on values between 0 (lowest agreement level) and 100 and can be computed for each vote at the political or Noga group level.

In addition to the agreement index, we compute a measure capturing each counsellor's proximity to the leading opinion of his or her political group. More precisely, the proximity indicator takes the value 1 if the counsellor votes with the majority of his or her group and 0 otherwise. With respect to the agreement index, the proximity indicator has the advantage of being computed for each vote and for each counsellor.

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<sup>16</sup>For more details about the Rice index, see Hix et al. (2005).

### **3.3.1 Cohesion measures, political groups, and voting issues**

Table 4 displays the average and the standard deviation of the agreement index and the proximity measure at the political group level. The highest average agreement index is for the Social Democrat group, followed by the Green Liberal and Green groups. In the three cases, the agreement index is greater than 85 per cent. The Conservative Democratic group displays the lowest average value, around 75 per cent. The average proximity indicator, at the group level, exhibits similar patterns.

Figure 2 documents the agreement index for the votes of each group and of the National Council overall. Larger groups display a more dispersed agreement index than small groups do. Moreover, the National Council's agreement index is, on average, systematically lower than that observed at the group level. This result is expected, due to the fact that, at the aggregate level, all the political groups are considered at the same time.

Taking an alternative perspective, we compute the agreement index by voting issue. Figure 1.d documents how science, international affairs, culture, and education are the issues with the highest agreement index (between 58 per cent and 49 per cent), while health, communications, and social issues have the lowest.

Furthermore, in Figure 3, we document the political groups average agreement indexes (by voting issue). In the majority of cases, the Conservative Democratic and Radical-Liberal groups display the lowest average agreement level across voting issues. At the other end of the spectrum, the Green, Liberal Green, and Social Democrat groups have the highest agreement levels across the different issues.

### **3.3.2 Cohesion measures over time**

It is also interesting to note that the agreement index increases over time, that is, as the legislature approaches its conclusion. This pattern is captured by the dash line, representing the time-trend, in the graphs in Figure 2. This result confirms the findings of previous contributions (e.g. Schwarz and Linder (2007)). It could

be that, at the beginning of the legislature, the counsellors' votes are not always in accordance with the groups' orientation. As the legislature approaches its close, representatives prefer to stick to their official party line, in the hopes of re-election. Figure 4, in which the average yearly agreement indexes for each group are plotted, confirm previous findings. For all the groups, we observe an increasing trend of the average agreement index. This finding holds, regardless of the cohesion measure selected. The results based on the average proximity indicator (at the group level) corroborate the main findings, as documented by Figure 5.

### **3.3.3 Cohesion measures and counsellors' characteristics**

We provide insights for the four biggest political groups about how the proximity indicator is related to features such as gender and origin, by documenting the distribution of the proximity indicator. Generally, the results, reported in Figures 6 to 9, suggest that female representatives vote more often with the majority of their party and the same is true for representatives from the French- and Italian-speaking cantons. The results do not change when the data are analyzed at the National Council level, as documented in Figure 10.

## **4 Assessing the lobbying effect**

Different techniques can be adopted to assess the impact of interest groups on politicians' votes. We focus on three complementary approaches.

### **4.1 Bootstrapping approach**

The first approach, based on a bootstrapping technique commonly employed in finance,<sup>17</sup> assesses how the Noga group agreement index affects the corresponding political group measure. For each political group (SVP, SPS, CVP, FDP, BDP,

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<sup>17</sup>See, for instance, Barras et al. (2005) and Kosowski et al. (2006).

GPS, and GLP), we estimate the model:

$$AI_i = \alpha + \beta AI_{i\text{Noga}} + \epsilon_i \quad (2)$$

where  $i$  refers to the vote, and  $Noga$  to a specific Noga group.<sup>18</sup>

Estimating Eq. (2), we assess the extent to which the Noga group agreement index affects the corresponding political group agreement index, without distinguishing between interest group (Noga group, NE) and group composition effects (GE). More precisely, if the majority of the members of a given Noga group belong to a specific political group, we mainly capture the group composition effect when estimating Eq. (2).

To fix this potential problem, for a given Noga group, we generate 100 random groups reflecting the “true” Noga group composition in terms of the counsellors belonging to different political groups. Then, fixing the political group, we estimate Eq. (2) for each random group. For a given political and Noga group, it is thus possible to draw a distribution of the  $\beta$ s of Eq. (2).

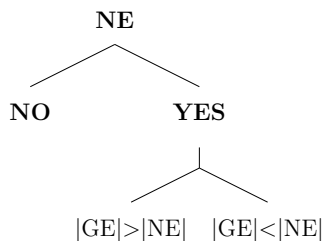
As documented in Scheme 1 below, the following cases are likely. For the given political and Noga group,

- The NE is absent, that is, the  $\beta$  of Eq. (2) is not statistically significant.
- There is NE. Then, two cases are likely:
  - There is no GE, that is, the average value of the distribution of  $\beta$  is not statistically significant. Therefore, we conclude that the NE is clearly separate from the GE.
  - There is a GE. In this case, we should test whether the NE and GE are statistically different.

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<sup>18</sup>We refer only to Noga groups with at least 20 people. More precisely, we focus on the manufacturing, energy, wholesale, banking, insurance, real estate, lawyers and consulting, health, and scientific Noga groups.

Scheme 1: Different alternative scenarios



*Notes:* NO, no effect; YES, there is an effect; NE, Noga effect; GE, group composition effect.

The results of the bootstrapping approach are reported in Table 6. First, with respect to the Noga effect (column A), we distinguish two extreme cases. On the one hand, we do not find any effect for the SPS group in seven out of nine Noga groups (77 per cent of cases) or the GPS group (in 66 per cent of cases). The Noga categories for which an effect is detected are banking and health for the SPS group, and energy, lawyers and consultants, and health for the GPS group. On the other hand, we detect an effect in all the cases for the CVP, BDP, and FDP groups and in 88 per cent and 77 per cent of the cases for the SVP and GLP groups, respectively. The categories in which there is no Noga effect are energy for the SVP group and health for the GLP group.

Second, when we detect a Noga effect, we assess whether it is properly due to the Noga group or also to the group composition (column B of Table 6). The Noga and the group composition effects are statistically different in only two cases for the SVP, SPS FDP GPS, and GLP groups and in five and four cases for the CVP and BDP groups, respectively. More precisely, in the majority of cases, the Noga coefficient is larger than the average coefficient of the distribution of the estimated  $\beta$ . Only for the CVP group do we find that the group composition effect is systematically larger than the Noga effect. Furthermore, the energy Noga group affects the ecological political groups' (GLP and GPS) agreement index. The

banking Noga group impacts in the same direction all political groups, with only two exceptions (FDP and BDP groups). Finally, the BDP group agreement index is also affected by the insurance and real estate Noga groups.

From a theoretical point of view, these results can be explained as follows. Voting issues are not equally important for all political or Noga groups. More precisely, some issues could be irrelevant to the Noga groups and non-ideological for the political parties. Therefore, these issues would display a low agreement index for both groups. In this context, the behaviour of a counsellor also affiliated with a Noga group is “hidden”, since other political representatives are voting against the majority of their political group.

Things are different, however, when the vote concerns issues that are highly relevant to the party. Within political groups, vote heterogeneity decreases, but this does not mean that we observe full cohesion: A counsellor in a Noga group can vote against the majority of his or her political group while we observe an increase in the political group cohesion. If all or the majority of the Noga group counsellors, affiliated with different political groups, do the same, we would also observe an increase in the Noga group agreement index.

Summarizing, we find that for some Noga categories (energy, banking, and health) the Noga effect is clearly separated from and larger than the composition effect. Furthermore, this distinction is particularly true for some political groups (BDP, GLP, SPS, and SVP) more than others.

## **4.2 Pseudo-agreement index approach**

An alternative way of measuring the lobbying effect is to exploit the differences in the agreement indexes of the Noga and political groups. Specifically, a pseudo-agreement index is defined for each Noga group, as follows:

$$AI_{i,pseudok} = \sum_{j=1}^7 w_{jk} AI_{i,j} \quad (3)$$

where  $i$  refers to the vote,  $w_j$  is the fraction of members of the  $j$  political group with mandates in the Noga group  $k$ , and  $AI$  is the agreement index for vote  $i$  of political group  $j$ .

In general, political groups have agreement indexes higher than those of the Noga groups. Therefore, because the pseudo-agreement indexes are based on the political group agreement indexes, they should be always larger than that of the Noga group (baseline). If this is not the case, it could be that, for specific votes, the Noga group behaves as a united political party in the defence of specific interests.

To shed light on the above-mentioned dynamics, we proceed as follows. First, for each issue, we compute the number of times the baseline agreement index is larger than the corresponding pseudo-agreement index.<sup>19</sup> Second, we rank the issues, based on the fraction of positive differences, in descending order.

According to the information reported in Table 7, two types of analysis, within and across Noga categories, can be conducted. More precisely, for a given Noga group, we can assess the issues with the highest fractions of positive differences and, for a given issue, we can identify the Noga groups with the highest fraction of positive differences. The two analyses need to be run simultaneously.

In the majority of the cases, votes on science and culture are top ranked, regardless of the Noga group. At the other extreme, votes on immigration issues are always ranked last, as for all the Noga groups. Disregarding these vote categories from the analysis, votes on economic issues remain in the top ranks for the banking, insurance, and real estate groups, while votes on security are ranked at the top for the lawyers and consulting, health, and scientific groups. Surprisingly, votes on energy and health issues are not ranked at the top for their two corresponding

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<sup>19</sup>In terms of percentages, the number of cases in which the baseline agreement index is larger than the pseudo-agreement index is on the order of 3–5 per cent.



Noga groups.

These results support previous studies, where, for some issues, the agreement indexes of the interest groups are larger than those of the political groups.<sup>20</sup> In summary, this approach allows us to identify issues for which the agreement index of the Noga group is higher than that of the corresponding pseudo-agreement index. One explanation for this finding is the existence of a lobbying effect on the politicians' behaviour.

### 4.3 Econometric analysis

The bootstrapping and pseudo-agreement index approaches show evidence of a lobbying effect. In this section, we use econometric models to assess the impact of politicians interest group affiliation on the proximity measure discussed in Section 3.3, controlling for gender, origin, age, and political affiliation.

#### 4.3.1 Gender, origin, and age

To assess the impact of individual features on the proximity index, we estimate, by means of a panel probit random effects model, the following specification<sup>21</sup>

$$PI_{m,i} = \alpha + \beta_1 gender_m + \beta_2 age_{m,i} + \beta_3 origin_m + \delta + \epsilon_{m,i} \quad (4)$$

where  $m$  refers to the politician,  $i$  to vote and  $\delta$  to time fixed effects.<sup>22</sup> We expect that being male negatively affects the dependent variable; that is, men are more likely to vote against the majority of their political group. This result could be explained by the fact that women prefer not voting rather than voting against

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<sup>20</sup>However, it is important to underline that our results cannot be directly compared with those of Lüthi et al. (1991), Schwarz and Linder (2007), and Blanchard et al. (2009) due to the different sizes of their samples.

<sup>21</sup>In this type of models, the interpretation of the coefficients is not straightforward. We provide information only about the direction of the impact, with no additional information about the magnitude of the effect.

<sup>22</sup>Years and parliamentary sessions are used as time fixed effects.

the majority of their political group.<sup>23</sup> We also expect age to negatively impact the proximity indicator. The underlying idea is that, in normal times, younger political members follow the mainstream of their political group; therefore, being younger makes them more likely to vote with the majority.<sup>24</sup> Finally, we expect that originating from the French- or Italian-speaking cantons negatively impacts the proximity indicator. This is because German-speaking representatives are the majority in all groups. By including a dummy variable for Latin language speakers, we could capture local interest at the linguistic level, which is in contrast to group affiliation. That is, for specific issues with regional characteristics, origin might matter more than political affiliation in counsellors' decisions. The results in column (1) of Table 8 confirm our intuition. All three variables (*gender*, *origin*, and *age*) have a negative sign, even if only *gender* and *age* are statistically significant. In columns (2) and (3), we distinguish between males and females: Interestingly, the results for *age* and *origin* are significant only for males. Moreover, in columns (4) and (5), we differentiate the sample by *origin*. In this case, we can conclude that gender matters while *age* has no impact. In Table 9, we consider parliamentary sessions as time fixed effects. The results for *gender* and *origin* do not change, while *age* requires deeper analysis. Due to this variable's structure and to the fact that year fixed effects are not considered, it is likely that *age* captures not only the individual effect on the proximity indicator but also the time trend.<sup>25</sup> It could be that particular types of issues are voted in specific sessions and therefore our findings are driven by these patterns. Taking previous information into account, in Table 10, we disentangle the votes across sessions and control for year fixed effects. In column (1), we report the baseline findings (those in column (1) of table 8) for comparison. The results show that previous findings, on average, do not depend

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<sup>23</sup>This intuition is supported by the correlation between proximity and abstention by gender. For women, the correlation is three percentage points higher (more negative) than for men.

<sup>24</sup>Age changes over time and therefore over votes. The age employed is that at the moment of a specific vote.

<sup>25</sup>The graphical analysis shows that the proximity indicator increases over time.

on parliamentary sessions.

### 4.3.2 Political groups

It could be that political groups display different degrees of cohesion. Therefore, if we do not control for this characteristic, the results might be spurious. We modify Eq. (4) in two alternative ways. First, we estimate the augmented baseline model as

$$PI_{m,i} = \alpha + \beta_1 gender_m + \beta_2 age_{m,i} + \beta_3 origin_m + \beta_4 party_m + \delta + \epsilon_{m,i} \quad (5)$$

by including a dummy variable *party* that takes the value of 1 if a given counsellor belongs to a given political party and 0 otherwise and in which we include session fixed effects. Alternatively, we take into account all the parties at the same time and distinguish by session. Specifically, we estimate the model

$$PI_{m,i} = \alpha + \beta_1 gender_m + \beta_2 age_{m,i} + \beta_3 origin_m + \sum_{j=4}^{11} \beta_j party_{m,j} + \delta + \epsilon_{m,i} \quad (6)$$

We have no prior expectations about the impact of political group affiliation on the proximity indicator. The results referring to Eq. (5) are reported in Table 11. Once we control for political affiliation, we find that *gender* negatively impacts the proximity indicator. For *age*, since we control for parliamentary sessions and not for year fixed effects, the same comment as before holds. The coefficient of the variable *origin* is not statistically significant. In reference to political affiliation, being a Social Democrat or Green Liberal increases the proximity measure, while the opposite is true for Christian Democratic representatives. For the other political groups, the results are not significant. Table 11 also documents the estimated coefficients for combinations of political group and *gender* and of political group

and *origin*. When referring to *gender*, we find statistically significant results for the SVP, CVP, FDP, and BDP groups. In particular, political affiliation strengthens the impact of *gender*. Furthermore, political affiliation more than counterbalances the effect of *origin* for the SPS group and it strengthens the effect for the CVP (negatively) and the GLP (positively) groups.

When all political groups are considered simultaneously, as in Eq. (6), the results reported in Table 12 for gender, age, and origin do not change. At the same time, findings regarding the effect of political groups require a more accurate analysis. Being an SVP (the political group benchmark) member decreases the proximity indicator, as shown in column (1). Only two political groups, the SPS and GLP groups, impact the proximity indicator differently, with higher values, while for BDP, FDP, GPS groups there is no statistical difference from the benchmark. This is true, regardless of the session. Finally, being a CVP representative statistically strengthens the results of the benchmark only in summer, autumn, and special sessions.

### 4.3.3 Interest groups and voting issues

To quantify the impact of interest groups on the proximity indicator, we proceed in different ways. First, we modify Eq. (6) by adding a dummy variable *Noga* that takes the value of 1 if a given counsellor has a mandate in a given Noga group and 0 otherwise. Parliamentary session fixed effects as well as all political groups are included. More precisely, we estimate the model

$$PI_{m,i} = \alpha + \beta_1 gender_m + \beta_2 age_{m,i} + \beta_3 origin_m + \sum_{j=4}^{11} \beta_j party_{m,j} + \phi_1 Noga_m + \delta + \epsilon_{m,i} \quad (7)$$

We expect the *Noga* dummy variable<sup>26</sup> to have a negative value, such that if a

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<sup>26</sup>We focus on Noga groups with at least 20 members. We specifically consider the manufacturing, energy, wholesale, banking, insurance, real estate, lawyers and consultants, health, and

politician has ties to a specific sector, he or she will be more likely to vote out of line with his or her political group.<sup>27</sup> The results are reported in Table 13. The findings for political representatives' *gender*, *age*, and *origin* are unaffected. The *Noga* variable has the expected negative sign and is statistically significant for the energy, insurance, and real estate sectors.

Alternatively, we take into account all the Noga groups at the same time, as in the following specification:

$$PI_{m,i} = \alpha + \beta_1 gender_m + \beta_2 age_{m,i} + \beta_3 origin_m + \sum_{j=4}^{11} \beta_j party_{m,j} + \sum_{k=1}^5 \phi_k \beta_k Noga_{m,k} + \delta + \epsilon_{m,i} \quad (8)$$

We focus on votes about specific issues.<sup>28</sup> The column headers of Table 14 in the Appendix indicate the issue types. *Gender*, *age*, and *origin* are not significant in the majority of cases. We obtain similar results for the *Noga* group variables.

To improve the analysis and make it more precise, we match Noga groups and voting issues. We identify seven voting issues (health, law, economy, transportation, energy, landuse and entertainment) that can be directly associated with one or more Noga categories (health, lawyers and consultants, banking and insurance, transportation, energy, and culture and hotel services, respectively). Furthermore, we estimate Eq. (7) including only the above-mentioned categories. The results, reported in Table 15, show that, when targeting and isolating specific voting issues, we find a statistically significant effect in case of energy, transportation, and the economy issues.

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scientific categories.

<sup>27</sup>Apparently, this mechanism could be in contrast with the results previously found in Section 4.1. However, the two analyses cannot be directly compared. First, in the bootstrapping analysis we focus on groups instead of individual behaviours; second, in the econometric part we can control for additional covariates; third and most importantly, the two analyses compare different effects.

<sup>28</sup>We consider the top five issues with the highest percentages of votes, disregarding finance issue votes as outliers. More precisely, issues concerning health, law, the economy, transportation, and energy are taken into account.

In summary, the econometric analysis confirms previous findings: In some cases, it is possible to identify a lobbying effect influencing politicians' votes.

## 5 Conclusion

Despite the anecdotal evidence of the influence of interest groups on politicians' votes, this influence is difficult to measure in practice.

Using Swiss data about the 49<sup>th</sup> Legislature, we assess whether lobbying has an impact on counsellors' decisions. Interest groups affiliation is approximated by politicians' mandates in legal entities. Furthermore, we create two measures to capture politicians' behaviour based on political group cohesion and individual proximity to the political group to which he or she is affiliated.

Three complementary approaches were employed to detect the lobbying effect. Using a bootstrapping technique that allows us to generate random samples mimicking the group composition of interest groups, we assess the impact of the interest groups agreement index on the agreement index of the political groups. This approach allows us to distinguish between the group composition effect and the pure lobbying effect. The second approach exploits differences in the cohesion measures between political and interest groups. We can thus document that interest groups behave in a more united fashion than traditional political groups do in regards to certain voting issues. Finally, the third technique involves econometric estimations based on a panel random effect probit model. In this last approach, we quantify the impact of a politician having a mandate in an interest group on the individual proximity indicator, controlling for several individual features, time fixed effects, and vote characteristics.

The three approaches provide complementary information and their findings display some regular patterns. First, regardless of the approach, we find evidence of a lobbying effect. Furthermore, the banking group always influences political

cohesion, regardless of the measure employed. We also find that being male or originating from a French- or Italian-speaking canton reduces counsellors' proximity measure.

Our contribution is of relevance for at least three reasons. First, we take into account all votes, classified by type, referring to the entire 49<sup>th</sup> Legislature of the Swiss Parliament. This has never been done before in the literature. Second, we employ complementary techniques (quantitative and qualitative) to detect a lobbying effect. Last but not least, to our knowledge, this is the first time that a lobbying effect in the Swiss context has been quantified using an econometric approach. Our study does not pretend to be exhaustive but it represents, at least for the Swiss case, a first step in rigorously addressing the dangerous liaison between politicians and lobbying and opens up other opportunities for further research.

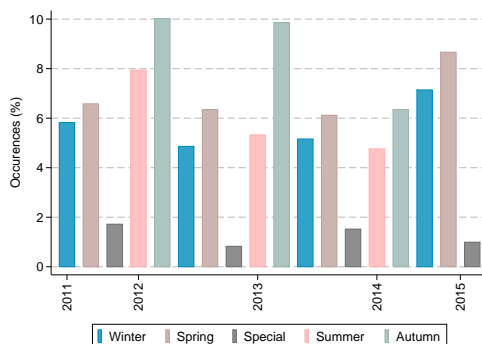
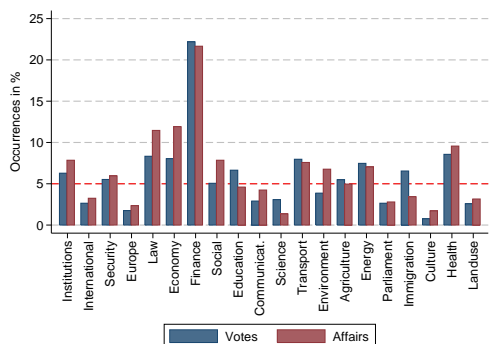
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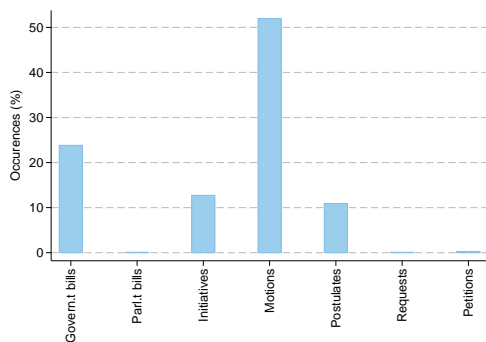


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Figure 1: Issues, votes, affairs and agreement index, 49<sup>th</sup> Legislature

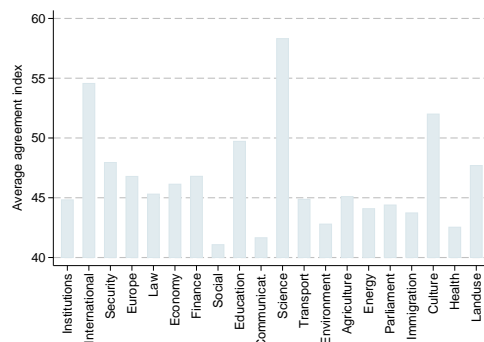


(a)



(c)

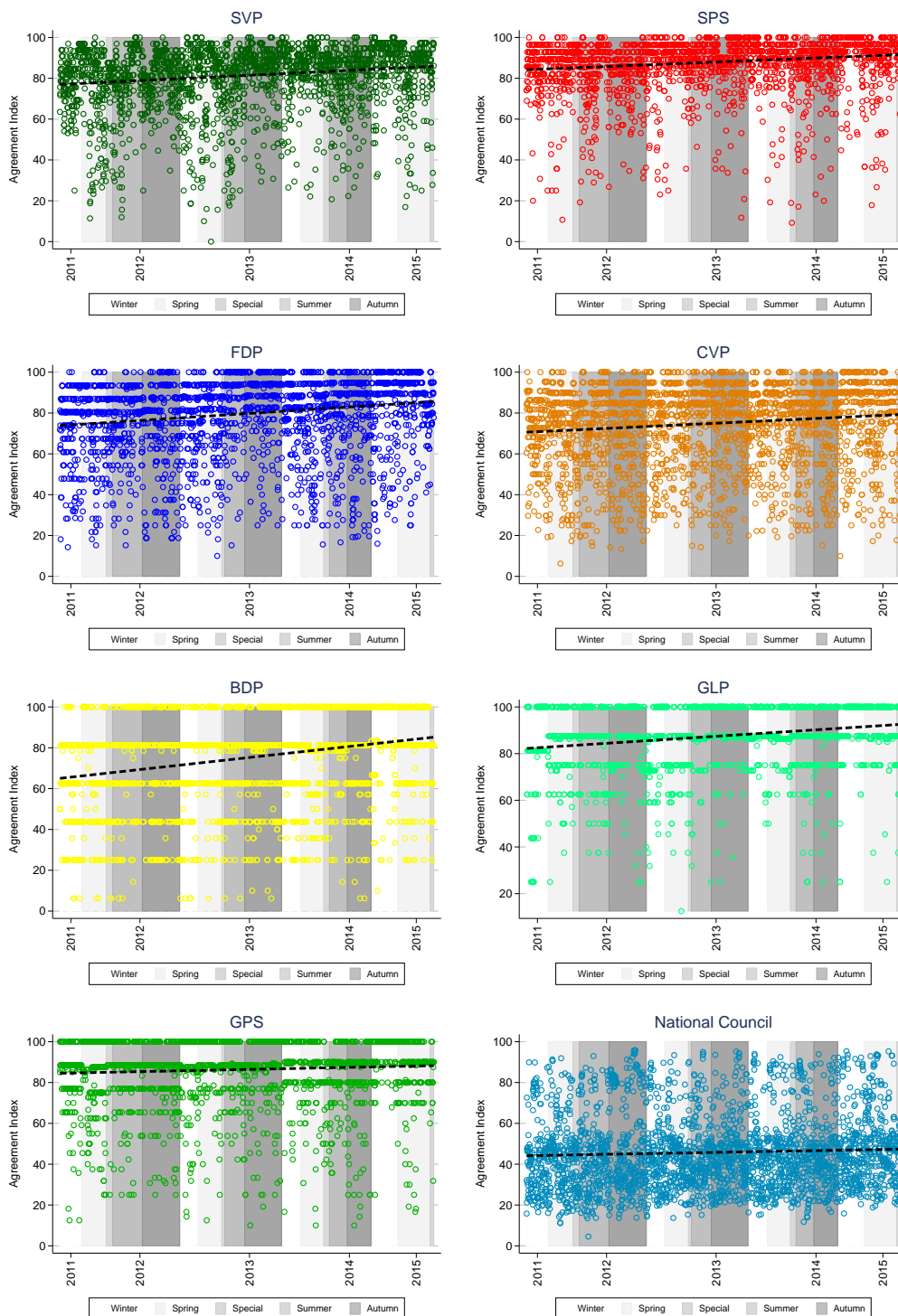
(b)



(d)

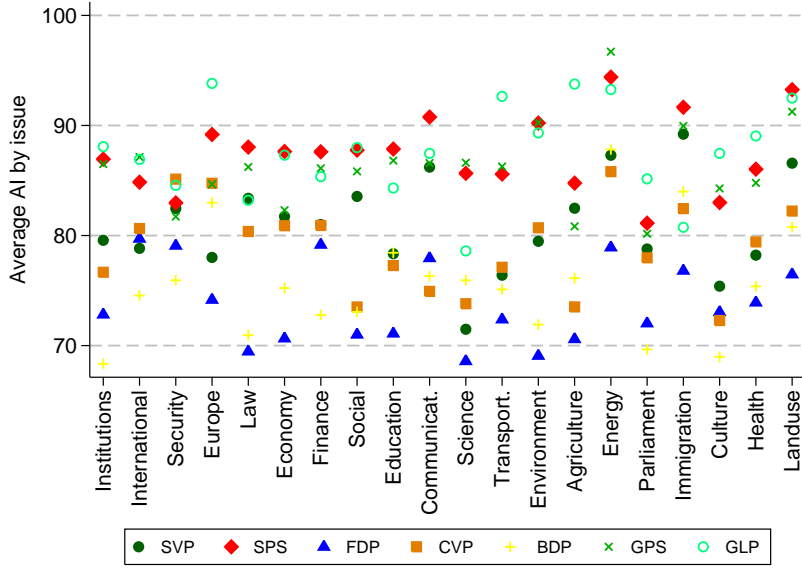
Notes: (a) Votes and affairs occurrences(%) by issues. (b) Votes occurrences (%) by sessions. (c) Affairs' source occurrences (%). (d) Average agreement index by issues.

Figure 2: Agreement indexes by political group and at National Council, 49<sup>th</sup> Legislature



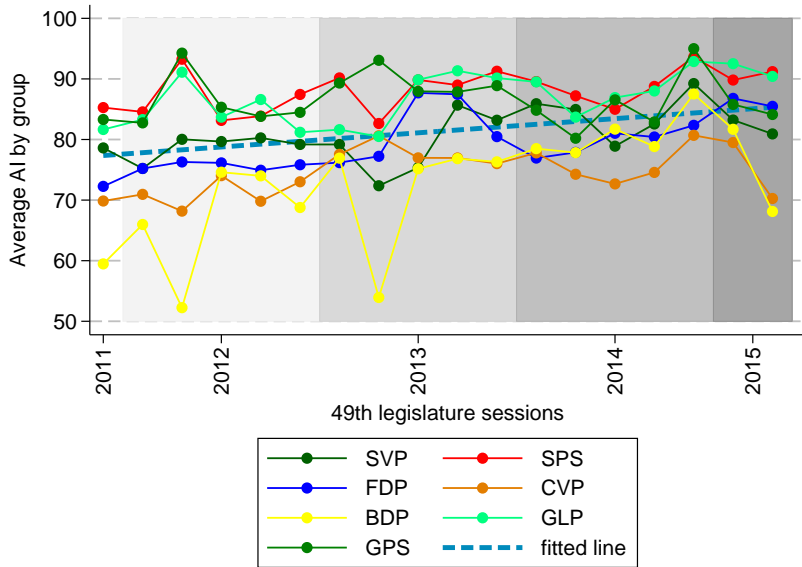
Notes: Each point represents one vote. Votes follow a chronological order. The dash line refers to the time trend. SVP: Swiss People's. SPS: Social Democratic. FDP: Radical Liberal. CVP: Christian Democrat. BDP: Conservative Democratic. GPS: Green. GLP: Green Liberal.

Figure 3: Average agreement indexes by issue and political group



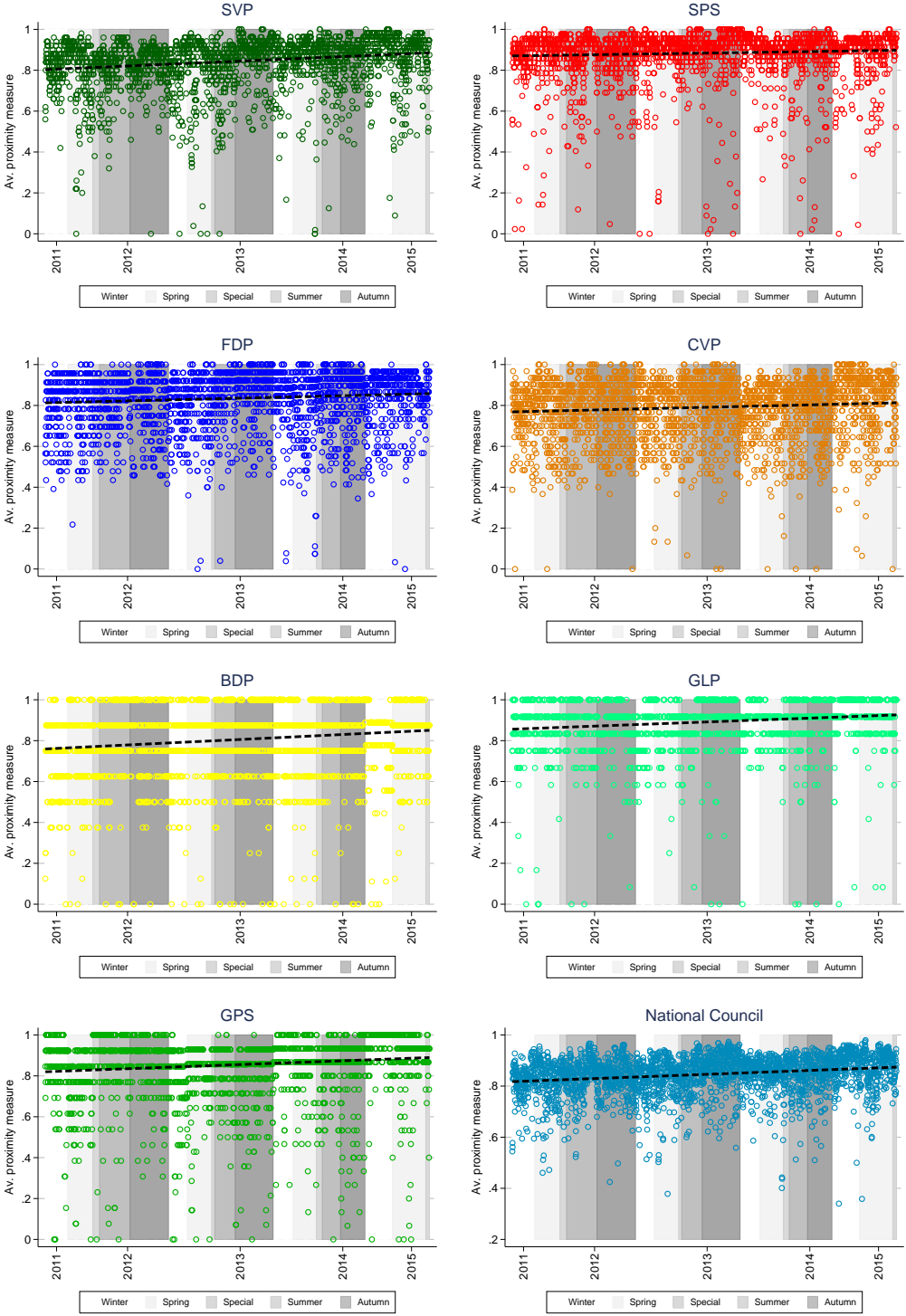
Notes: In the horizontal axes the 20 vote-issues are reported. Each point represents the average agreement index of a specific political group on the votes of an issue. SVP: Swiss People's. SPS: Social Democratic. FDP: Radical Liberal. CVP: Christian Democrat. BDP: Conservative Democratic. GPS: Green. GLP: Green Liberal.

Figure 4: Evolution of the average agreement index through the 49<sup>th</sup> legislature, by political group.



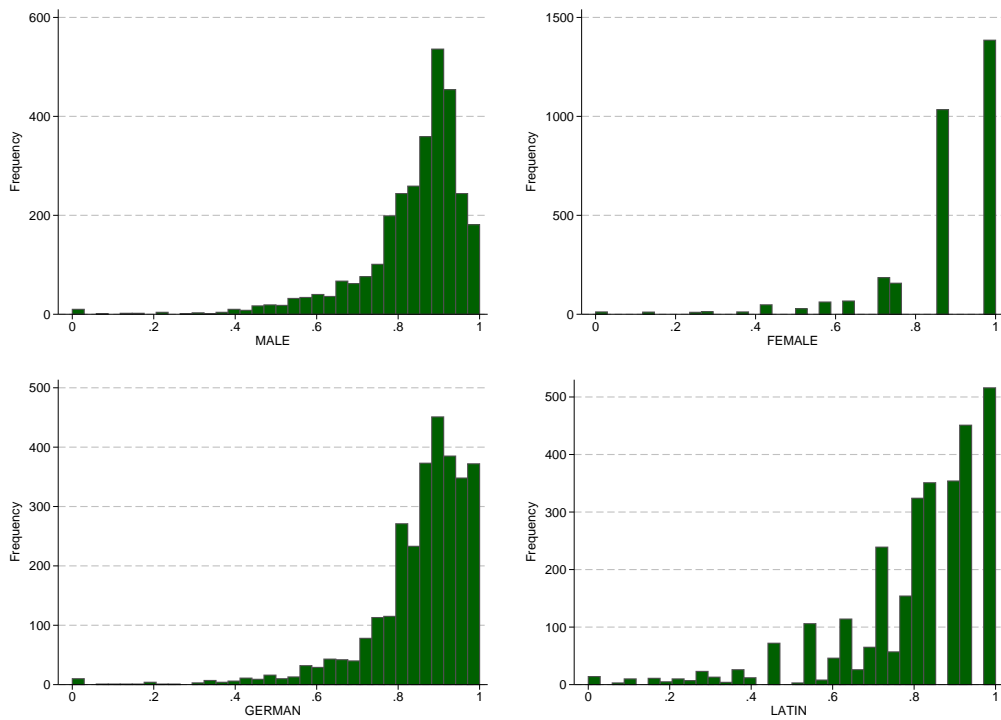
Notes: For each political group we compute the average agreement index by year and we plot it over time. SVP: Swiss People's. SPS: Social Democratic. FDP: Radical Liberal. CVP: Christian Democrat. BDP: Conservative Democratic. GPS: Green. GLP: Green Liberal.

Figure 5: Proximity indicator by political group and at National Council, 49<sup>th</sup> Legislature



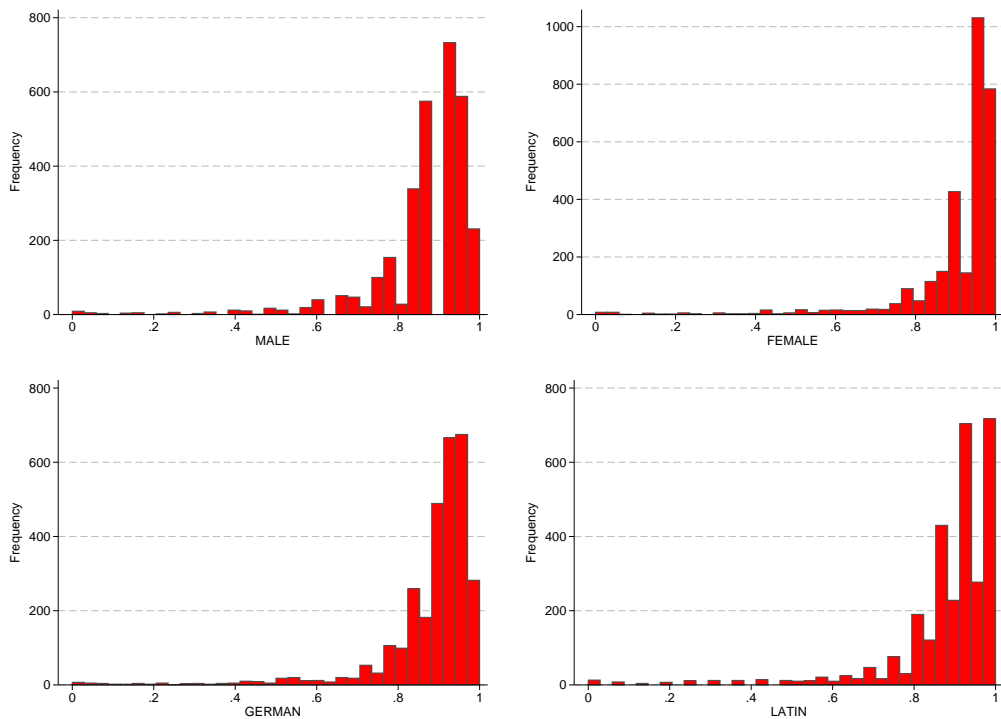
Notes: Each point represents one vote. Votes follow a chronological order. The dash line refers to the time trend. SVP: Swiss People's. SPS: Social Democratic. FDP: Radical Liberal. CVP: Christian Democrat. BDP: Conservative Democratic. GPS: Green. GLP: Green Liberal.

Figure 6: Distribution of the average proximity measure, SVP



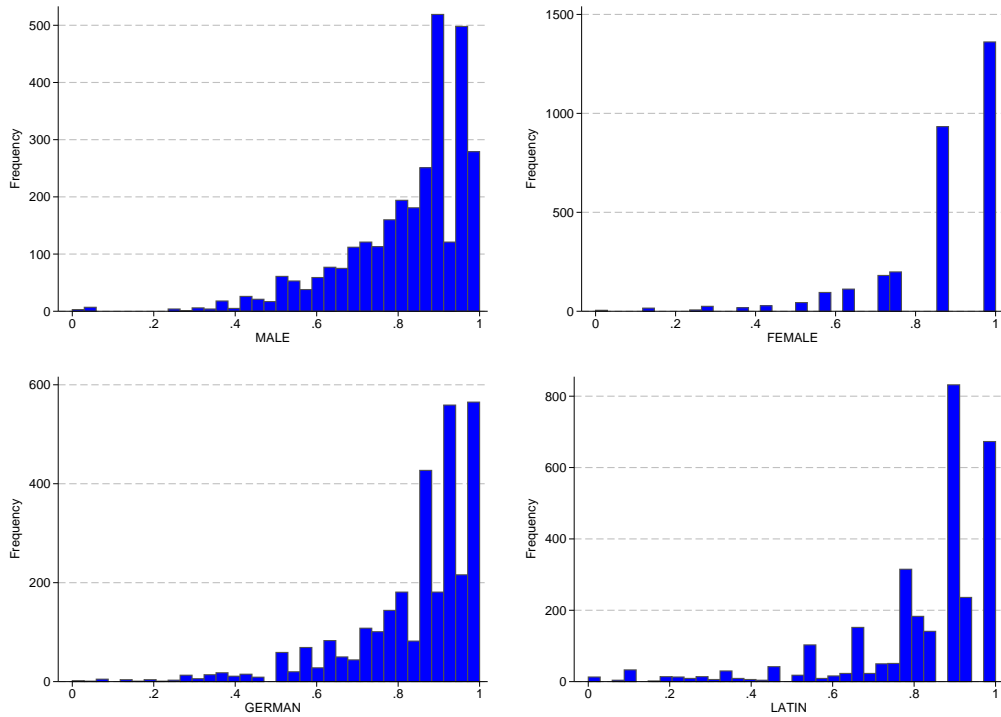
Notes: Distinguishing by gender and origin, the distribution of the average proximity measure is reported.

Figure 7: Distribution of average proximity measure, SPS



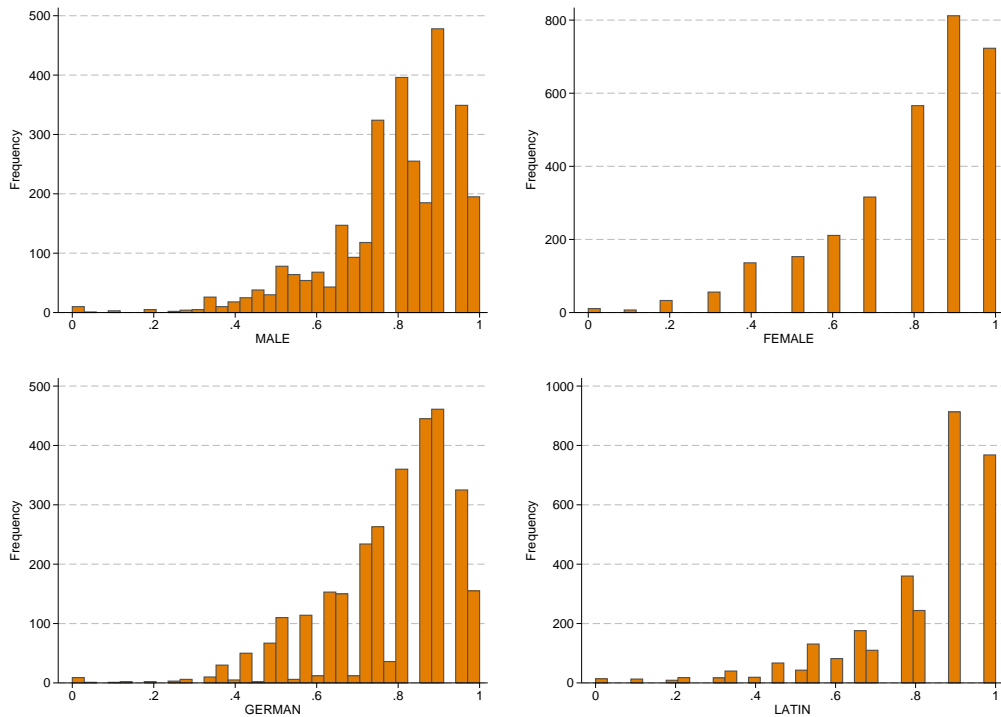
Notes: Distinguishing by gender and origin, the distribution of the average proximity measure is reported.

Figure 8: Distribution of average proximity measure, FDP



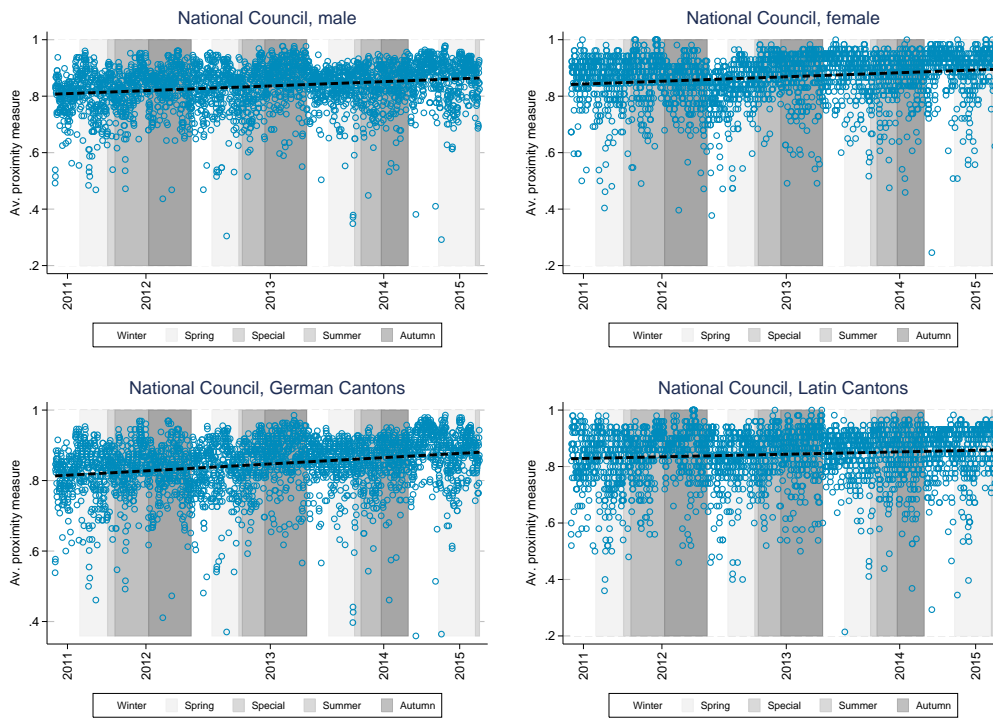
Notes: Distinguishing by gender and origin, the distribution of the average proximity measure is reported.

Figure 9: Distribution of average proximity measure, CVP



Notes: Distinguishing by gender and origin, the distribution of the average proximity measure is reported.

Figure 10: Proximity measure, National Council



Notes: Distinguishing by gender and origin, the average proximity measure is reported. Each point corresponds to a vote.



Table 1: Variables definition

Variable label	Description	Source
Agreement index	It ranges from 0 (perfect heterogeneity in the votes) to 100 (perfect voting cohesion)	Formula based on Rise index. See, Hix (2005). Authors calculations
Proximity indicator	Dummy variable = 1 if the counsellor decision is similar to the of the majority of the political group, 0 otherwise.	Authors calculations
Vote	Whether the counsellor voted against, in favor of a bill, was absent, decided to abstain, or was excused (0 to 5, respectively)	Parliament website
Gender	Gender of the counsellor	Parliament website
Age	Age of the MPs, at the time of the vote	Parliament website
Origin	Dummy variable = 1 if the counsellor has been elected in FR, GE, JU, NE, VD, VS or TI cantons 0 otherwise.	Authors calculations
Agricult.	} Dummy variables = 1 if the counselor has an mandate in this sector, 0 otherwise.	Péclat and Puddu (2015)
Mining		
Manufact.		
Pharma		
Energy		
Recycling		
Construct.		
Wholesale		
Transport.		
Hotel ind.		
Inform. & Commun.		
Banking		
Insurance		
Real Estate		
Lawyers & Consult.		
Administ.		
Public admin.		
Education		
Health		
Entert.		
Employers org.		
Professional org.		
Trade unions		
Religious org.		
Political org.		
Scientific & Techn.		

Table 2: MPs by group in each NOGA category (%)

NOGA group	# MPs	SVP	SPS	FDP	CVP	BDP	GPS	GLP
Agricult.	8	50	0	0	25	25	0	0
Mining	2	100	0	0	0	0	0	0
Manufact.	23	43.48	4.35	17.39	21.74	4.35	0	8.7
Pharma	1	0	0	100	0	0	0	0
Energy	23	17.39	21.74	26.09	26.09	0	0	8.7
Recycling	4	25	0	50	0	25	0	0
Construct.	15	20	13.33	40	20	0	0	6.67
Wholesale	28	28.57	10.71	14.29	32.14	7.14	0	7.14
Transport.	17	41.18	17.65	23.53	11.76	0	5.88	0
Hotel ind.	7	14.29	28.57	14.29	28.57	14.29	0	0
Inform. & Commun.	15	40	13.33	13.33	26.67	6.67	0	0
Banking	39	28.21	5.13	30.77	15.38	12.82	2.56	5.13
Insurance	31	29.03	19.35	16.13	22.58	3.23	3.23	6.45
Real Estate	34	29.41	20.59	23.53	14.71	5.88	5.88	0
Lawyers & Consult.	45	40	13.33	20	11.11	6.67	2.22	6.67
Administ.	7	42.86	14.29	14.29	14.29	0	0	14.29
Public admin.	10	20	40	10	10	20	0	0
Education	21	19.05	28.57	14.29	23.81	0	9.52	4.76
Health	58	18.97	29.31	13.79	24.14	6.9	5.17	1.72
Entert.	20	15	25	30	15	10	5	0
Employers org.	11	45.45	0	27.27	18.18	9.09	0	0
Professional org.	10	50	20	10	10	10	0	0
Trade unions	1	0	0	0	100	0	0	0
Religious org.	2	0	100	0	0	0	0	0
Political org.	7	28.57	42.86	28.57	0	0	0	0
Scientific & Techn.	29	27.59	24.14	17.24	13.79	10.34	0	6.9

Notes: These figures are based on counselors' mandates in legal entities, classified according to the Noga codes. The second column refers to the absolute number of counselors in each Noga group. SVP: Swiss People's. SPS: Social Democratic. FDP: Radical Liberal. CVP: Christian Democrat. BDP: Conservative Democratic. GPS: Green. GLP: Green Liberal. Source: Peclat and Puddu (2015).

Table 3: Summary statistics at political group and at National Council level

	Proportion	Absolute	Female	Male	Latin	German	Age
Conservative Democratic	0.045	9	1	8	0	9	53.88
Christian Democratic	0.155	31	10	21	10	21	52.22
Green	0.075	15	7	8	5	10	52.20
Green Liberal	0.06	12	4	8	1	11	47.16
Radical Liberal	0.15	30	8	22	12	18	50.63
Social Democrat	0.23	46	23	23	17	29	49.63
Swiss People's	0.285	57	8	49	13	44	53.52
National Council	–	200		0.7 (%)		.71(%)	51.39

Notes: The figures refer to the elected in the 49<sup>th</sup> legislature of the Swiss Parliament. FR, GE, JU, NE, VD, VS and TI are Latin cantons.

Table 4: Cohesion measures

<b>Group</b>	<b>Counselors</b>	<b>Agreement index</b>	<b>Proximity indicator</b>
Conservative Democratic	9	75.11 (23.15)	80.51 (39.61)
Christian Democratic	31	74.98 (19.75)	79.21 (40.58)
Green	15	86.40 (15.84)	85.61 (35.10)
Green Liberal	12	87.41 (14.59)	89.10 (31.16)
Radical Liberal	30	79.75 (19.17)	83.64 (36.99)
Social Democrat	46	87.92 (12.88)	88.50 (31.90)
Swiss People's	57	81.42 (15.64)	84.54 (36.16)

Notes: Average values are reported. The proximity indicator has been multiplied by 100 to ease the comparison with agreement index. In parenthesis standard errors are reported.

Table 5: Description of the categories and their corresponding NOGA and SSCO codes

A	B	C	D	E
1	Agricult.	Agricultural sector. Forestry and fishing activities are included.	11100 - 032200	111.01 - 115.04, 311.08, 311.09
2	Mining	Mining and quarrying activities.	51000 - 099000	/
3	Manufact.	Manufacturing.	101100 - 192000, 221100 - 332000	211.01 - 273.02, 281.01 - 281.04
4	Pharma.	Pharmaceutical and Chemical Industry Rubber and plastic productions are included.	201100 - 222900	291.01 - 291.04
5	Energy.	Electricity, gas, steam and air-conditioning supply.	351100 - 353000	/
6	Recycling	Water supply, sewerage, waste management and remediation activities are included.	360000 - 390000	/
7	Construct.	Construction.	411000 - 439905	411.01 - 423.01
8	Wholesale	Wholesale and retail trade Repair of motor vehicles and motorcycles are included.	451101- 479900	511.01 - 522.03, 523.03, 524.02
9	Transport.	Transportation and storage Postal and courier activities are included.	491000 - 532000	531.01 - 541.06
10	Hotel ind.	Accommodations and food services activities Hotels, holiday apartments, restaurants and bars.	551001- 563002	611.01 - 623.04
11	Inform. & Commun.	Publishing activities, television program production, telecommunications, information activities and computer programming activities.	581100 - 639900	361.01 - 361.05
12	Banking	All types of financial sector activities.	641100 - 649903, 661100 - 661900	731.01
13	Insurance	All activities directly related to insurance sector.	651100 - 653000, 662100 - 663002	731.02, 731.03
14	Real estate	All activities directly related to real estate activities.	681000 - 683200	721.04
15	Lawyers & Consult.	Mostly specialized activities in tertiary sector: law, accounting, consultancy. The "entrepreneur" profession is classified in this category.	691001 - 702200, 731100 - 732000	523.01-523.03, 524.01, 524.02, 711.01 - 751.04
16	Administ.	Administrative and support service activities: Rental and leasing activities, employment and placement agencies, travel agencies.	771100 - 829900	721.01, 721.02
17	Public admin.	Defence and compulsory social security are included.	841100 - 843000	711.02, 911.07
18	Education		851000 - 856000	841.01 - 847.04
19	Health	Human health and social work activities. Charitable institutions are included.	861001- 889902	831.01 - 832.04, 861.01 - 871.02
20	Entert.	Art, entertainment and recreation activities. Libraries, archives, museums, cultural and sports activities are included.	900101 - 932900	811.01 - 824.10
21	Employers org.	Activities of business and employers organizations.	941100	/
22	Professional org.	Activities of professional organizations.	941200	/
23	Trade unions	Syndicates.	942000	/
24	Religious org.	Activities of religious organizations.	949101	/
25	Political org.	Activities of political organizations.	949200	711.03, 721.01, 721.02
26	Scientific & Tech.	Scientific, architectural and engineering activities, technical testing and analysis.	711101 - 722000, 741001 - 750000	311.01, 311.02, 851.01 - 853.07
27	Non-classifiable		951100 - 982000	911.06 - 931.03
28	Other services activities	Mostly activities of associations and foundations defending particular interests: cultural, health, youth and other organizations.	949901- 949904	/

Notes: Columns *B* and *A* refer to the categories and the correspondent numbers employed in this paper to classify Councilors' mandates, the legal entities in which the access rights recipients work and counselor's occupations. Columns *D* and *E* report the equivalent NOGA 2008 and SSCO 2000 codes. Finally, in the column *C* we report additional details on the categories, if any. Source: Péclat and Puddu (2015).

Table 6: Disentangling groups of interest effect from group composition effect

Group	Manufact.		Energy		Wholesale		Banking		Insurance		Real Estate		Lawyers & Consult.		Health		Scient.	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
SVP	+++	X	X	X	+++	X	+++	>>	++	X	+++	X	+++	>	---	X	--	X
PSP	X	>>>	X	X	X	>	+++	>>>	X	>>	X	>>	X	>>>	+++	>	X	X
CVP	+++	<	+++	X	+++	X	+++	<<	+++	X	+++	X	+++	<<	+++	<	+++	<<
FDP	+++	X	+++	X	+++	X	+++	X	+++	X	+++	X	+++	X	+++	<<<	+++	<<
BDP	+++	X	+++	X	+++	X	+++	>>	+++	>	+++	>	+++	X	+++	<<	+++	X
GPS	X	>>>	+	>	X	X	X	>>>	X	>>	X	>>>	-	X	+++	>	X	X
GLP	+++	X	+++	>>	+++	X	+++	X	+++	X	+++	>>>	+++	>	X	X	X	X

Notes: A: Noga effect, B: Noga effect different from group composition effect. The + and - signs of column A refer to the coefficient of the Noga group agreement index in Eq. (2), while the > and < signs of column B refer to the coefficient of the Noga group agreement index being larger or smaller than the average coefficient of the random groups. Significance levels: +++/- - -/ <<</>>>: 1%, ++/- -/ <</>>: 5%, +/-/ </>: 10%, X: not significant.

Table 7: Pseudo-agreement index

Vote Issue	Manufact.	Energy	Wholesale	Banking	Insurance	Real Estate	Lawyers & Consult.	Health	Scient.
Institutions	10	3	8	7	10	2	11	2	6
International	4	4	9	11	12	19	5	10	17
Security	3	10	2	6	6	5	3	4	3
Europe	20	20	19	18	20	19	20	20	20
Law	13	9	4	9	9	14	7	11	12
Economy	6	8	6	2	2	3	9	6	10
Finances	7	5	3	8	4	8	6	8	7
Social	12	15	13	17	17	13	13	16	14
Education	5	14	14	12	11	11	16	13	13
Communication	19	18	19	18	16	17	10	12	16
Science	2	1	1	1	1	6	1	3	1
Transport.	9	6	11	10	3	10	8	9	4
Environment	17	7	7	3	8	9	17	5	11
Agriculture	14	12	18	4	7	7	4	18	5
Energy	18	16	15	16	15	16	14	15	19
Parliament	11	11	10	5	14	4	15	7	8
Immigration	8	17	16	15	18	18	18	19	18
Culture	1	2	5	18	5	1	2	1	2
Health	15	13	12	13	19	12	12	14	15
Landuse	16	19	17	14	13	15	19	17	9

Notes: For each issue and vote, we compute the number of times the agreement for the group of interests is larger than the corresponding pseudo-agreement index. Furthermore, we rank the issues, based on the fraction of positive difference, in a descending order.

Table 8: Baseline estimations, controlling for years

	(1) Baseline	(2) Male	(3) Female	(4) Latins	(5) Germans
Gender	-.151*** (.057)			-.268** (.121)	-.106* (.064)
Age	-.005* (.003)	-.007** (.003)	.001 (.004)	-.005 (.005)	-.005 (.003)
Origin	-.071 (.058)	-.119* (.071)	.061 (.097)		
Obs.	566737	394131	172606	159951	406786
Votes	3015	3015	3015	3015	3015
MPs	200	139	61	58	142

Notes: Statistical significance: \*\*\*: 1%, \*\*: 5%, and \*: 10%. In parenthesis robust standard errors. Year fixed effect included but not reported.

Table 9: Baseline estimations, controlling for parliamentary sessions

	(1) Baseline	(2) Male	(3) Female	(4) Latins	(5) Germans
Gender	-.310*** (.110)			-.487*** (.180)	-.216 (.134)
Age	.056*** (.002)	.056*** (.003)	.056*** (.004)	.038*** (.004)	.063*** (.003)
Origin	-.016 (.111)	-.128 (.136)	.250 (.188)		
Obs.	566737	394131	172606	159951	406786
Votes	3015	3015	3015	3015	3015
MPs	200	139	61	58	142

Notes: Statistical significance: \*\*\*: 1%, \*\*: 5%, and \*: 10%. In parenthesis robust standard errors. Parliamentary session fixed effect included but not reported.

Table 10: Baseline estimations by parliamentary session, controlling for years

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Winter	Spring	Summer	Autumn	Special
Gender	-.151*** (.057)	-.181*** (.067)	-.173*** (.066)	-.189*** (.057)	-.075 (.062)	-.231** (.090)
Age	-.005* (.003)	-.003 (.003)	-.007** (.003)	-.005* (.003)	-.006** (.003)	-.004 (.004)
Origin	-.071 (.058)	-.122* (.067)	-.096 (.067)	.048 (.058)	-.040 (.063)	.055 (.091)
Obs.	566737	130755	158139	100873	148277	28693
Votes	3015	691	834	545	793	152
MPs	200	200	200	197	198	200

Notes: Statistical significance: \*\*\*: 1%, \*\*: 5%, and \*: 10%. In parenthesis robust standard errors. Year fixed effect included but not reported.

Table 11: Baseline estimations party by party, controlling for parliamentary sessions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SVP	SPS	CVP	FDP	BDP	GPS	GLP
Gender	-.296*** (.113)	-.236** (.111)	-.314*** (.108)	-.308*** (.110)	-.301*** (.110)	-.313*** (.111)	-.307*** (.109)
Age	.056*** (.002)	.056*** (.002)	.056*** (.002)	.056*** (.002)	.056*** (.002)	.056*** (.002)	.056*** (.002)
Origin	-.021 (.112)	-.048 (.110)	-.007 (.109)	-.009 (.112)	-.031 (.112)	-.015 (.111)	.011 (.111)
Party	-.063 (.115)	.344*** (.121)	-.357*** (.137)	-.084 (.142)	-.231 (.247)	-.048 (.193)	.454** (.212)
Obs.	566737	566737	566737	566737	566737	566737	566737
Votes	3015	3015	3015	3015	3015	3015	3015
MPs	57	46	31	30	9	15	12

Combined effects

Party & Gender	-.360**	.108	-.672***	-.392**	-.532**	-.361	.147
Party & Origin	-.0848	.297*	-.364**	-.0933	-.262	-.0631	.465*

Notes: Statistical significance: \*\*\*: 1%, \*\*: 5%, and \*: 10%. In parenthesis robust standard errors. Parliamentary session fixed effect included but not reported. The column headings indicate the groups. SVP: Swiss People's. SPS: Social Democratic. FDP: Radical Liberal. CVP: Christian Democrat. BDP: Conservative Democratic. GPS: Green. GLP: Green Liberal.

Table 12: Baseline estimations with all parties included by parliamentary session

	(1) Baseline	(2) Winter	(3) Spring	(4) Summer	(5) Autumn	(6) Special
proximity						
Gender	-.232** (.110)	-.282** (.137)	-.250** (.121)	-.152*** (.056)	-.090 (.061)	-.176** (.088)
Age	.055*** (.002)	.073*** (.004)	.057*** (.004)	-.004* (.002)	.003 (.003)	.001 (.004)
Origin	-.021 (.109)	-.066 (.136)	-.050 (.120)	.040 (.056)	-.017 (.061)	.052 (.087)
Conservative Democratic	-.175 (.245)	-.376 (.305)	-.137 (.270)	-.052 (.131)	-.200 (.142)	-.230 (.196)
Christian Democratic	-.245 (.153)	-.289 (.191)	-.188 (.169)	-.196** (.078)	-.387*** (.085)	-.378*** (.121)
Green	.024 (.201)	.078 (.250)	-.003 (.221)	.112 (.103)	-.123 (.111)	.111 (.159)
Liberal Green	.475** (.218)	.484* (.271)	.560** (.240)	.163 (.111)	.224* (.121)	.363** (.175)
Radical Liberal	-.019 (.155)	-.104 (.193)	-.011 (.171)	.019 (.080)	-.101 (.087)	-.004 (.124)
Social Democrat	.318** (.142)	.349** (.176)	.402** (.156)	.151** (.073)	.061 (.079)	.259** (.113)
Swiss People's	-1.705*** (.175)	-2.386*** (.278)	-1.782*** (.247)	1.367*** (.136)	1.108*** (.149)	1.215*** (.212)
Obs.	566737	130755	158139	100873	148277	28693
Votes	3015	691	834	545	793	152
MPs	200	200	200	197	198	200

Notes: Statistical significance: \*\*\*, 1%, \*\*, 5%, and \*, 10%. In parenthesis robust standard errors. Parliamentary session fixed effect included but not reported.

Table 13: Baseline estimations by NOGA group, controlling for parliamentary sessions and political groups

	(1) Manuf.	(2) Energy	(3) Wholesale	(4) Banking	(5) Insurance	(6) Real Estate	(7) Lawyers & Cons.	(8) Health	(9) Scient.
Gender	-.229** (.110)	-.223** (.109)	-.210* (.110)	-.223** (.110)	-.236** (.109)	-.183 (.112)	-.232** (.110)	-.254** (.112)	-.226** (.110)
Age	.055*** (.002)	.055*** (.002)	.055*** (.002)	.055*** (.002)	.055*** (.002)	.055*** (.002)	.055*** (.002)	.056*** (.002)	.056*** (.002)
Origin	-.006 (.111)	-.010 (.108)	-.032 (.109)	-.048 (.113)	-.039 (.109)	-.020 (.108)	-.021 (.109)	-.028 (.109)	-.011 (.109)
NOGA	-.101 (.158)	-.275* (.153)	-.235 (.143)	-.120 (.134)	-.234* (.133)	-.240* (.132)	-.028 (.118)	-.118 (.111)	-.189 (.138)
Obs.	566737	566737	566737	566737	566737	566737	566737	566737	566737
Votes	3015	3015	3015	3015	3015	3015	3015	3015	3015
MPs	200	200	200	200	200	200	200	200	200
MPs_NOGA	23	23	28	39	31	34	45	58	29

Notes: Statistical significance: \*\*\*, 1%, \*\*, 5%, and \*, 10%. In parenthesis robust standard errors. Parliamentary session fixed effect as well as political groups included but not reported. The column headings indicate the Noga groups.

Table 14: Baseline estimations with all NOGA group included by issue (top 5), controlling for parliamentary sessions and political groups

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Health	Law	Economy	Transport.	Energy
Gender	-.181 (.113)	-.087 (.065)	-.091 (.060)	-.081 (.059)	-.119* (.062)	-.143 (.090)
Age	.055*** (.002)	.002 (.003)	.003 (.003)	-.001 (.002)	.005* (.003)	.009** (.004)
Origin	-.046 (.116)	-.061 (.066)	-.008 (.062)	-.092 (.060)	-.040 (.063)	-.105 (.091)
Manuf.	.030 (.171)	-.071 (.097)	-.118 (.090)	-.077 (.088)	-.183** (.092)	-.112 (.134)
Energy	-.203 (.158)	-.017 (.091)	-.123 (.084)	-.095 (.082)	-.017 (.086)	-.234* (.124)
Wholesale	-.240 (.150)	-.009 (.087)	-.028 (.080)	-.077 (.078)	-.040 (.082)	.021 (.119)
Banking	-.043 (.140)	-.092 (.080)	-.105 (.075)	.002 (.073)	-.004 (.076)	.013 (.111)
Insurance	-.163 (.136)	-.051 (.078)	-.051 (.072)	-.073 (.070)	-.129* (.074)	-.079 (.107)
Real Estate	-.162 (.138)	-.158** (.079)	-.103 (.073)	-.113 (.072)	-.093 (.075)	-.077 (.109)
Lawyers & Consult.	.053 (.122)	.053 (.069)	.060 (.065)	-.001 (.063)	-.010 (.066)	.081 (.096)
Health	-.079 (.111)	-.003 (.064)	.059 (.059)	.051 (.058)	.033 (.061)	.091 (.088)
Scient.	-.143 (.142)	.019 (.081)	-.061 (.075)	.005 (.074)	.027 (.077)	-.011 (.112)
Obs.	566737	48833	47112	44953	44759	43901
Votes	3015	258	250	241	240	225
MPs	200	200	200	200	200	200

Notes: Statistical significance: \*\*\*: 1%, \*\*: 5%, and \*: 10%. In parenthesis robust standard errors. Parliamentary session fixed effect included but not reported. The column headings indicate the Noga groups.

Table 15: Baseline estimations with the NOGA group matching the issue (perfect match) included, controlling for parliamentary sessions and political groups

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Energy	Landuse	Law	Transport.	Entertainment	Economics	Health
Gender	-.141* (.072)	-.102 (.086)	-.140** (.059)	-.147** (.059)	-.130 (.086)	-.140** (.066)	-.129** (.064)
Age	.009*** (.003)	.006 (.004)	.003 (.003)	.005*** (.003)	.000 (.004)	.014*** (.003)	.001 (.003)
Origin	-.106 (.071)	-.080 (.081)	-.009 (.058)	-.038 (.059)	-.144* (.083)	-.080 (.066)	-.048 (.062)
NOGA	-.219** (.101)	-.104 (.094)	-.014 (.063)	-.285*** (.094)	-.008 (.116)	-.112* (.067)	-.018 (.064)
Obs.	64200	14767	47112	44759	4120	166902	48833

Notes: Statistical significance: \*\*\*: 1%, \*\*: 5%, and \*: 10%. In parenthesis robust standard errors. Parliamentary session fixed effect as well as political groups included but not reported. The column headings indicate the Noga groups.