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Dangerous Liaisons: Interests groups and politicians' votes. A Swiss perspective

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Dangerous Liaisons: Interests groups and politicians' votes. A Swiss perspective *

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Abstract

Using a unique dataset, based on the 49th Swiss legislature, we assess lobbying effect on politicians' votes. Counselors' ties are approximated by their mandates in legal entities. Political representatives' fidelity to their political group is measured by a dummy proximity indicator. We find that proximity increases over time, as the legislature approaches to the end. Furthermore, using alternative techniques, we find that lobbying matters. More precisely, focusing on the econometric results, once controlled for individual features and political groups affiliation, we find that having mandates in energy, banking and insurance, and in the transport sectors reduces counselors' proximity. Finally, we also find that being male, young and being elected in a French or Italian speaking canton negatively affects the proximity measure.

Keywords: Groups of pressure, lobbies, special interests, Swiss Parliament, voting behaviour.

JEL Classification: D7, H7

*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. The dataset is available upon request (stefano.puddu@unine.ch). We are grateful to Ivan Guidotti and Sylvain Weber for their comments, and to Daniel Schwarz of Smartmonitor for providing us information about votes classification. We thank the participants of the Swiss Economic and Econometric Conference 2015. All remaining errors are our own.

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1 Introduction

“To influence me, it would take a little more than just such a trip”

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

The quote above refers to the reaction of a Swiss counselor Mr. Müller after that the *Neue Zürcher Zeitung*¹ revealed that in May 2014 he traveled to Astana, the capital of Kazakhstan, paying just a tenth of the travel expenses. It is unknown who covered the rest of the trip cost. Several critics followed to the disclosure of this information. Their main point was about the fact the politician should have been influenced in his political behavior due to the “gift” he received.

Lobbying influence on politicians’ activity has always been an hot topic for researchers, while it acquires more visibility and more interest for media when approaching to elections date. This trend is also true for Switzerland, characterized by unique feature of its political system. In fact, the majority of the Swiss parliamentarians are not professional and parallel to the political activity they lead private businesses. It is exactly the fusion between public function and private interests, which might represent a source of potential conflict of interests and a channel for companies to exert lobbying activity.²

This paper investigates lobbying influence on politicians’ votes by combining original data on Swiss counselors’ mandates in in legal entities with information about all the votes being held at the National Council during the 49th legislature.³

Quantifying lobbying activity is not an easy task. This is due to the difficulties of measuring counselors’ political group fidelity and lobbying activity. Moreover, additional problems are related to the approximation of politicians’ view points and to the isolation of lobbying from other effects. We approximate political fidelity relying on political group

¹For more details see “Ausländischer Politiker zahlte Reise für Schweizer Nationalrat”, *Neue Zürcher Zeitung* 08.05.2015.

²Using U.S. data, Kimballa et al. (2012) show by how much lobbying and public agendas by issue (health, economics, security, among others) are divergent.

³The 49th 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.

agreement index as well as on individual proximity measure. The former takes value between zero and 100, with larger values implying a more homogeneous behaviors among politicians; the latter takes value zero or one depending whether a politician vote as the majority of the political group. We assess lobbying effect in several ways: (i) using a bootstrapping approach, in which we assess the impact of the group of interests agreement index on that of political groups. Doing so, we isolate the group of interests from the group composition effects; (ii) comparing the groups of interests agreement index (based on the voting of their members) with the so-called pseudo-agreement index, obtained using the agreement index of the political groups weighted by the fraction of members of each political group in the group of interests (iii) estimating the effect of belonging to a group of interests on individual proximity indicator, by using a panel Probit random effects model, controlling for individual characteristics such as gender, age, origin, and political affiliation.

The three approaches agree in detecting lobbying effect. Despite the fact that each approach has its own specificity, a common result arises: in all the cases, the banking group exerts a significant and sizable impact on counselors' votes. Focusing in particular on the econometric approach, our findings highlight that when looking at specific voting issues such as health, law, economy, transport, energy, and entertainment, and once controlled for political affiliation, the fact of belonging to the correspondent group of interests reduces politicians' proximity from their political group. Moreover, we also find that being male or coming from a French or an Italian speaking canton decreases individual political proximity. The impact of the age of the counselor depends on the specification. Furthermore, we also find that belonging to Social Democratic as well as Liberal Green increases the proximity measure, while the opposite is true for Christian Democratic. For the other political groups the results are not significant. Finally, we also find that political cohesion increases as the legislature approaches to its conclusion. This is true for all political groups and regardless the measure employed.

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

2 Literature Review

Our contribution is not the first investigating the impact of lobbying groups on politicians' vote. In U.S. studies lobbying activity has been approximated by campaign contributions to politicians. Campaign contributions are interpreted as explicit investment to obtain favorable policy. Since money (contributions) is valuable for the politicians (ease their (re)election by attracting votes), assuming that they are utility maximizer, it follows that they are willing to deviate from their electors preferences, when receiving the contributions.

Silberman and Durden (1976) are one of the first in assessing the link between campaign contributions and voting decisions. Focusing on the minimum wage issue, they find that donations political action committees (PAC), such as labour, trade unions, etc., positively impact on the support of the 1973 amendment for an increase of the minimum wage.

Other studies conclude to a more limited effect of campaign contributions on political outcome. For instance, focusing on the U.S. House Ways and Means and Agriculture Committees, Wright (1990) assesses the impact of lobbying efforts and campaign contributions from coalitions on representatives' voting decisions. He finds that the total number of lobbying contacts (regardless the origin) received by a representative is a good explanatory variable for politicians' vote in Ways and Means Committee. Furthermore, his findings suggest that is not money but lobbying connections, which affect politicians'

decisions.

Potters and Sloof (1996) document the results of several studies (based on US data) on the topic. Despite the fact that sometimes the results do not go in the same direction, they identify some main patterns. In particular, politicians' vote is affected by campaign contributions and lobbying. This is especially true for bills, which has low public visibility. That is, lobbying impact is lower in case of well-informed electorate and strong political pressure. These findings go in opposite direction with respect to those encountered by Smith (1995). More precisely, he claims that previous studies results are in conflict and based on suspect methodological strategies.

More recently, Ansolabehere et al. (2003) focus on about 40 studies, always on the U.S., aiming at quantifying the effect of PAC donations on politicians vote. They find that there is little evidence for an effect of PAC contributions: in 75% of the studies analyzed the effect is not significant or with the "wrong" expected sign. However, the authors underline the difficulties in interpreting these results, due to the lack of information about the data, and the main descriptive statistics.

Using a meta-analysis approach,⁴ 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, it can be rejected, at 1% level, the hypothesis that campaign contributions have no effect on voting behavior.

Summarizing, the studies based on US data in the majority of the cases approximate lobbying activity by campaign contributions. Moreover, as shown by Ansolabehere et al. (2003) they focus on specific issues. Finally, the results are not always consistent, and sometimes the empirical strategies employed are questionable.

As noticed by Dür (2008) there are just few contributions focusing on European data, despite the relevance of the subject. In his survey, he finds contradictory results on the impact of lobbying activity on political outcome.⁵ More precisely, the effectiveness of the

⁴According to Djankov and Murrell (2002) the meta-analysis method collects the sign of the coefficients and their significance level found in the literature in order to assess whether the aggregate analysis leads to similar results found in the studies taken individually.

⁵Dür focuses on several political outcomes such as Commission decisions, trade agreements among

lobbying activity depends on the resources of the group of interest, the quality of the political institutions, the type of issue, among others.

In contributions about Swiss politicians, due to a lack of data, the lobbying activity is approximated by the politicians affiliation to a particular group of interests. In Lüthi et al. (1991) MPs have been classified in categories of interest based on individual interviews, while political outcome is measured by the roll-call votes from 1981 to 1989 (more precisely, they focus on 155 votes). Based on the construction of a cohesion index, the results highlight the existence of groups of interests, which display cohesion levels higher than those of the political groups.

As documented by Peclat and Puddu (2015) since 2002, counselors' mandates on in legal entities are publicly available on the Parliament website. Using this information, Schwarz and Linder (2007) find that groups of interests influence decreases compared to Lüthi et al.'s results. Finally, focusing on 30 counselors belonging to the 46th legislature, Blanchard et al. (2009) find that groups of interests impact on politicians vote was lower than that of political parties.

Our contributions share some similarities with previous contributions, even if it displays several important differences. First, to our knowledge, this is the first contribution exploiting the full dataset about votes referring to the Swiss 49th legislature. More precisely, we focus on counselors' behavior on about 3,000 votes referring to 20 issues. This is a huge difference, not only with respect to studies focusing on Swiss data, but also according to those referring to the U.S.⁶

Second, we improve the concept of affiliation to a group of interests by approximating it by politician mandates on in legal entities, using the dataset created by Peclat and Puddu (2015). This dataset has the advantage of being constructed on the Federal Commercial Registry Office and the Swiss Official Gazette of Commerce (SOGC), among other sources, making the data more reliable.

Third, to our knowledge, this is the first attempt, at Swiss level, of assessing lobbying
others.

⁶See for instance Table 1 in Ansolabehere et al. (2003)

effect on politicians' decision using a quantitative approach based on panel random effect Probit model.

Last but not least, we also provide new qualitative and quantitative tools (bootstrapping and pseudo-random approaches) to assess lobbying effect on counselors' vote.

3 Dataset

3.1 Sources

The dataset is the result of the combination of several sources. Information about parliament members' mandates comes from database created by Peclat and Puddu (2015), while politicians' votes data, as well as the gender, age, and their political group affiliation have been downloaded from the Swiss Parliament website.⁷ Finally, votes classification by issue have been provided by Smartmonitor.⁸

The final dataset covers 18 sessions of the 49th legislature (from Winter 2011 to Special session 2015) of the Swiss Parliament. Overall it contains 1'108 affairs, and 3'024 votes. Several votes may refer to the same affair. Affairs and votes refer to the activity of the the National Council. Due to the lack of data for the Council of States, our dataset contains only the 200 counselors of the National Council.

3.2 Variable definition and descriptive statistics

According to the classification provided by Smartmonitor, votes are grouped into 20 different issues. Finance, economy, law, health, transport and energy are the main issues in which votes and affairs are classified, as reported in Figure 1.a.

Votes occurrences, in percentage by session, are reported in Figure 1.b. It is not possible to define a clear trend, even if the highest percentages are related with the Autumn sessions, while the lowest refer to the Special sessions. The reason is probably its

⁷<http://www.parlament.ch/e/dokumentation/curia-vista/pages/default.aspx>

⁸"The Swiss Legislative Database", <http://www.smartmonitor-database.ch>, last updated March 23, 2015.

shorter length. Finally, as documented in Figure 1.c, affairs have different sources. In the majority of the cases, they refer to motions, government bills and individual initiatives. These three affair sources count together more than 90% of the overall affairs voted during the 49th legislature.

For each vote, the decision of each parliamentary representative is summarized by the variable *vote*: more precisely it is reported whether the counselor voted against or in favor of a object (0 and 1 respectively), was absent, decided to abstain or was excused (2, 3 and 4 respectively).

Moreover, for each parliamentary representative, we provide additional personal information. *Gender* is a dummy variable and takes value 1 if the counselors is male and zero otherwise. *Age* refers to the age of the elected at the moment of a specific vote. *Origin* is a dummy variable, which equals one if the parliamentary representative has been elected in French or Italian speaking cantons⁹ and zero otherwise. Parliamentary representatives may belong to seven political groups.¹⁰ For each group, we generate a dummy variable taking value 1 if a counselor belongs to that group and zero otherwise. Political affiliation is of course exclusive, so that each representative can belong only to a group. Each group may contain more than one party.¹¹ A detailed list of the variables definition as well as the label employed is provided in Table 1.

Following Peclat and Puddu (2015), we approximate politicians' ties by means of their mandates in in legal entities. Companies are classified in 28 categories based on Noga 2008 codes.¹² Table 2 documents, for each Noga category, the number of counselors with mandates in that category, and the relative importance of each political group in the Noga group. The number of counselors is not homogeneous across Noga groups. Manufacturing, energy, wholesales, banking, insurance, lawyers and consultancies, health and scientific

⁹These cantons are Geneva, Wallis, Vaud, Fribourg, Neuchatel, Jura and Ticino.

¹⁰Swiss People's, Social Democrat, Radical-Liberal, Christian Democratic, Conservative Democratic, Green and Liberal Green are the seven political groups in the Swiss parliament.

¹¹This is the case for the Christian Democrat, which includes Christian Democratic People's Party of Switzerland, Evangelical People's Party of Switzerland and the Christian Social Party of Obwalden; and the Swiss People's group assembling Lega, the Geneva Citizens' Movement and Democratic Union of the Center.

¹²For additional details on mandates classifications see Peclat and Puddu (2015)

are the categories with the highest number of representatives.¹³ This is the main reason why in the quantitative analysis we focus on a sub-sample of Noga groups, focusing on those with at least 20 counselors, and at least one counselor from each of the largest groups (SVP, SPS, CVP, and FDP).

As reported in Table 3, in the National Council women are a minority, representing only 30 percent of the sample, the average age is around 51 years. 29 percent of the representatives have been 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. Both groups are above 20 percent. Christian Democratic, and Radical-Liberal representatives count together for about 30 percent equally split between the groups. Finally, Green, Liberal Green, and the Conservative Democratic together represent about 17 percent of the entire counselors in the sample.

Table 3 documents as well political groups composition by gender and origin. When focusing on gender, the clear pattern in all the groups is the over representation of male. The Social democrat group is the only exception with a balanced composition male–female. Also when looking at the group composition by origin, there is a clear pattern. In fact, in general the relation is two German speaking counselors for one Latin origin counselor, with the important exceptions of the Conservative Democratic and the Liberal Green with no and just one French or Italian speaking elected, respectively.

3.3 Agreement index and proximity measure

We measure political cohesion at group level by a modified version of the Rice Index.¹⁴ More precisely, the agreement index (AI) is defined according to the following expression:

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

¹³It is important to notice that the Noga category 28, which includes associations, foundation and other similar organizations have been dropped from the analysis. This because it was not possible to go deeper in the analysis maintaining an objective classification approach.

¹⁴For more details about the Rice Index see Hix et al. (2005).

where i refers to vote, j to the political group. Furthermore, y , n and a denote the vote outcome in favor, against, or abstention, respectively; while tot is defined as the sum of all in favor, against, or abstention votes. The index takes values between zero (lowest agreement level) and 100. For each vote, it can be computed at (political or Noga) group level.

Parallel to the agreement index, we also compute a measure capturing the counselors proximity to the leading opinion of the belonging political group. More precisely, the proximity indicator (PI) takes value 1 if the counselor votes as the majority of the group and zero otherwise. With respect to the agreement index, the proximity indicator has the advantage that it is computed for each vote and for each counselor.

3.3.1 Cohesion measures, political groups and voting issues

Table 4 displays the average as well as the correspondent standard deviation of the agreement index and the proximity measure at political group level. The highest average agreement index refers to the Social Democrat, followed by Liberal Green and Green groups. In the three cases, the agreement index is larger than 85 percent. Conservative Democratic group displays the lowest average value around 75 percent. The average proximity index at group level shows similar patterns.

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

Taking an alternative perspective, we compute the agreement index by vote issue. Figure 1.d documents how science, international, culture and education are the issues with the highest agreement index (included between 58 and 49 percent), while health, communication and social are the vote-types, which display the lowest values.

Furthermore, in Figure 3 we document the average (by vote-issue) agreement index of the

main political groups. In the majority of the cases, the Conservative Democratic and the Radical Liberal groups display the lowest average agreement level across vote-issue. At the opposite, Green, Green Liberal and Social Democrat are the groups with the highest agreement level over the different issues.

3.3.2 Cohesion measures over time

It is also interesting to notice that the agreement index increases over time, that is as the legislature approaches to its conclusion. This pattern is captured by the dash line, representing the time-trend line in graphs in Figure 2. This result confirms the findings of previous contributions (Schwarz and Linder, 2007). More precisely, it could be that at the beginning of the legislature, the counselors vote not always according to the groups rules. As the mandate approaches to its conclusion, the representatives prefer to stay closer to the official line of their group, in the perspective of a future reelection in the same group. The patterns documented in Figure 4 confirm previous findings. More precisely, for each group we computed the average agreement index by year and then we plot it over time. Also in this case, for all the groups we observe an increasing trend of the average agreement index. This finding is true regardless the cohesion measure selected. Results based on average (at group level) proximity index corroborate the main findings, as documented by Figure 5.

3.3.3 Cohesion measures and counselors features

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

4 Assessing lobbying effect

Different techniques can be adopted to assess the impact of groups of interests on politicians' votes. In this contribution we focus on three complementary approaches.

4.1 Bootstrapping approach

The first approach, based on a bootstrapping technique commonly employed in finance,¹⁵ assesses how the Noga group agreement index affects the corresponding political group measure, controlling for the group composition effect. For each political group (SVP, SPS, CVP, FDP, BDP, GPS and GLP), we estimate the model below:

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

where i refers to the vote, and $Noga$ to a specific Noga group¹⁶.

Estimating eq. (2) we assess by how much the Noga group agreement index affects the corresponding political group agreement index, without distinguishing between Noga (group of interests) and composition effects. More precisely, if the majority of the members of a given Noga group belong to a specific political group, we would mainly capture the group composition effect when estimating eq. (2).

In order to fix this potential problem, for a given Noga group, we generate 100 random groups reflecting the “true” Noga group composition, in terms of counselors belonging to different political groups. Then, for each random group we estimate eq. (2). In this way, for a given political and Noga groups, it is possible to draw a distribution of the β s of eq. (2).

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

- the Noga effect (NE) is absent. That is, the β of eq. (2) is not statistical significant.

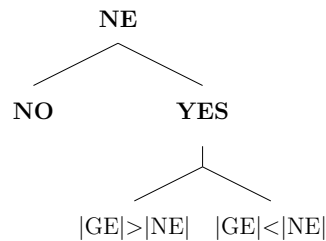
¹⁵See for instance Kosowski et al. (2006) and Barras et al. (2005).

¹⁶We refer to Noga groups with at least 20 people. More precisely, we focus on manufacturing, energy, wholesales, banking, insurance, real estate, lawyers and consulting, health, and scientific Noga groups.

End of the story.

- there is Noga effect. Then we can have two cases:
 - the group composition effect (GE) is absent. That is, the average value of the distribution of the β s is not statistical significant. Therefore, we conclude that the NE is clearly separate from the GE;
 - there is group composition effect. In this case, we should test whether the Noga and the group composition effects are statistically different.

Scheme 1: Different alternative scenarios



Notes: NO: No effect, YES: there is an effect, NE: Noga effect, GE: Group composition effect.

The results are reported in Table 6. First, with respect to the Noga effect (column A) we can distinguish two extreme cases. On the one hand, for the SPS in 7 out of 9 Noga groups (77% of the cases) and the GPS (in 66% of the cases) we do not find any effect. The Noga categories for which an effect is detected are those of banking and health for the SPS group and energy, lawyers & consultants, and health for the GPS. On the other hand, for the rest of political groups we detect an effect in all the cases for CVP, BDP, and FDP groups, and in 88% and 77% of the cases for the SVP and GLP groups, respectively. The categories in which there is not a Noga effect are those of energy for the SVP group and health for the GLP group.

Second, when we detect Noga effect, we assess whether this is properly due to Noga group or also to group composition (column B). For SVP, SPS FDP GPS, and GLP in only

two cases NE and GE are statistically different. For CVP and BDP these figures are more important, with five and four cases respectively. More precisely, in the majority of the cases the Noga coefficient is larger than the average coefficient referring to the distribution of the estimated β s. Only for the CVP group, we find that the group composition effect is systematically larger than that of the Noga effect. Furthermore, energy Noga group affects the ecological political groups (GLP and GPS) agreement index. Banking Noga group impacts all political groups with only two exceptions (FDP and BDP groups). Finally, BDP group agreement index is also affected by insurance and real estate Noga groups.

From a theoretical point of view, these results may be explained in the following way. Vote issues are not equally important for political as well as for Noga groups. More precisely, some of them could be non relevant for the Noga groups and non ideological for the political parties. Therefore, they would display a low agreement index. In this context, the behavior of the counselor affiliated also to a Noga group is “hidden”: there are other political representatives not voting as the majority of their political group.

The story is different when the vote is about a highly relevant issues according to the party line. Within political groups the vote heterogeneity decreases, this does not mean that we observe full cohesion: the counselor in the Noga group can vote against the majority of the group and at the same time we observe political group cohesion increasing. If all or the majority of the Noga group counselors, affiliated to different political groups, do the same we would observe as well an increase of the Noga group agreement index.

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

4.2 Pseudo-agreement index approach

An alternative way of measuring lobbying effect is to exploit the differences in agreement indexes of the Noga groups and political groups. More precisely, for each Noga group a pseudo-agreement index is defined by the expression below:

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

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 show agreement indexes higher than those of the Noga groups. Therefore, due to the fact the pseudo-agreement indexes are based on political groups 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 some specific votes, the Noga group behaves united as a political party, because there are some specific interests to defend.

In order 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.¹⁷ Second, we rank the issues, based on the fraction of positive difference, in a descending order.

According to the information reported in Table 7 two type of analysis, within and across Noga categories are likely. More precisely, given the Noga group we can assess what are the issues with the highest fraction of positive differences; while fixing the issue, we can document what is the Noga group with the highest fraction of positive differences. The two analysis need to be run at the same time.

In the majority of the cases, votes on science and culture report the highest positions regardless the Noga group. On the other extreme, votes on immigration issue are always in the last positions of the ranking, and this is true for all the Noga groups. Disregarding these vote categories from the analysis, votes on economic issues stay on the top positions for banking, insurance and real estate groups, while votes on security topic are ranked on the top positions for lawyers and consulting, health and scientific groups. Surprisingly, votes on energy as well as health issues are not ranked at the top for the two corresponding

¹⁷In terms of percentages, the cases in which the baseline agreement index is larger than the pseudo-agreement index are on the order of three – five percent.

Noga groups.

These results support previous studies, in which for some issues the agreement index of the group of interests are larger than those of the political groups.¹⁸ Summarizing, 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 is the existence of a lobbying effect on politicians' behavior.

4.3 Econometric analysis

The bootstrapping and the pseudo-agreement index approaches show evidence for lobbying effect. In this section we assess, by the aim of econometric models, the impact of group of interests 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

In order to assess the impact of individual features on the proximity index we estimate by means of a panel Probit random effects model¹⁹ the following specification:

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

where m refers to the politician, i to vote and δ to time fixed effects.²⁰ We expect that being male negatively affect the dependent variable. That is, men are likely to vote more often against the majority of their political group. This result could be explained by the fact that women prefer not voting instead of voting against the majority of their political group.²¹ We also expect that age negatively impacts the proximity indicator. The idea

¹⁸However, it is important to underline that our results cannot be directly compared with those obtained by Lüthi et al. (1991), Schwarz and Linder (2007), and Blanchard et al. (2009) due to the different size of the samples used in these studies.

¹⁹In this type of models the interpretation of the coefficients is not straightforward. We provide information only about the direction of the impact, without providing additional information about the magnitude of the effect.

²⁰Years and parliamentary sessions have been used as time fixed effects.

²¹This intuition is supported by the correlation between proximity and absent by gender. For women

behind is that, in normal times, young political members follow the mainstream of their political group, therefore being younger makes more likely to vote as the majority.²² Finally, we also expect that coming from the French or Italian speaking cantons negatively impact the proximity indicator. This is due to the fact that German speaking representatives are majority in groups. By including Latin dummy variable we could capture local interest at linguistic level, which are in contrast to group affiliation. That is, for specific issues with regional characteristics, origin might matter more than political affiliation in counselors' decisions. Results in column (1) of Table 8, confirm our intuitions. All the three variables have a negative sign, even if only *gender* and *age* are statistical significant. In columns (2) and (3) we distinguish between male and female: interestingly the results about the age and the origin are significant only for male. Moreover, in columns (4) and (5) we differentiate the sample depending on the 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 about *gender* and *origin* do not change, while *age* requires a deeper analysis. Due to the structure of the variable and to the fact of not including year fixed effects it is likely that *age* captures not only the individual effect on the proximity indicator but also the time trend.²³ It could be that specific type of issues are voted in specific session, and therefore our findings are driven by these patterns. In this perspective, in Table 10 we disentangle the votes across sessions and we control for year fixed effects. In column (1) we report the baseline findings (those in Table 8 column 1) for comparison reasons. The results show that previous findings, on average, do not depend by parliamentary sessions.

4.3.2 Political groups

It could be that political groups display different cohesion degree. Therefore, if we omit to control for this characteristic the results might be spurious. We modify eq. (4) in two

the correlation is three percentage points larger (negative) than for men.

²²Age changes over time and therefore over vote. The age employed is that at the moment of a specific vote.

²³In the descriptive statistic analysis we showed that the proximity indicator increases over time.

alternative ways. First, we estimate the augmented baseline model as described below:

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

by including a dummy variable *party*, which takes value one if a given counselor belongs to a given political party and zero otherwise, and in which we include session fixed effects. Alternatively, we take into account all parties at the same time and we distinguish by session. More precisely we estimate the following 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 do not have a prior expectation about the impact of political group affiliation on proximity indicator. Results referring to eq. (5) are reported in Table 11. On the top of each column the name of the party taken into account is reported. Once controlling for political affiliation, the findings show that *gender* negatively impacts the proximity indicator. For *age*, the same comment as before is needed due to the fact we control for parliamentary sessions and not for year fixed effects. *Origin* is not statistically significant. Referring to the political affiliation, being Socialist or Liberal Green increases the proximity measure, while the opposite is true for Christian Democratic. For the other political groups the results are not significant. Table 11 documents also the estimated coefficients referring to the combination between political group and gender, and political group and origin. When referring to the gender, we find statistical significant results for the SVP, CVP, FDP, and BDP. In particular, political affiliation strengthens gender effect. Furthermore, political affiliation more than counterbalances origin effect for the SPS, and it strengthens the effect for CVP (negative) and GLP (positive).

When all political groups are considered at the same time, eq. (6), the results, reported in Table 12 about gender, age, and origin do not change. At the same time, findings about political group effect needs a more accurate analysis. Being SVP (the political group

benchmark) decreases proximity indicator, column (1). Only two political groups (SPS and GLP) impact differently the proximity indicator (their representatives show higher values), while for BDP, FDP, GPS there are not statistical differences with respect to the benchmark. This is true regardless the session. Finally, being a CVP representative statistically strengthens the results of the benchmark only in Summer, Autumn and during the special sessions.

4.3.3 Groups of interests and votes issues

In order to quantify the impact of groups of interests on proximity indicator we proceed in different ways. First, we modify eq. (6) by adding a dummy variable *Noga*, which takes value one if a given counselor has a mandate in a given Noga group and zero otherwise. Parliamentary session fixed effects, as well as all political groups are included. More precisely, we estimate the following 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 variable²⁴ having a negative value, meaning that if the politician has a tie in a specific sector, then the counselor is more likely to vote not in line with the political group.²⁵ Results are reported in Table 13. On the top of each column the name of the Noga group taken into account is reported. Results about gender, age and the origin of the political representative are unaffected. Noga variable has the expected negative sign, and it is statistical significant for the energy, insurance, and real estate sectors.

²⁴We focus on Noga groups with at least 20 members. More precisely, we consider the following categories: manufacturing, energy, wholesales, banking, insurance, real estate, lawyers and consultants, health, and scientific.

²⁵Apparently this mechanism could be in contrast with the results previously found in section 4.1. However, the two analysis cannot be directly compared. First, in the bootstrapping analysis we focus on groups instead of individual behaviors; second, in the econometric part we can control for additional covariates; third and most importantly, the two analysis compare different effects.

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

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

and we focus on votes about specific issues.²⁶ On the top of the columns of Table 14 in the Appendix the issue types are reported. Moreover, gender, age and origin are in the majority of the cases not significant. Similar results refer to the Noga groups variables.

In order to improve and make more precise the analysis, we match Noga groups and vote issues. More precisely, we identify five vote issues (health, law, economy, transport, energy, and entertainment), which can be directly associated to one or more Noga categories (health, lawyers and consultant, banking and insurance, transport, energy, culture and hotel services, respectively). Furthermore, we estimate eq. (7) including in the specification only the above mentioned categories. The results, reported in Table 15, show that when targeting and isolating specific vote issues in the majority of the cases there is an effect, which is statistical significant. This is the case for energy, transport, and economics issues.

Summarizing, the econometric analysis confirmed previous findings: in some cases, it is possible to identify a lobbying effect influencing politicians' vote.

5 Conclusion

Despite the existence of several anecdotes about the influence of groups of interests on politicians' vote, in practice it is difficult to measure it.

Using Swiss data about the 49th legislature we assess the impact of lobbying activity on counselors' decisions. Group of interests affiliation has been approximate by politicians'

²⁶We consider the top-five issues with the highest percentage of votes, disregarding the finance issue votes being an outlier. More precisely, health, law, economy, transport, energy are the issues taken into account.

mandates on in legal entities. Furthermore, we create two measures to capture politicians' behavior based on political group cohesion and individual proximity to the political group.

Three complementary approaches have been employed to detect lobbying effect. Based on bootstrapping technique, allowing to generate random samples mimicking group composition of the groups of interests, we assess the impact of groups of interests agreement index on that of political groups. This approach allows us to distinguish between group composition effect and pure lobbying effect. The second approach exploits the differences of the cohesion measures between political and interests groups. In this way, we are able to document that for some vote issues, groups of interests behave more united than traditional political groups. Finally, the third technique refers to econometric estimations based on panel random effect Probit model. In this last approach, we quantify the impact of having a mandate in a group of interests on 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 regularities. First, regardless the approach employed we find evidence for lobbying effect. Furthermore, banking group always influences political cohesion as well as politician's proximity. We also find that being male or becoming from the French or Italian speaking cantons reduces counselors' proximity.

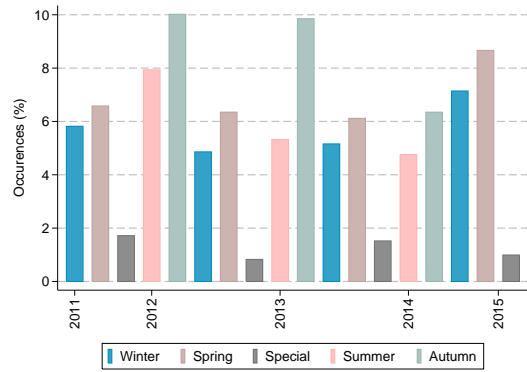
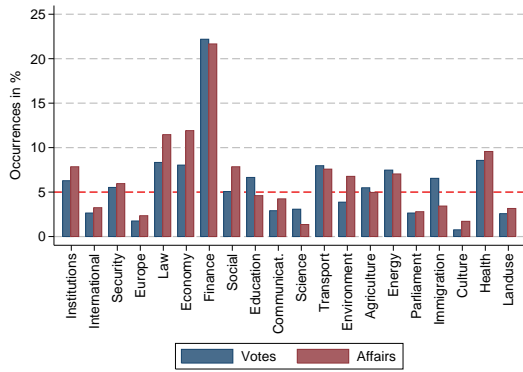
We think that our contribution is of interest for at least three reasons. First, we take into account all the votes, classified by type, referring to the entire 49th legislature of the Swiss parliament. This has never been done before in the literature. Second, we employ complementary techniques (quantitative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

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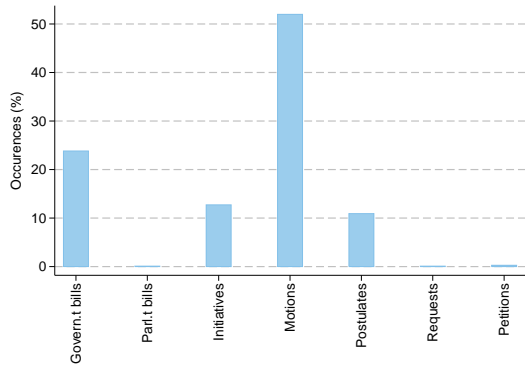
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Figure 1: Issues, votes, affairs and agreement index, 49th Legislature

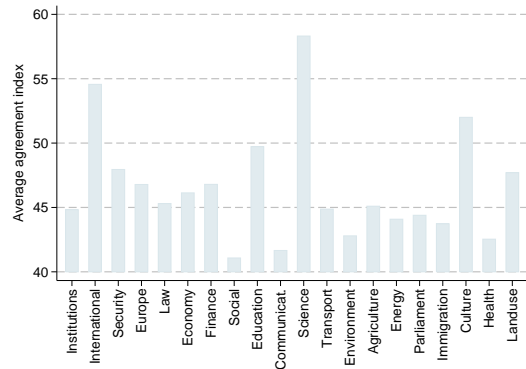


(a)



(c)

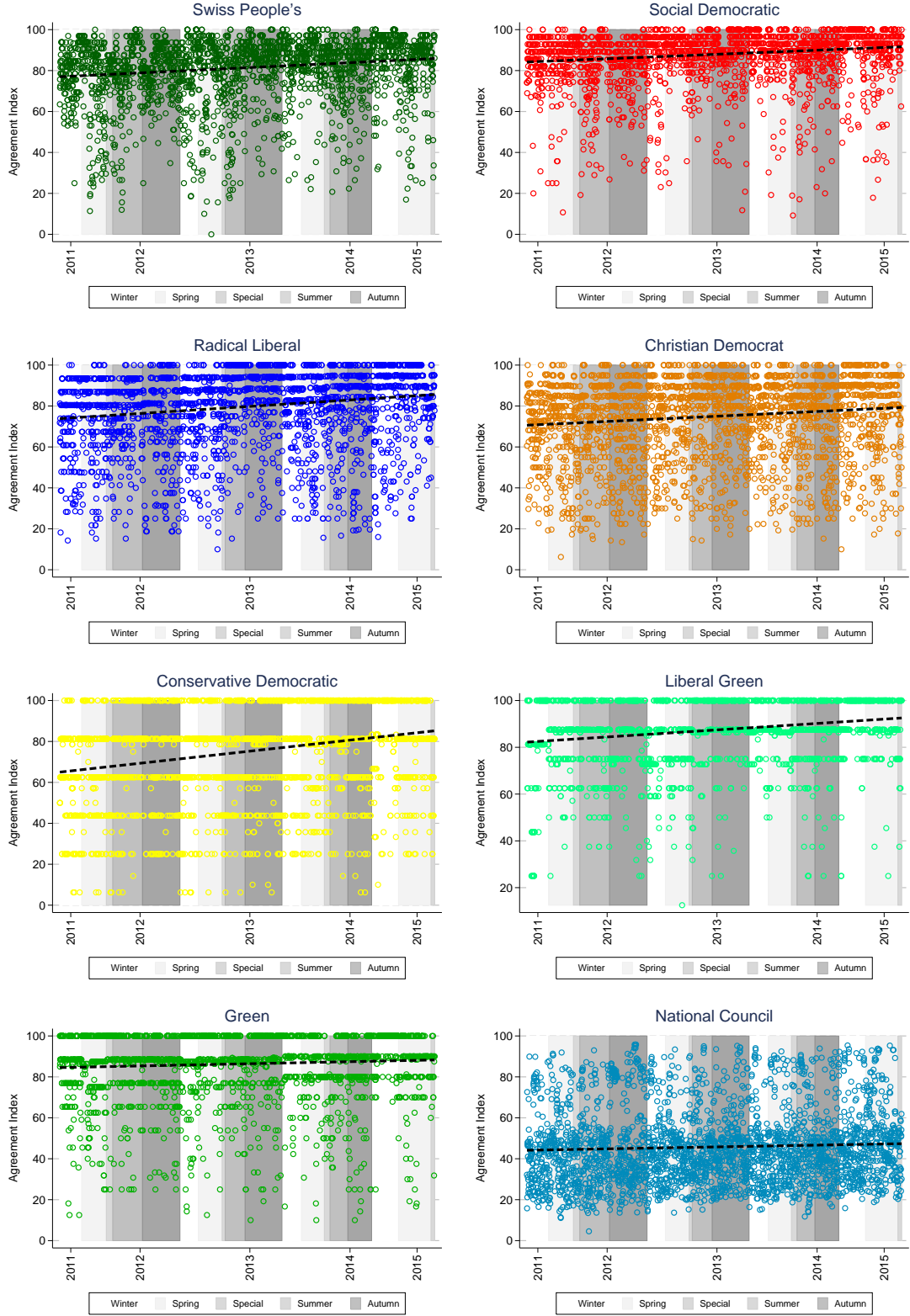
(b)



(d)

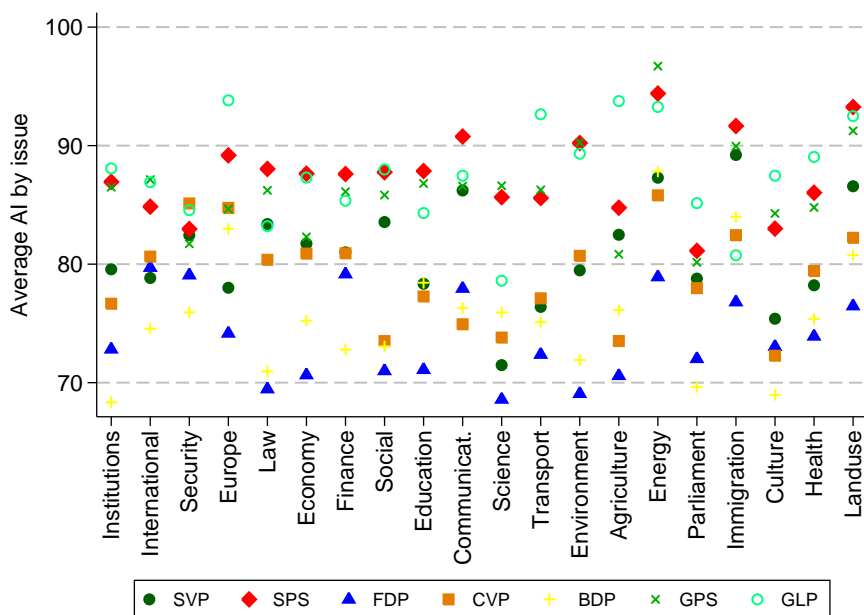
Notes: (a) Votes and affairs occurrences(%) by issues. (b) Votes occurrences (%) by sessions. (c) Affairs' source occurrences (%). (d) Average agreement index by issues.

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



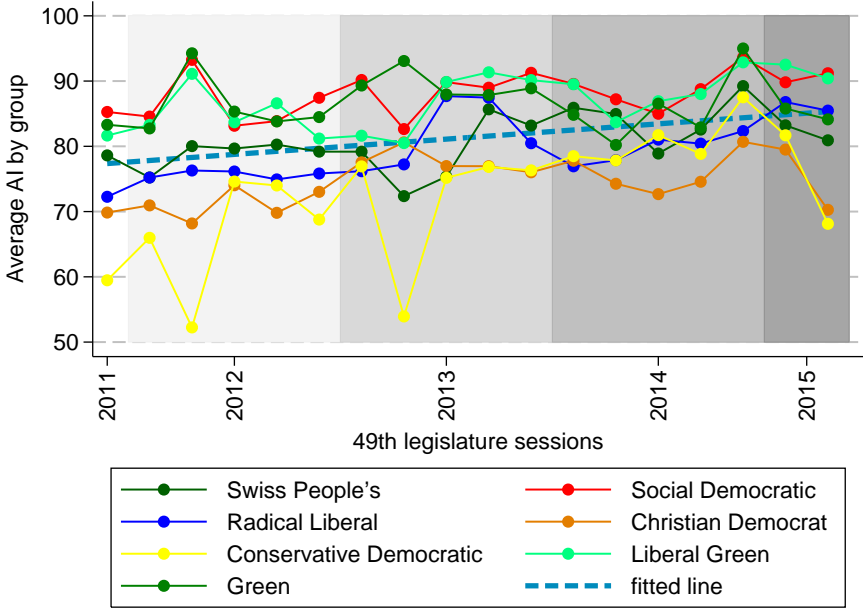
Notes: Each point represents one vote. Votes follow a chronological order. The dash line refers to the time trend.

Figure 3: Average agreement indexes by issue and political group



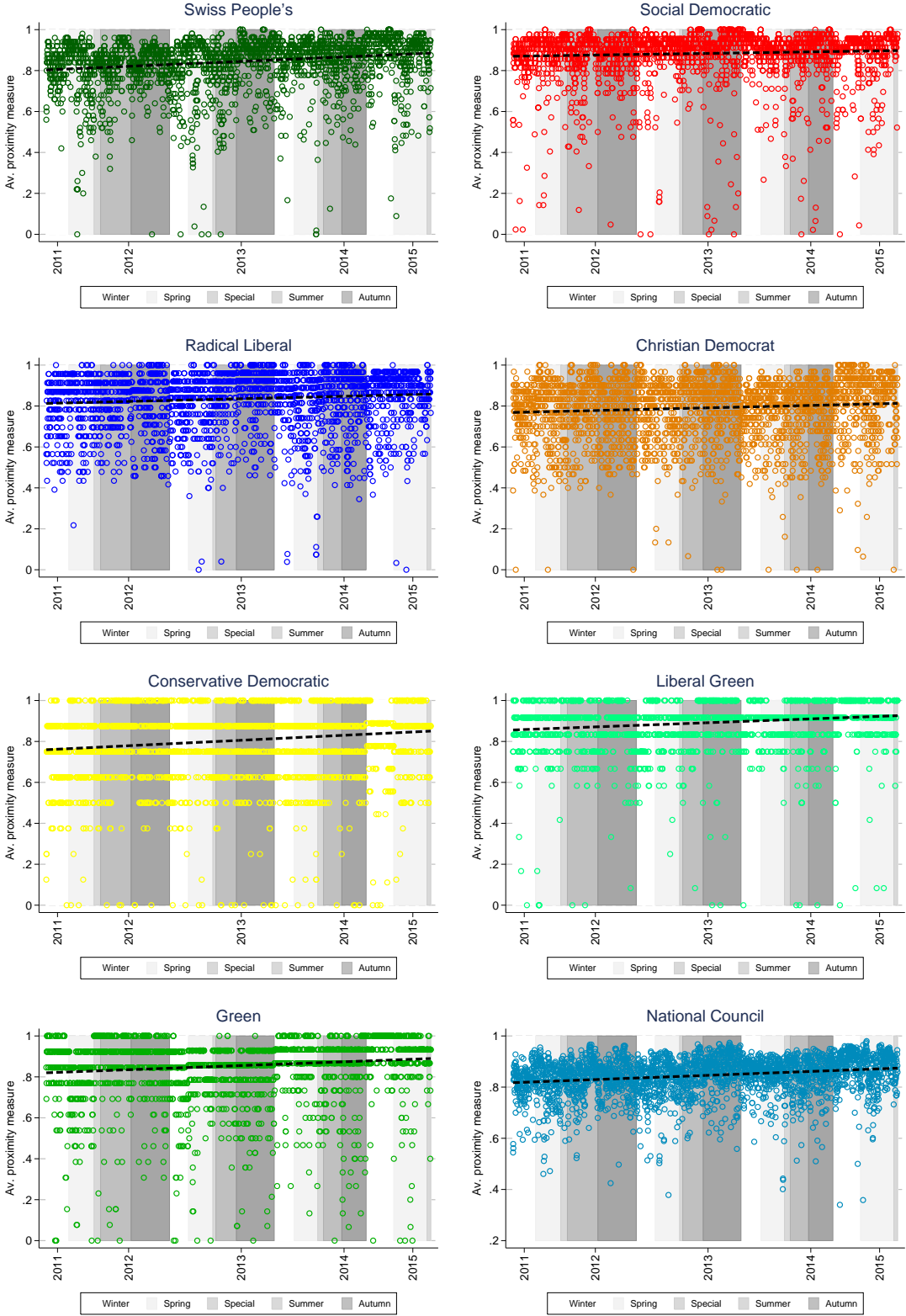
Notes: In the horizontal axes the 20 vote-issues are reported. Each point represents the average agreement index of a specific political group on the votes of an issue. SVP: Swiss People's. SPS: Social Democratic. FDP: Radical Liberal. CVP: Christian Democrat. BDP: Conservative Democratic. GPS: Green.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

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



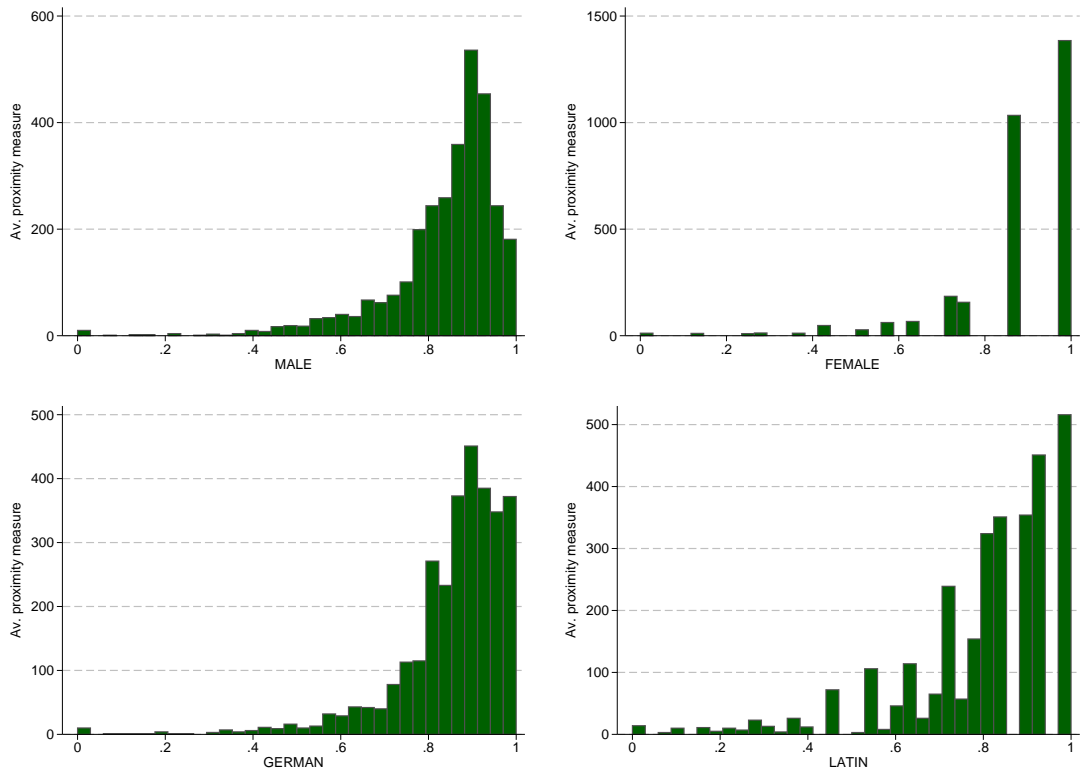
Notes: For each political group we compute the average agreement index by year and we plot it over time.

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



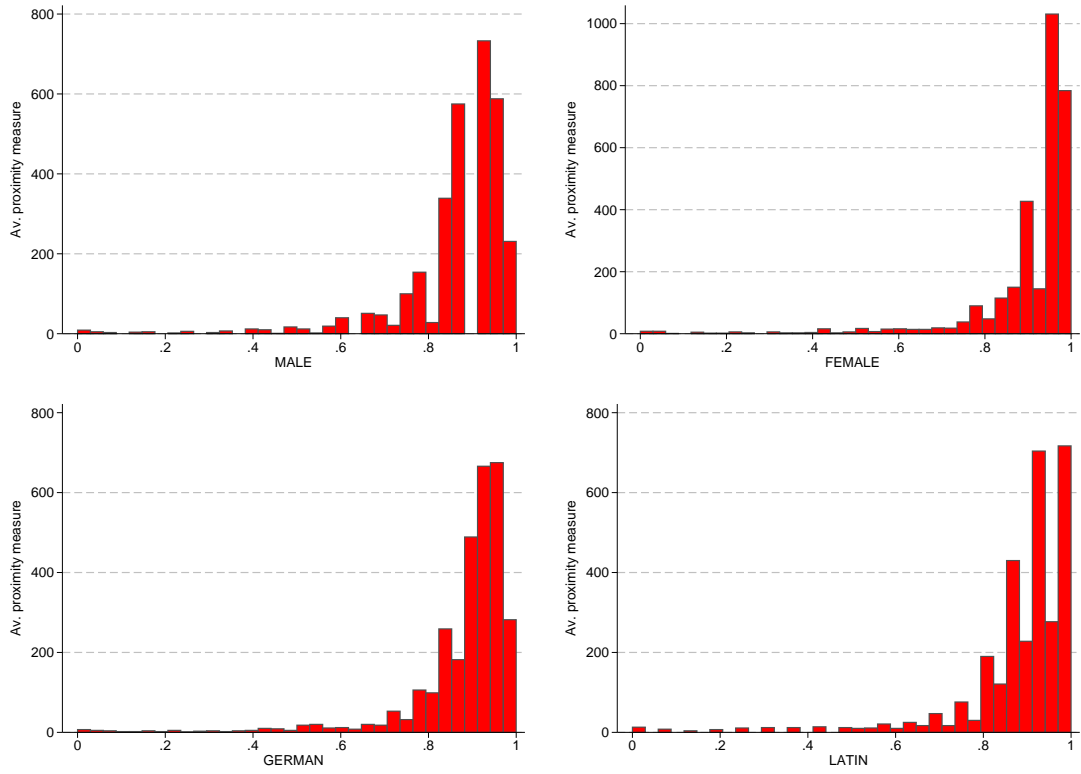
Notes: Each point represents one vote. Votes follow a chronological order. The dash line refers to the time trend.

Figure 6: Distribution of the average proximity measure, SVP



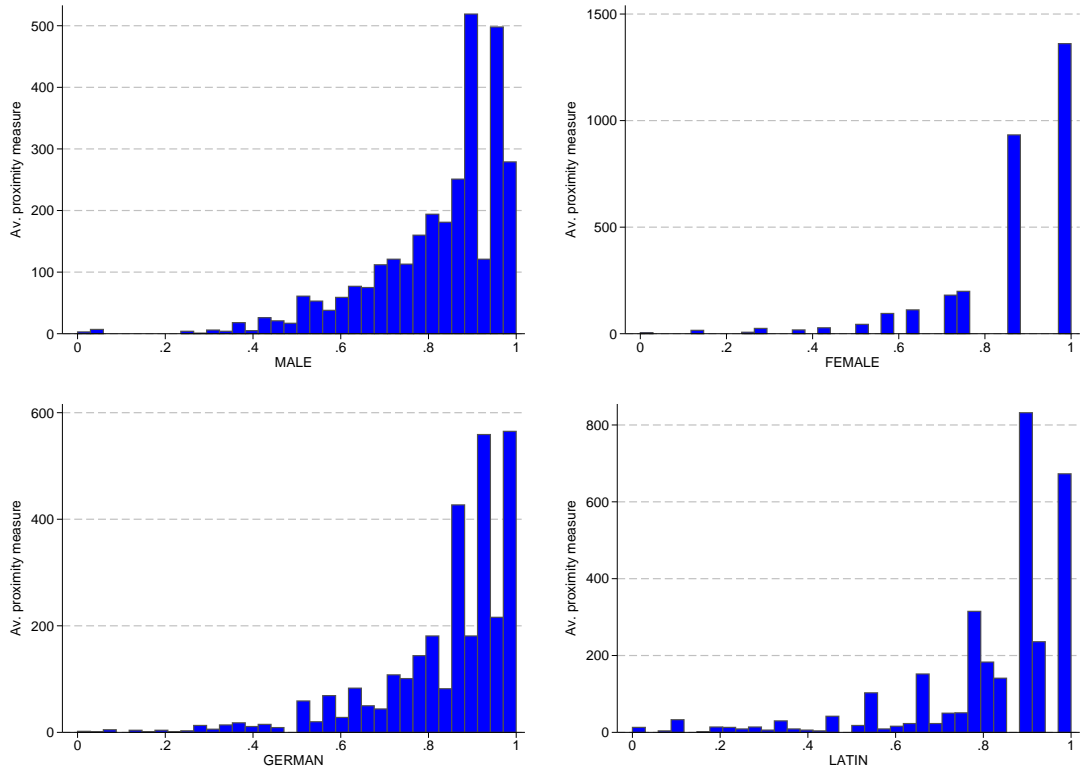
Notes: Distinguishing by gender and origin, the distribution of the average proximity measure is reported.

Figure 7: Distribution of average proximity measure, SPS



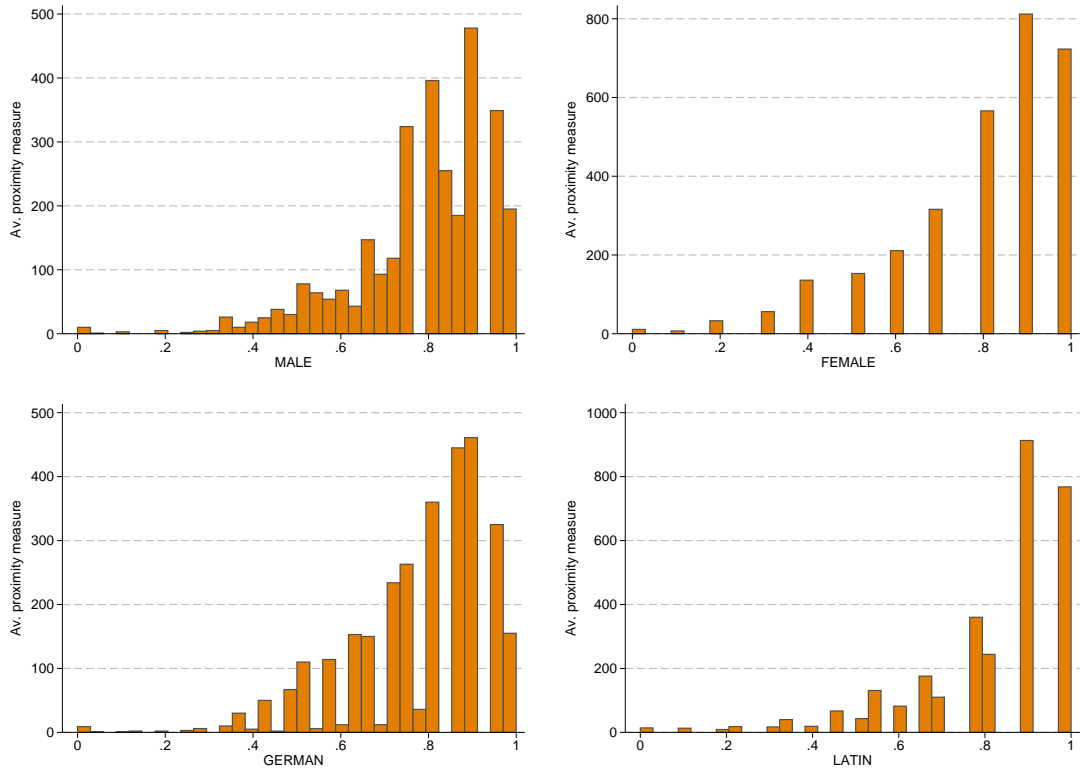
Notes: Distinguishing by gender and origin, the distribution of the average proximity measure is reported.

Figure 8: Distribution of average proximity measure, FDP



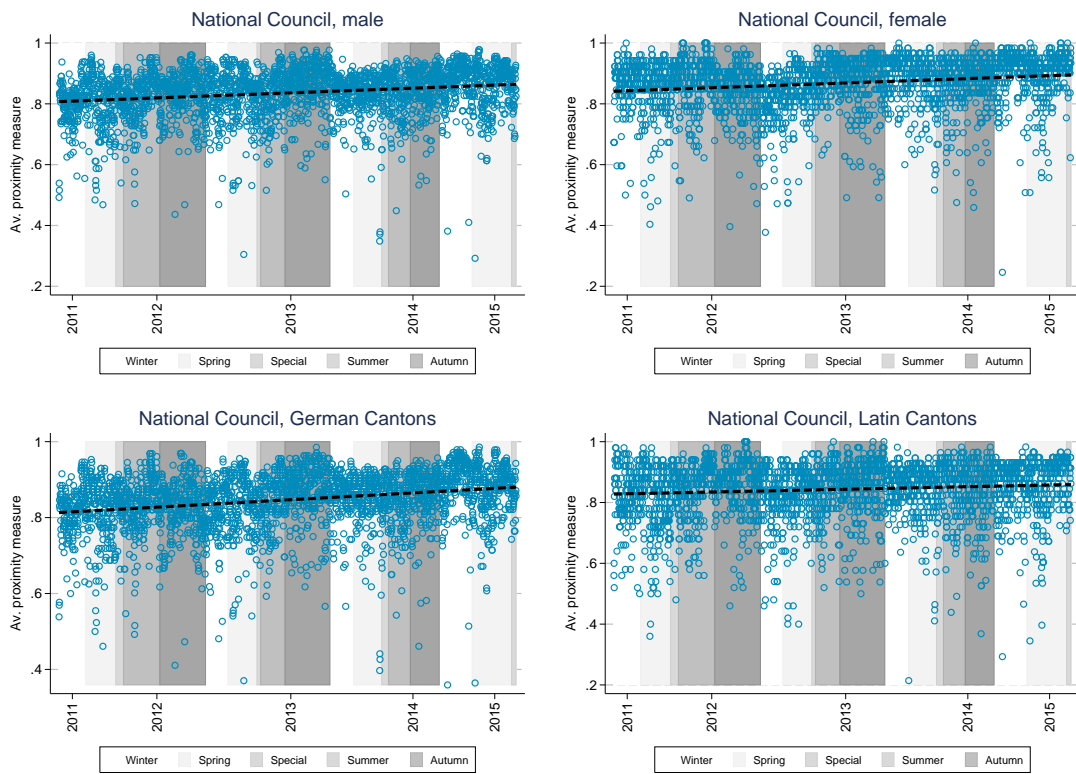
Notes: Distinguishing by gender and origin, the distribution of the average proximity measure is reported.

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 Hix (2005) Authors calculations
Proximity indicator	Dummy variable = 1 if the counselor decision is similar to the of the majority of the political group, 0 otherwise.	Authors calculations
Gender	Gender of the counselor	Parliament website
Age	Age of the MPs, at the time of the vote	Parliament website
Origin	Dummy variable = 1 if the counselor 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.		
Wholesales		
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
Wholesales	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 private companies, classified according to the Noga codes. The second column refers to the absolute number of counselors in each Noga group. 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
Liberal Green	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 49th legislature of the Swiss parliament.

FR, GE, JU, NE, VD, VS and TI are Latin cantons.

Table 4: Cohesion measures

Group	Counselors	Agreement index	Proximity indicator
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)
Liberal Green	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	Wholesales	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		Wholesales		Banking		Insurance		Real Estate		Law & Cons.		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	Wholesales	Banking	Insurance	Real Estate	Law& Cons.	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.

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

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Winter	Spring	Summer	Autumn	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)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Manuf.	Energy	Wholesales	Banking	Insurance	Real Estate	Law & Cons.	Health	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.

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

	(1) Baseline	(2) Health	(3) Law	(4) Economy	(5) Transport	(6) 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)
Wholesales	-.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)
Lawyer & 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.

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

	(1) Energy	(2) Landuse	(3) Law	(4) Transport	(5) Entertainment	(6) Economics	(7) 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.