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Do MPs' Ties to Interest Groups Matter for Legislative Co-sponsorship?

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Abstract: This article investigates whether linkages between members of parliament (MPs) and interest groups matter for MPs' activities of co-sponsoring legislative proposals. Based on statistical models for network data, the study builds on classical explanations of co-sponsorships highlighting the role of similar ties between MPs, such as party membership, legislative committee assignments, electoral district or gender. It shows that, on top of these traditional forms of homophily, MPs' ties to interest groups also make a difference. MPs with ties to a similar type of interest groups are more likely to co-sponsor their respective proposals. The same holds for MPs with ties to groups active in the same policy domain. These findings have implications for the study of groups' lobbying, legislative behaviour and representative democracy.

Keywords: Co-sponsorship; parliament; parliamentary intervention; interest groups; networks; homophily

1. Introduction

This article studies whether members of Parliament (MPs)' co-sponsorship behaviour varies according to their ties to interest groups. It assesses whether MPs with links to the same types of interest groups work together in formulating and introducing legislative proposals on specific policy issues. Answers to this question are relevant and innovative for the literature on legislative behaviour and elite networks, as well as for the literature on the policy influence of interest groups (Varone et al. 2017).

With respect to legislative behaviour, MPs need to recruit co-sponsors for their policy proposals, which allows them to increase the likelihood of attracting partisan, media and citizen attention and, eventually, support for their policy agenda. Accordingly, several studies have focused on MPs co-sponsorship behaviour and have demonstrated that Representatives of the US Congress who share the same political ideology, who are members of the same legislative committee, who are elected in neighbouring districts and who have similarities in (a minority status of) gender or race are more likely to co-sponsors each other's legislative proposals (Koger 2003; Bratton and Rouse 2011: 446). Partisan cohesion, policy expertise and electoral responsiveness to local voters are also key determinants of bills co-sponsorship in Argentina and Chile (Alemán and Calvo 2013: 371-2). At the European level, MPs representing the same Member-State are likely to engage in co-sponsorship (Baller 2017). However, previous scholarship did not pay attention to another potentially important source of homophily, namely MPs' ties to interest groups. We argue, and we show, that MPs with ties to a similar type of interest groups are more likely to co-sponsor their respective proposals. The same holds for MPs with ties to groups active in the same policy domain.

Interest groups try to influence policy-making in order to realise the policy preferences of their respective constituencies. MP-group linkages can be conceptualised as exchange relationships. Groups provide technical expertise about policy issues, as well as strategic

information about the policy position of their constituency. As a counterpart, MPs grant groups a privileged access to the parliamentary venue, or even commit themselves to actively support policy proposals promoted by groups (Berkhout 2013). Empirical evidence from various countries corroborates the (self-reported) importance of ties between interest groups and elected representatives (Rasmussen and Landeboom 2013; Wonka 2017; Eichenberger and Mach 2017). However, previous studies did not scrutinise whether the linkages between MPs and interest groups matter for legislative co-sponsorship. This study fills a gap by focusing on a specific legislative behaviour that can be observed directly and, thus, avoiding the methodological bias of MPs misreporting (Bundi *et al.* 2016).

Besides its relevance to studies on legislative behaviour and interest group influence, the potential influence of interest groups on MPs' co-sponsorship also matters from a normative perspective. This relates to the broader question of which interests MPs do represent in parliament. If MPs promote the policy agenda of sectional groups instead of representing the preferences of their broad electorate, then the discrepancy between electoral constituency and group preferences could be a concern for representative democracy (Giger and Klüver 2016). The question addressed in this study is thus also relevant for assessing the quality of political representation and the way MPs fulfil their delegates' function.

The article is structured as follows. The theoretical section discusses the existing work on legislative co-sponsorship and introduces two research hypotheses about the role of MPs' ties to similar types of interest groups and ties to interest groups active in the same policy domain for co-sponsorship activities. The methodological section describes the Swiss parliament as an empirical setting and explains how our data capture co-sponsorship relations, MP-group ties and further variables. The empirical section tests the two hypotheses, while the concluding section put the results in a broader perspective and identifies the next research steps.

2. Theoretical framework

Some scholars consider legislative co-sponsorship as a form of ‘cheap talk’ since most bills do not pass and co-sponsoring a policy proposal is a low-cost action for MPs (Kessler and Krehbiel 1996). Others, however, argue that legislative co-sponsorship serves as a signal to agenda setters and a form of position taking for constituents (Koger 2003), and that it accurately reflects the network of peer support between elected representatives (Fowler 2006). Bratton and Rouse (2011: 423) even claim that focusing on the co-sponsorship stage of the law-making process is highly relevant to capture how MPs ‘introduce and endorse policy proposals that help them garner electoral support from relevant constituencies, serve to advance their political career, and allow them to translate their own policy interests into outcomes’. Thus, co-sponsorship activities allow MPs to increase their chances for office-seeking, for example to secure their re-election, as well as for policy-seeking, by promoting their policy preferences (Fenno 1973; Kirkland 2011; Bratton and Rouse 2011; Ringe et al. 2013). This study sheds new light on the explanatory factors underlying MPs' co-sponsoring activities.

2.1. Homophily between MPs

The literature that aims at explaining legislative co-sponsorship put forward different types of homophily. Homophily refers to the phenomenon observed in many different types of networks, according to which actors who are similar with respect to some characteristic tend to form ties (McPherson *et al.* 2001). Theoretical models based on homophily relations assume that MPs who are similar to each other are more likely to work together to influence the parliamentary policy agenda and, in particular, to co-sponsor legislative proposals (Bratton and Rouse 2011; Alemán and Calvo 2013; Baller 2017). Briatte (2016) summarises the findings as follows: ‘Legislators are more prone to co-sponsor the work of other legislators when they share some characteristics, such as ethnicity (Bratton and Rouse, 2011), gender (Clark and Caro 2013),

constituency (Alemán and Calvo 2013; Baller 2017) or committee membership (Kirkland and Gross 2014; Baller 2017).’ Various types of homophily were assessed in existing research on legislative co-sponsorship networks.

First, MPs from the same *party family* are more likely to co-sponsor a policy proposal than MPs from different party families. MPs from the same party or party family have similar preferences regarding which policy priorities should be addressed by the parliament and, furthermore, about which legislative proposals are desirable solutions to these policy problems. In addition, co-sponsoring the same bills allow MPs to showcase party cohesion about the policy agenda and to increase their ‘issue ownership’ (Petrocik 1996). A co-sponsorship strategy eventually contributes to achieve the policy-seeking and office-seeking goals of political parties (Strøm 1990).

Second, MPs who are members of the same *legislative committee* are more likely to co-sponsor a policy proposal than MPs not seating in the same committee (Kirkland and Gross 2014). Serving in the same legislative committee offers many opportunities to interact personally, to share policy information, to put arguments forwards and to negotiate acceptable policy solutions. Membership in permanent legislative committees fosters the specialization of MPs (Gillian and Krehbiel 1987; Searing 1987; Strom 1998), who acquire policy expertise that grant them power and prestige among party peers and media. Repeated meetings constitute a favourable context for legislative co-sponsorship between committee members.

Third, it has been shown that the likelihood of co-sponsorship is higher between MPs who are competing in the same *electoral district or region* than between MPs living in different electoral jurisdictions or regions. The rationale for this hypothesis is also quite straightforward. MPs competing in the same district have a strong incentive to defend the policy interests of their local constituencies, in order to be re-elected (Alemán and Calvo 2013). For instance, if a distributive policy aims at delivering benefits to their region of origin, through financial

subsidies, the building of new infrastructures or service delivery, then MPs from this district will probably co-sponsor this legislative proposal. Such an agenda-setting behaviour is highly attractive for MPs who want to claim the effective representation of their local electoral constituency.

Fourth, MPs are more likely to mutually co-sponsor their respective policy proposals than to co-sponsor a policy proposal formulated by an MP who does not return the favour. *Reciprocity* is one of the most basic phenomena in social networks of any type and an important component of social capital and the development of trust (Burt, 2005). MPs' tendency to reciprocate is well assessed in the US congress, in both Chambers, and over the years (Fowler 2006: 463-464; Brandenberger, 2018).

2.2. Ties between MPs and interest groups

Previous studies focusing on MPs agenda-setting behaviour have suggested that ties between MPs and interest groups increase the likelihood of legislative co-sponsorship, but have not tested that idea empirically. For example, Louwse and Otjes (2015: 479) claim that external agents such as lobbyists have an impact on the co-sponsoring attitudes of MPs working on the same policy area. Other authors also speculate that policy subnetworks at the issue level, including interest groups, might influence MP agenda-setting activities. Bratton and Rouse (2011) suggest that a 'small world' dynamic underlies informal networks collaboration, and Fowler (2006) insists on the issue connectedness of MPs. Our arguments below are based on this idea, which was developed originally by David Truman in *The Governmental Process* (1951: 345) and according to which informal legislative groups of MPs and interest associations' representatives with similar types of information and similar preferences facilitate the circulation of trustworthy information, the mitigation of gridlocks and the negotiation of legislative proposals (Fiellin 1962; Ringe *et al.* 2017).

Interest groups try to influence policy-making but, by definition, do not compete for political office. Consequently, they cannot make binding political decisions and – among other strategies – must cooperate with MPs in order to influence legislative agenda-setting (Heaney 2014). One lobbying strategy consists in delivering policy information and political intelligence to MPs. On the other side, elected MPs hold a formal decision power, but they are prone to interact with interest groups in order to increase their information resources (Pfeffer and Salancik 2003; Berkhout 2013). By building ties with interest groups, MPs are for instance able to gather insiders' information about the very nature of a policy problem to be solved by policy-makers, the expected effectiveness of a potential policy solution and its acceptability by groups' constituency. Previous scholarship on groups' lobbying has demonstrated that, in the US Congress, the information transmitted by groups to MPs predominantly concern (problems with) the feasibility and implementation of public policies (Baumgartner *et al.* 2009). Yet groups do not only deliver technical policy expertise to MPs, who can strategically use this policy information for their own agenda-setting activities. When groups lobby MPs, they also provide political intelligence about the policy-making process itself, such as procedural advice to monitor the strategic move of other MPs or interest groups (Hall and Deardorff 2006). This political intelligence is a key asset for resource-constrained MPs and is thus likely to influence their co-sponsorship behaviour. The repeated interactions between groups and MPs lead to the development of informal relationships or formal ties such as groups' membership or even a seat in a group's board.

We argue that MPs' ties to interest groups generate an additional form of homophily, besides the ones presented above, e.g., the ones relating to party family or electoral district. More specifically, we identify two dimensions of interest groups homophily that are likely to matter for co-sponsorship activities. Interest groups can be similar with respect to their members' constituencies and related interests, and with respect to the policy domain in which

they are active. We assume that MPs tied to either similar types of interest groups or interest groups from the same policy domain are more likely to collaborate, and to co-sponsor the legislative proposals.

First, MPs with links to similar types of interest groups (e.g. business groups, as opposed to citizen groups) are exposed to the same types of information and have developed loyalties to similar constituencies, i.e. individual or corporate group members. As a consequence, MPs affiliated to similar groups might promote each other's policy agendas and positions. Our first hypothesis focuses on the first dimension of homophily, namely similar types of interest groups. It posits that *two MPs with ties to similar types of interest groups are more likely to mutually co-sponsor their proposals than two MPs with ties to dissimilar types of interest groups*. This means that MP A is more likely to co-sponsor a legislative proposal formulated by MP B, if both MPs are affiliated to business groups, than if MP A is tied to a business group and MP B has linkages with a citizen group.

Second, interest groups active in the same policy domain share commonalities with respect to political agendas and policy priorities that might go beyond commonalities based on party family or district (Scott 2013). As highlighted by Scott (2015), a policy domain consists of lobbying organizations that 'are likely to have close-knit relationships among each other' (2015: 6-7) and, furthermore, 'close-knit relationships develop over, and are characterised by, shared interests over time, and these shared interests over issues should then translate into joint activity and coalitions'. MPs with strong ties to groups active in the same policy domain benefit from privileged technical information about the groups' policy portfolio, and tend to develop a specialization and expertise in that domain. MPs are thus likely to collaborate with peers with whom they share a domain of policy specialization. For instance, they may work together to elaborate a legislative proposal that is a political compromise between divergent policy positions. Hypothesis 2 postulates that *two MPs with ties to interest groups active in the same*

policy domain are more likely to co-sponsor policy proposals than two MPs without ties in that policy domain. For example, MP A who is a board member of an environmental group may co-sign a legislative proposal on the promotion of renewable energies introduced by MP B, who is occupying a leading position in an electric utilities association.

3. Case selection, data and method

Previous scholarship on legislative co-sponsorship has focused either on presidential systems like the United States (Kessler and Krehbiel 1996), Argentina and Chile (Alemán and Calvo 2013), or on parliamentary systems like the Netherlands (Louwse and Otjes 2015) and Finland (Pajala *et al.* 2016) to test the effects of classical homophily hypotheses regarding party, policy specialization, or electoral constituency. The present study renews this perspective by analysing MPs' co-sponsorship activities in Switzerland.

The Swiss parliament is a particularly interesting case to study, since it is a sort of intermediary case between strong and weak parliaments (Vatter 2014). On the one hand, the Swiss parliament is institutionally strong. In Switzerland, the government system tends towards a separation of powers system (Shugart and Carey 1992; Schwarz *et al.* 2010), in which MPs are less constrained than in traditional parliamentary systems, i.e. they are not necessarily expected to align to the party line. Moreover, MPs are granted with powerful agenda-setting and law-making instruments. Therefore, the Swiss parliament is capable of actually creating legislation, 'a classical parliamentary function almost forgotten by some national parliaments' (Corbett *et al.* 2007: 9). In particular, MPs have powerful institutional instruments to initiate legislation at their disposal. Empirically, they give the impetus to about a fourth of legislative processes, whereas government initiates about half of the processes (Sciarini *et al.* 2002). Legislative co-sponsorship is thus more than just a 'cheap talk' and can be highly consequential

for law-making. In addition, in a comparative perspective, Switzerland displays a very high share of parliamentary initiatives that are co-sponsored by other legislators (Briatte 2016).

On the other hand, the Swiss parliament is structurally weak. According to the ‘militia system’, MPs’ involvement is part-time and incidental to a principal professional activity. That is, MPs are ‘amateurs who combine their professional activities with their parliamentary duties’ (Kriesi 2001: 60). As a result, the Swiss parliament usually meets only four times a year, for a three-week session (plus possible extraordinary sessions). Moreover, the information and control resources that Swiss MPs have at their disposal are especially low in comparative perspective (Vatter 2014). This has favoured the development of MPs’ ties to interest groups (Bailer 2011). However, permanent legislative committees have been institutionalised since 1992 and MPs have become increasingly competent in those policy fields covered by the specialised committees to which they belong. This has reduced MPs’ dependence on interest groups (Linder 2007), and has reinforced parliament’s power in decision-making processes (Sciarini 2014; Sciarini *et al.* 2015). Therefore, the Swiss parliament offers an ideal setting for investigating the relationships between interest groups and elected MPs, as well as the potential influence of groups’ advocacy on legislative co-sponsorship.

3.1. Networks of co-sponsorship

The dependent variable of this analysis is the *network of co-sponsorship* among MPs in the Swiss Lower Chamber, the National Council. In order to construct this network, we collected all legislative proposals submitted by MPs of the Lower Chamber between October 2011 and November 2015, covering thus one entire legislative period. Swiss MPs have different types of instruments at their disposal to initiate legislation. First, parliamentary initiatives represent the strongest instrument available to MPs, as these proposals allow them to launch a legislative process and draft a bill themselves. Second, motions allow the parliament to demand the

government to take legislative action. Third, postulates require the government to deliver a report on a given issue. MPs can submit any of these parliamentary proposals in their name, and the parliamentary plenum decides on whether to accept or not a given parliamentary proposal. In the legislative period 2011-2015, the 226¹ Swiss MPs handed in a total of 2108 legislative proposals (with a minimum of zero proposals by 17 MPs and a maximum of 49 proposals by one MP). On average, a MP handed in about 9.5 interventions during this period (median value of 7 interventions). A ‘standard’ proposal has received about 18 co-sponsors, on average.

We then coded the co-signatures of other MPs on a given proposal to construct our network among MPs. The resulting network of co-sponsorship is a valued network, as MP A can sign one or many proposals of MP B. Indeed, while most MPs do not co-sponsor many other MPs, one MP signed a maximum of 34 interventions of another peer. Rather than the absolute number of signatures, however, the relative number of signatures is more appropriate to express co-sponsorship ties (Kirkland 2011). We thus calculate the percentage of MP B's interventions that are co-signed by MP A. If MP A co-signs a high share of MP B's interventions – regardless of whether MP B submitted one or 20 interventions – this can be interpreted as a strong relationship. The relationship is weaker if only a small share of MP B's interventions are signed by MP A. On average, MPs sign nine percent of each other's interventions. We thus dichotomise the network at a value of 10 percent, but test for robustness of results with higher thresholds. This network is composed of 221 nodes, 10401 edges, and a resulting density of 0.21. Figure 1 shows the resulting network, with node colours indicating party family, and node size indicating the number of ties to interest groups dealing with economic issues, as an example.

--- Figure 1 about here ---

3.2. Independent variables

Our main independent variables are coded as follows:

Ties to interest groups: Swiss MPs are requested to declare their affiliation (i.e. membership, seat in a group's board) with interest groups. The resulting official 'register of interests' is a rich source of observational data that allows matching individual MPs with specific groups. Gava *et al.* (2017) show that the average number of interest ties per MP has more than doubled in the last decade, from 3.5 in 2000 to 7.6 in 2011. Behind these values, there is considerable heterogeneity across individual MPs. Only 14 MPs did not declare any kind of ties to groups, whereas, at the other extreme, a single MP dominated the ranking of affiliations with ties to 51 different groups.

Types of interest groups: We capture the interest groups' diversity by means of seven subcategories, based on the categorization developed by the *Interarena* project, which is a well-tested instrument to capture the diversity of interest groups' population (Binderkrantz *et al.* 2015):² (1) Business groups (e.g. Swiss Bankers' Association); (2) professional groups formed by individuals who share the same occupation (e.g. Swiss Medical Association); (3) Unions; (4) Identity groups that primarily seek benefits for their own members or restrained constituencies (e.g. Swiss Automobile Club); (5) Public interest groups that focus on the attainment and protection of common goods, as for example consumer groups or environmental or humanitarian organizations; (6) religious groups including spiritual organizations, such as churches or other associations focused on the support of religious communities (e.g. Swiss Evangelical Alliance); and (7) institutional groups representing Swiss cantons or municipalities. For our present purposes we distinguish between three types of groups that differ with respect to constituencies and related policy preferences. That is, we aggregate the first two subcategories into a 'Business groups' category, the subcategories 3 to 6 constitute together the

‘Citizen groups’ category, and the subcategory 7 (i.e., ‘Institutional groups’)) constitutes its own category. For each MP, the number of ties to groups of each category was added up. Interest group homophily is then measured as the absolute difference between the numbers of respective ties: The smaller the difference, the more similar two MPs' profiles.

Interest groups' main domain of activities: For each interest group, we coded the main domain of activity based on the classification scheme of the Comparative Agendas Project (CAP).³ This classification of policy domains, which identifies 20 main issue topics, has been widely used in comparative policy and politics, in order to assess the relative issue attention in a wide range of agenda, from the political (parliamentary or government) arena to the media arena (Green-Pedersen and Walgrave 2014). We again aggregated the 20 main issue topics in a more limited – and more tractable – number of categories: economic issues (macro-economy, taxes, labor, finances, agriculture), social issues (health, education, environment), law and order (crime, individual rights, political institutions) and foreign affairs (international relations, European integration, defense). Again, as with interest group types, the number of ties to groups of each category was added up for each MP. From that we then calculated the absolute difference between the numbers of respective ties to measure the degree of similarity of MPs' profile towards interest groups in a given policy domain.

Additional variables in the basic models, which do not refer to our two hypotheses but correspond to the set of more established hypotheses in the respective literature on homophily relationships, are operationalised as follows. First, party family homophily is introduced by a nodematch term assessing whether there is a match between MPs belonging to the same party family. We distinguish between left parties (most importantly Social Democrats, Green Party), moderate right parties (most importantly Free Democrats, Christian Democrats), and far right parties (most importantly Swiss People's Party) according to the three most important camps in Swiss politics (Sciarini et al., 2015). Second, legislative committee homophily is assessed

with an edge covariate term representing the number of joint committee memberships of two MPs. Third, regional homophily is also assessed through a nodematch term, testing if there is a match between MPs from French (including Italian) and German speaking cantons. Fourth, reciprocity is included in the models as an endogenous network parameter, assessing the degree to which co-sponsorship ties from MP A to MP B do coexist with co-sponsorship ties from MP B to MP A. Further controls are a) a nodematch term to capture gender homophily (Clark and Caro 2013), b) an in-degree term for assessing whether legislative proposals by more senior MPs get signed more than proposals by more junior MPs⁴, and c) a GWESP term that assesses an endogenous network mechanism in that it accounts for shared partners of two MPs that are themselves connected in the network of co-sponsorship.

Hypotheses are tested based on two types of parameters assessing interest group homophily, one regarding the three types of interest groups (business, citizen, institutional), and one regarding the four policy domains (economic, social, law & order, and foreign policy). More specifically, the respective parameter assesses the opposite of homophily, that is, whether MPs with dissimilar interest group profiles tend to co-sponsor each other or not. The respective parameter (absdiff) assesses whether the probability that MPs mutually co-sponsor their proposals relates to the difference between MPs in terms of the number of ties to interest groups of a given type or from a given policy domain. A negative parameter – indicating that the larger the difference between MPs, the less they co-sponsor each other – would thus lend support to our hypotheses. Moreover, we need to control for the number of MP's ties to interest groups of a given type or from a given policy domain. Specifically, the number of ties is likely to be positively associated with the number of proposals that a MP co-sponsors. This is controlled for by the out-degree parameter. Similarly, the in-degree parameter controls for the likelihood that MPs with a high number of ties to interest groups of a given type or from a given policy domain attract more co-sponsors for their proposals.

3.3. Exponential Random Graph Models

We test our hypotheses by estimating Exponential Random Graph Models (Robins *et al.* 2007; Lusher *et al.* 2013; Cranmer *et al.* 2017). ERGMs allow for statistical inference on network data, which by definition are non-independent. Non-independency among observations in network data means that the probability of a co-sponsorship tie between two MPs might depend upon the structural properties of the network in which the two MPs are embedded. Standard regression models are unable to take this dependency into account and would erroneously attribute explanatory power to exogenous variables (Cranmer and Desmarais 2011; Lusher *et al.* 2013). Given the dependency among observations, error terms would be correlated across observations, standard errors would be too small, and p-values for exogenous variables too optimistic.

In order to avoid the assumption of relational independence, ERGMs model the probability of observing a given configuration of the network, as compared to all other possible network configurations with the same number of nodes and network density (Cranmer and Desmarais 2011). The structure of the network is modelled based on actor-level variables (in- and out-degree parameters in our models), dyadic variables (homophily parameters in our models), and endogenous network structures (reciprocity parameter in our models). The relation between the probability of a network m and the network statistics in Γ can be expressed by the following formula, where θ is the vector of k parameters that describe the dependence of $P(Y_m)$ on the network statistics in Γ (Cranmer and Desmarais 2011) :

$$P(Y_m) = \frac{\exp(-\sum_{j=1}^k \Gamma_{mj} \theta_j)}{\sum_{m=1}^k \exp(-\sum_{j=1}^k \Gamma_{mj} \theta_j)}$$

ERGMs integrate an exponential family form log-likelihood function. Due to the very high number of possible network configurations, computing the exact maximum likelihood is

however computationally too demanding (Cranmer and Desmarais 2011). Therefore, we estimate ERGMs using Markov Chain Monte Carlo Maximum Likelihood (MCMC-MLE), which approximates the exact likelihood by relying on a sample from the range of possible networks to estimate the parameters. Goodness of fit and MCMC diagnostics for all models appear in the Appendix.

4. Analysis

The first column of table 1 presents the results of the basic model, which includes the main classical homophily variables, as well as further controls. The second column shows the results of a model additionally including homophily parameters relating to each of the three types of groups, as well as in- and out-degree parameters for each of the three types of interest groups. Results for the model including domains of interest groups appear in table 2.⁵

Results from the basic model confirm the traditional hypotheses of legislative co-sponsorship. The strongest effect can be attributed to homophily between party families. Not surprisingly, MPs from the same parliamentary group tend to co-sponsor their proposals. Also committee membership is an important factor, as MPs sitting in the same legislative committee co-sponsor their proposals at higher rates than MPs that do not sit in the same committee. Also region homophily appears as an important predictor for co-sponsorship among Swiss MPs, as MPs from the same region tend to co-sponsor their proposals. Finally, the significantly positive reciprocity parameter shows that – independently of other factors – MPs tend to co-sponsor the proposals of other MPs who also co-sponsor their proposals.

---Table 1 about here ---

Hypothesis 1 claims that MPs with ties to similar interest groups tend to mutually co-sponsor their proposals as they are exposed to the same type of information and interests. The

results of table 1 provide partial support for the hypothesis. They show that MPs with similar numbers of ties to business groups have a higher likelihood to co-sponsor their respective proposals: The more similar the number of ties to business groups between two MPs, the more they mutually co-sign their legislative proposals. The same is true for citizen groups. Shared affiliations to institutional groups, by contrast, are not related to the co-sponsorship behaviour of MPs. Institutional groups mainly defend federalist issues, (i.e. division of power across levels of government) as they represent cantons and municipalities. These actors might have other, more direct access options to parliamentary agenda-setting and policy-making at the national level. Still, for two out of three types of interest groups under consideration, there is evidence that the interest group profile of MPs matters for understanding their co-sponsorship behaviour. The in-degree and out-degree parameters are included as controls, to clearly isolate potential homophily effects.⁶

Hypothesis 2 relates to another dimension of interest groups, namely to the MPs' affiliations to interest groups active in a given policy domain. We expected to observe homophily among MPs with relations to interest groups active in the same policy domain, whereby we distinguish between four broad policy domains (i.e. economic issues, social issues, law and order issues, and foreign policy issues). The hypothesis is partly confirmed. We see from table 2 that interest group homophily plays a role in two out of four policy domains. The more similar two MPs are with respect to their number of affiliations to groups dealing with economic issues and law & order issues, the more they tend to co-sponsor each other's proposals. By contrast, our results reveal no effect for groups dealing with social and foreign policy issues. In the Swiss context, social policies and related redistributive issues lead to vivid political controversies (e.g. private versus public health care system and funding). Similarly, foreign affairs are also highly conflictual. One emblematic example is the recurrent conflict between supporters and opponents to Switzerland's European integration policy. On such

sensitive issues that articulate entrenched political cleavages, policy compromises are especially difficult to reach.⁷ This presumably accounts for the non-significant relationship between MPs' ties to interest groups active in the same policy domain and the likelihood of co-sponsorship.

Additional controls appear at the end of the tables: First, a weak, but still significant homophily effect can be observed for gender: MPs of the same gender tend to co-sponsor their proposals, independently of other factors. Second, the significantly negative seniority parameter indicates that the longer an MP sits in parliament, the less co-sponsors (s)he gets on her or his proposals. Finally, the GWESP parameter⁸ accounting for triadic closure is significant and positive in all but the basic model.

Overall, we thus see a tendency for MPs with similar interest group profiles to co-sponsor their proposals, but only for given types or policy domains a group is active in. Regarding the size of the effect, the parameters for interest group homophily from table 1 or 2 suggest that their effect is less strong than the homophily effects related to party family, legislative committees, or regions. The size of effects, that is, the probability of observing a tie can be obtained by calculating the exponential function of effects.⁹ Thus, for example, the probability of co-sponsorship increases by 67% ($e^{(0.69)}/(1+ e^{(0.69)}) = 0.67$) if two MPs are from the same region, as compared to two MPs that are not from the same region. Figure 2 shows the marginal effect plots of the three interest group variables that have a significant effect in our models (Czarna et al. 2016; Leifeld et al. 2018). It shows how the probability of a tie decreases with an increase in the difference between MPs' respective interest group profile.¹⁰ For example, the probability of two MPs having a co-sponsorship tie decreases from 23% to 13.5% if the difference in their business interest group profile increases from 0 to 11 (left plot in Figure 2).

--- *Figure 2 about here* ---

Besides the considerable size of these effects, the interest group variables contribute to the explanatory power of the model, as indicated by the AIC and BIC coefficients that are lower in both homophily models as compared to the basic model. Also, the fact that effects of interest group homophily show up while controlling for the other, more traditional factors influencing co-sponsorship – and especially party family and committee homophily – can only reinforce our confidence in our results.

The results are also robust to a higher threshold for the percentage of interventions signed (minimum of 50 percent, instead of 10 percent). The effects of homophily of interest group profile are similar or slightly stronger, with the exception of the ‘law & order’ domain homophily, which loses significance. Furthermore, dropping committee homophily – which, like interest group homophily effects, is related to the issue specialization of MPs – does not affect the results, but slightly reduces model fit. This suggests that the two interest group homophily variables capture effects beyond shared committees and, therefore, complement the latter variable (see also Varone *et al.* 2018 for similar findings).

--- *Table 2 about here* ---

5. Conclusion

This study confirms previous scholarship on legislative co-sponsorship by demonstrating that traditional homophily relationships among MPs are strong predictors of co-sponsoring behavior. MPs belonging to the same party family, seating in the same legislative committee, or representing the same electoral district are more likely to co-sign legislative proposals. Thus, our findings from the Swiss case, which is neither a presidential nor a parliamentary system, and where the parliament is a sort of intermediary case between a strong and a weak parliament,

improves the external validity of homophily models that were already tested in the US presidential system or in European parliamentary democracies.

On the more innovative side, we find strong support for the hypothesis that MPs with ties to similar types of interest groups are more likely to co-sponsor legislative proposals, and we find partial support for the hypothesis that MPs' ties to interest groups specialised in similar policy domains increase the likelihood of co-sponsorship. These new findings improve the explanation of legislative co-sponsorship. Moreover, the fact that they hold while controlling for the more classical forms of homophily – and more especially party, committee or district homophily – can only reinforce their relevance.

Compared to the ties existing between MPs based on fundamental similarities such as party membership, linkages between MPs and interest groups should rather be interpreted as weak ties (Granovetter 1973, 1983). Indeed, they bring together policy actors with diverse professional background, personal objectives, organizational incentives, but also different roles in the policy-making process and levels of access to institutional venues. However, such weak ties have a high value, since they foster the exchange of non-redundant policy information between MPs and groups' representatives, the confrontation of different points of view on a policy domain and, ultimately, the development of creative policy solutions. These policy-specific cooperation ties increase information dissemination and diversity, and facilitate the negotiation of policy compromises. As highlighted by Kirkland (2011: 889), '(the) value of weak ties is a result of their novelty of information or influence'. Assuming that both business and citizen groups are key informants for MPs and provide technical information and political intelligence, MP-group linkages stimulate informal cooperation between MPs and the co-sponsoring of legislative proposals. Yet our results suggest that the correlation between MPs' ties to interest groups active in a similar policy domain and legislative co-sponsorship is weaker

if that domain articulates a major political conflict (i.e., in the Swiss case conflicts on the redistributive, left-right dimension or on the integration-demarcation dimension).

From a normative point of view, our findings deliver an encouraging and optimistic message. Indeed, MPs co-sponsor legislative proposals introduced by MPs from the same party family and electoral constituency. So doing, they endorse a delegate role and represent the policy preferences of their voters, in line with the ideal-typical view of substantive representative democracy (Miller and Stokes 1963). MPs' ties to interest groups do not push elected representatives to defect from their electoral constituency when they co-sign a legislative proposal, but they may foster the elaboration of legislative proposals that are supported across party lines and electoral districts. In other words, interest groups may play a positive role in transmitting the importance of policy issues for various societal stakeholders in general, and for legislative committees in particular.

Further interesting research questions regarding the relationship between MPs' interest group profile and their co-sponsorship activity abound. First, further to controlling for classical homophily variables (i.e. party family, legislative committee, electoral district and gender), we might also consider the interaction effects between the MPs' specialization in a policy domain, on the one hand, and their respective party affiliation or electoral district, on the other hand. For instance, MPs who are ideologically close from each other and, thus, who have similar policy positions, will probably co-sponsor one another if they specialise in the same policy domain. Specialization in a legislative committee has a decisive influence on the policy issues on which the MPs are going to work together and, at the same time, party affiliation has an impact on choosing with whom (i.e. which committees members) MPs will co-sponsor a policy proposal (Louwerses and Otjes 2015:481).

The impact of MPs' policy specialization is also highly relevant for the link between MPs-groups ties and legislative co-sponsorship. In the Swiss case, it has been shown that MPs

seating in a legislative committee hold relevant group ties. There is a topical match between MPs affiliation to groups from a specific policy domain and the substantive area of competence of the legislative committee they are a member of. For example, MPs seating in the environment, infrastructure and energy committee have formal contacts with business associations (e.g. associations representing private electricity producers, public utilities or renewable technologies), but also with environmental and consumers associations (Gava et al 2017). Furthermore, this topical congruence is the consequence of both elected MPs carrying relevant group ties into the legislative committees, and MPs being proactively recruited by interest groups once they are assigned to a specific committee (Eichenberger and Mach 2017). In sum, upcoming studies should look in depth at interaction effects between MPs' policy specialization, traditional homophily variables and MPs' ties to interest groups.

Finally, we acknowledge that explaining why MPs co-sponsor each other's bills is not the same as explaining why co-sponsored bills are eventually accepted by Parliament. It makes sense to investigate how and why some MPs work together to introduce policy proposals on which all MPs will then vote (Louwerese and Otjes 2015). But the natural step forward should be to assess whether the composition of co-sponsorship network in general, and MPs' affiliations to interest groups in particular, might also explain the success of co-sponsored legislative proposals. Previous scholarship on whether the number and types of co-sponsors has a positive impact on bill passage delivered rather mixed evidence (see Bratton and Rouse 2011; Craig 2015). Integrating MPs-groups ties as additional variable in these explanatory models is a promising research avenue.

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¹ The Lower Chamber contains 200 MPs, and 26 MPs replaced others during the legislative period. 5 MPs were excluded from our analyses because of missing data on their interest group relations.

² See <http://interarena.dk>.

³ See <http://www.comparativeagendas.net>.

⁴ This variable is assessed as the number of months a MP has been a member of parliament until the end of the legislature (fall session of October 2015).

⁵ The percentage of the variance due to MCMC is 0 for all parameters in the Interest Group Type and the Interest Group Domain Models. 1% of the variance is due to MCMC for the exogenous variables in the Basic Model. MCMC diagnostics and goodness-of-fit diagnostics for all three models appear in the Appendix. The models do not well simulate the dyadwise and edgewise shared partner distributions, but they reconstruct the basic form of the respective distributions.

⁶ Without controlling for in-degree and out-degree of the respective attributes, identified homophily effects could simply be due to the specific activity or popularity of given types of nodes in the network.

⁷ The conflict over redistributive issues and the conflict on the desired level of integration versus demarcation into the European Union are the two main conflict lines among the Swiss elite according to a study of the most important decision-making processes of the early 2000s (Sciarini 2014, Sciarini et al. 2015).

⁸ Geometrically weighted dyad-wise and edge-wise partner statistics (GWDSPP, GWESP) are the most appropriate and commonly used parameters to assess triadic closure in networks, and their geometric form reduces convergence problems (Morris et al. 2008). Whereas GWDSPP assesses the basic probability of two nodes to have a shared partner, GWESP assesses whether two linked nodes tend to have shared partners. In our models, we rely on a GWESP parameter only. Including a GWDSPP parameter does improve the goodness of fit, but the respective parameter displays poor convergence statistics. For the GWESP, we rely on a weight parameter (alpha value) of 0.5. We have tested lower and higher values, also in combination with the GWDSPP parameter, but respective models showed poorer fit or convergence statistics.

⁹ The size of effects can only be interpreted assuming that all other covariate values are the same, that is, that the rest of the network is fixed (conditional log-odds). For more detailed explanations, see Goodreau et al. (2008).

¹⁰ The maximum dissimilarity value varies between the three types of interest groups and between the four policy domains of interest groups. It is calculated as the maximal observable difference between a MP with zero ties to a given type or policy domain of interest groups and the MP(s) with the maximal number of ties to the corresponding

type or policy domain of interest groups. Maximal dissimilarity values range from 5 points for interest groups in the foreign policy domain and 29 points for interest groups in the social policy domain.

Table 1. Basic model and IG Type Model

	Basic Model	IG Type Model
Party family homophily	1.51 (0.03)	1.51 (0.03)
Party family (Left)	0.29 (0.02)	0.27 (0.02)
Party family (Far right)	0.30 (0.02)	0.35 (0.02)
Joint committees	0.28 (0.03)	0.28 (0.03)
Region homophily	0.69 (0.03)	0.69 (0.03)
Region (German speaking)	-0.14 (0.02)	-0.17 (0.02)
Reciprocity	1.60 (0.04)	1.58 (0.04)
<i>H1 : Difference Business IG</i>		-0.05 (0.01)
Business IG out		0.01 (0.01)
Business IG in		0.04 (0.01)
<i>H1 : Difference Citizen IG</i>		-0.01 (0.00)
Citizen IG out		0.04 (0.00)
Citizen IG in		0.01 (0.00)
<i>H1 : Difference Institutional IG</i>		-0.01 (0.01)
Institutional IG out		-0.03 (0.01)
Institutional IG in		0.04 (0.01)
Edges	-3.74 (0.51)	-4.11 (0.51)
Seniority in	-0.03 (0.00)	-0.03 (0.00)
Gender homophily	0.17 (0.03)	0.18 (0.03)
Gender (Male)	-0.14 (0.02)	-0.13 (0.02)
GWESP	0.58 (0.29)	0.74 (0.29)
AIC	40823.63	40536.39
BIC	40929.13	40721.02

Values in bold indicate significant parameters (p-value of 0.05 or lower).

Table 2. IG Domain Type

	IG Domain Type
Party family homophily	1.52 (0.03)
Party family (Left)	0.30 (0.02)
Party family (Far right)	0.31 (0.02)
Joint committees	0.29 (0.02)
Region homophily	0.69 (0.03)
Region (German speaking)	-0.15 (0.02)
Reciprocity	1.60 (0.04)
<hr/>	
<i>H2 : Difference IG economic issues</i>	-0.03 (0.00)
IG economic issues out	0.00 (0.00)
IG economic issues in	0.04 (0.00)
<i>H2 : Difference IG law&order issues</i>	-0.07 (0.01)
IG law&order out	0.06 (0.01)
IG law&order in	0.07 (0.01)
<i>H2 : Difference IG social issues</i>	-0.00 (0.00)
IG social issues out	0.01 (0.00)
IG social issues in	-0.01 (0.00)
<i>H2: Difference IG foreign policy issues</i>	-0.02 (0.02)
IG foreign policy issues out	0.09 (0.02)
IG foreign policy issues in	-0.21 (0.02)
<hr/>	
Edges	-4.23 (0.51)
Seniority in	-0.03 (0.00)
Gender homophily	0.17 (0.03)
Gender (Male)	-0.16 (0.02)
GWESP	0.88 (0.30)
<hr/>	
AIC	40450.56
BIC	40661.56

Values in bold indicate significant parameters (p-value of 0.05 or lower).

Figure captions

Figure 1: Network of co-sponsorship among Swiss MPs

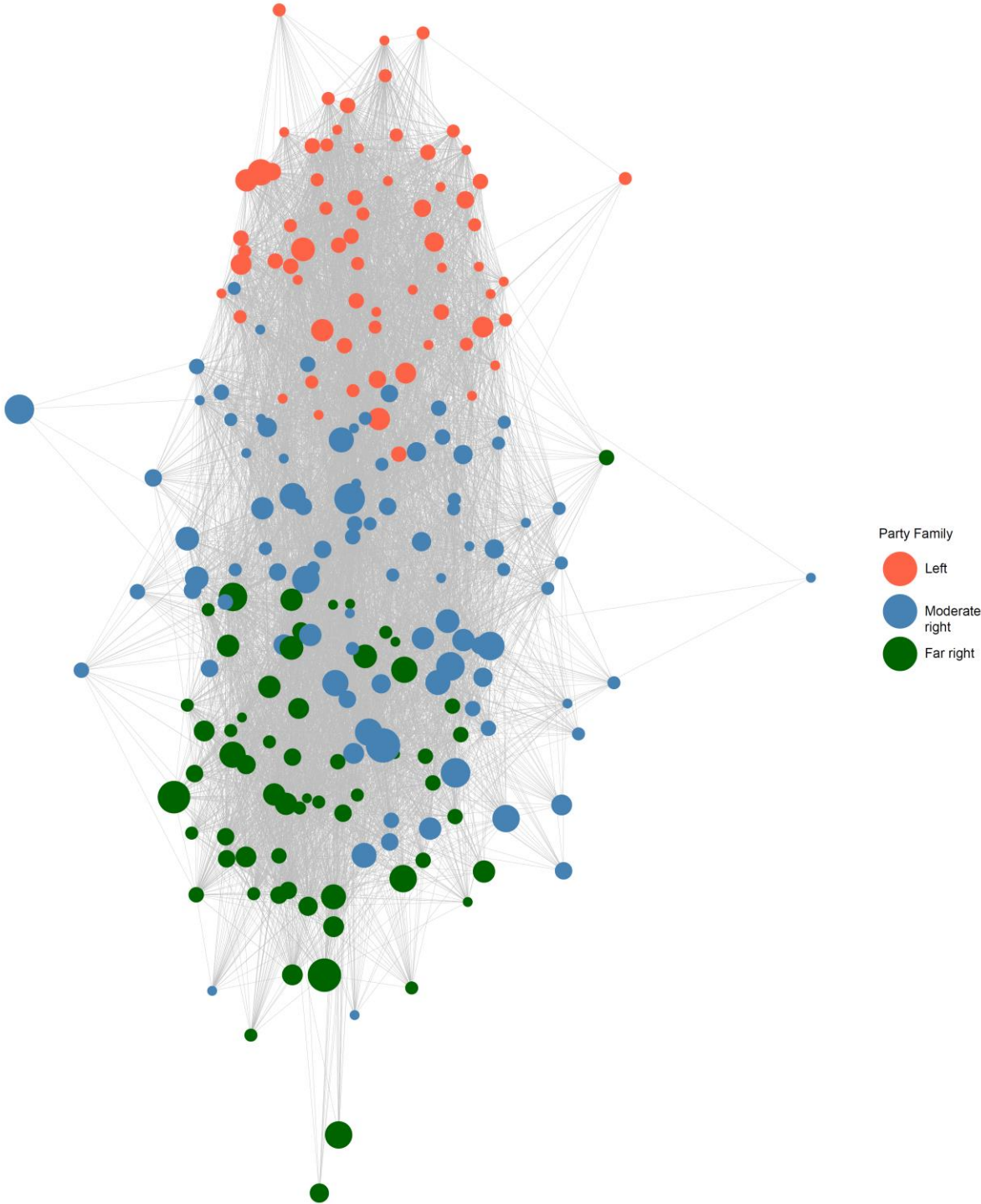
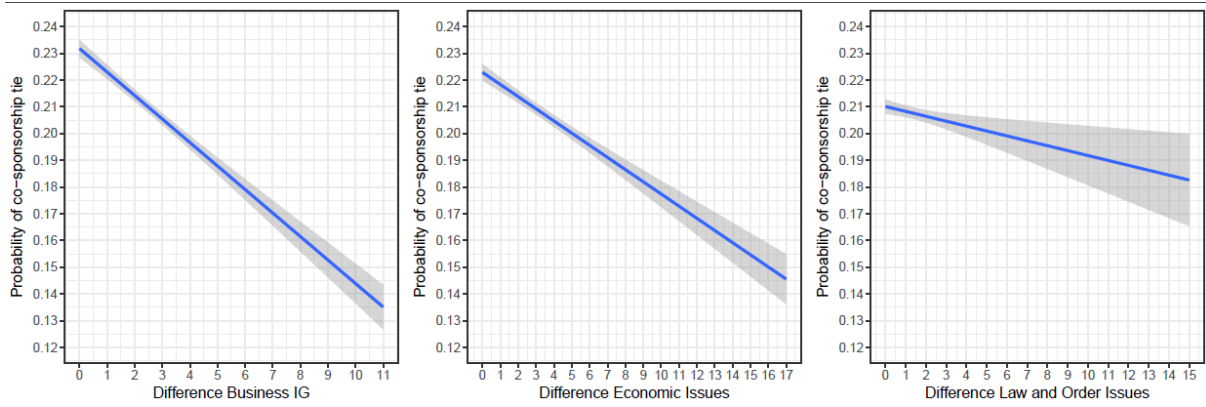


Figure 2: Marginal effect plots



Appendix

Figure A1: Goodness of fit, Basic Model

Figure A2: MCMC diagnostics, Basic Model

Figure A3: Goodness of fit, IG Type Model

Figure A4: MCMC diagnostics, IG Type Model

Figure A5 Goodness of fit, IG Domain Model

Figure A6: MCMC diagnostics, IG Domain Model