Reverse Revolving Doors: The Influence of Interest Groups on Legislative Voting[*]

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Abstract

This paper investigates to which extent legislators with a background in an interest group (i.e., reverse revolvers) influence their peers' voting behavior. To answer this question, we collect novel data containing the universe of votes cast at the European Parliament between 2004 and 2019 and characterize legislators by their former working experience. We leverage a natural experiment by which seats at the European Parliament are assigned alphabetically to provide a causal estimation. We find that seating beside a reverse revolver when the motion is relevant to her interest group increases the co-voting probability by 2.4%, attendance by 1.3%, and decreases abstention by 9%. We find no influence on non-relevant ballots. These effects are driven by budget-related motions and female legislators. Our results suggest that revolving doors are problematic for the political process even when working in reverse.

Keywords: Voting behavior, Interest groups, Social interaction, Revolving doors, European Parliament, Decision-making

JEL Classification: D72, D73, F53, N44, P16

1 Introduction

Modern democracies have long strived to regulate the activity of interest groups. In recent years, these efforts have been broadened owing to the growing intensity and public notoriety of interest groups. For example, as of 2018, more than 12.000 organizations were openly interested in influencing European policy-making, spending €2.38 billion on lobbying-related activities (EU Transparency Register, 2018).[1] In particular, lobbying directed at European institutions has mainly focused on influencing legislative powers. According to Hix et al. (2016), members of the European Parliament (henceforth, MEPs) report receiving a minimum of 21 meeting requests from interest groups every week, 59% admit attending at least one of those meetings, and 89% report receiving voting instructions from interest groups.

Interest groups are also known for using a subtler practice that is often overlooked by regulators: the *reverse revolving doors*. This practice refers to the flow of individuals from interest groups into active politics (henceforth, reverse revolvers). According to Hix et al. (2016), 22% of surveyed MEPs admitted having been encouraged by an interest group representative to stand in European elections.[2] Understanding whether the presence of reverse revolvers in public institutions affects decision-making is paramount for their healthy development. However, little is known in that respect.

In this paper, we investigate whether the voting behavior of the members of the European Parliament is affected by their close contact with reverse revolvers. To do so, we build a novel dataset containing work history information for MEPs and document the prevalence of reverse revolving doors. In particular, we find that 28% of all elected legislators between 2004 and 2019 had worked for an interest group before entering parliament. These engagements range from short work spells for regional NGOs to high-level consulting jobs in lobbying firms.

Given the salience of reverse revolving doors, we set out to estimate the causal effect of legislators with a background in interest groups on the legislative process. The main challenge for our empirical strategy is to obtain a relevant metric of connection between legislators which is also exogenous to the characteristics predicting their voting behavior. We address this issue by using the seating adjacency of legislators in the European Parliament, in which non-leader members of the main political groups sit in alphabetic order. Two main reasons drive our choice of using this measure in the context of the Eu-

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[1]The European Union lobbying industry is the second largest in the world, only after the US. According to OpenSecrets.org, in 2018, the US federal lobbying sector accounted for 11.600 organizations spending $3.42 billion.

[2]Reverse revolving doors are not unique to European institutions. According to OpenSecrets.org, in the US, as of 2017, 148 former lobbyists had been appointed to various executive federal agencies of the Trump administration.

ropean Parliament: First, lawmakers who sit next to each other during plenary sessions are more likely to interact, influencing each others' views (Masket, 2008; Saia, 2018; Harmon et al., 2019; Lowe and Jo, 2021). Second, the personal connections created by the alphabetic seating rule are as good as random after conditioning on specific observable characteristics (Harmon et al., 2019). This setting allows us to obtain causal estimates on the influence reverse revolvers exert on their colleagues' voting behavior.

A second obstacle that might hinder our causal estimates is the joint selection into lobbying and politics. For example, suppose that charismatic individuals are more likely to undertake both activities in their careers. In such case, we would not be able to distinguish the importance of charisma from having interest group working experience. We tackle such concern by looking at the issues legislators vote on. While some motions may be considered relevant for some interest groups, others are not.[3] We use this variation in voted subjects to account for the role played by the reverse revolvers' characteristics on their ability to influence their peers' voting behavior. Under our assumption that former interest group employees will lean towards opinions aligned with their former employers, our research hypothesis is that reverse revolvers will predominantly influence their seating neighbors' voting behavior when voting on relevant motions to their former employers.

To address these empirical challenges, we build a novel dataset containing information on votes cast by MEPs and their work history. First, we collect all electronic votes cast at the European Parliament between June 2004 and May 2019, characterizing each motion with the subjects they addressed. Second, we use the legislators' résumé to describe their work experience. We begin by characterizing their careers and education, which comprehends their previous professional experience, fields of expertise, and past roles in Parliament. We then match this data with the list of interest groups interested in influencing European policy-making to identify those legislators who worked for an interest group before taking office. Third, we identify the topics in which interest groups are interested. We match this information with the subjects of each motion voted in Parliament to determine which votes are relevant for each reverse revolver.[4] Finally, we merge all the previous data with the precise seating arrangement of every legislator in every plenary session, allowing us to study how seating adjacency to a reverse revolving door legislator influences voting behavior depending on the motion's relevance to their past employers.

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[3]The legislation enacted in the European Parliament covers a wide range of subjects, from policies affecting agriculture, transport, and other crucial industries, to regulations on consumers' protection and the Union's single market.

[4]For instance, we link all the voting motions on energy policy with those interest groups operating in the energy sector; all the legislation related to capital markets to interest groups operating in the financial sector, and so on.

We find that legislators seating next to reverse revolvers are 2.4% more likely to coincide in their ballots when the voting motions are related to the interest group's economic activity, compared to those seating beside a legislator with no experience in an interest group. The magnitude of such effect corresponds to 57% of the influence exerted by those party members in charge of drafting the motions being voted – known as shadow rapporteurs – or 43% of the magnitude of seating next to colleagues from the same national party. In contrast, we find no statistically significant effect of seating next to a former interest group employee when the vote is unrelated to the interest group's economic activity. Overall, these results suggest that reverse revolvers are effective at influencing their peers when voting in motions relevant to their former employing interest group.

We shed light on how the legislators' ballots are influenced by exploring their voting mobilization. We find that legislators assigned to be seating besides reverse revolvers are 9% less likely to abstain from voting when the motions are relevant to their neighbors' former employers. Similarly, these legislators are 1.3% more likely to attend the voting plenary when seated next to a reverse revolver. Further, results suggest that legislators progressively reduce the number of ballots on which they agree with their neighbors who have a background in an interest group. Overall, these results suggest that reverse revolvers mobilize their peers to take an active voting position in parliament, reducing voting indifference. However, legislators quickly learn about their seating neighbors' preferences, mitigating their influence.

In terms of the effect heterogeneity, we find suggestive evidence that former interest group members are especially effective at influencing high-stake votes. In particular, legislators seating beside former interest group employees are 5% more likely to cast the same ballot as their peers in motions containing important public expenditure decisions, such as those concerning the European Union budget. Moreover, we find that the time passed since the legislators' stopped working for an interest group matters for the size of the main effect. For instance, we find that our results are driven by those legislators who ceased working for an interest group for up to four years before taking office. However, no differential effect is found along the interest group's business nature or headquarters location.

Finally, we show that the legislators' demographic characteristics are relevant for understanding the influence exerted by adjacent reverse revolvers. Our results suggest that female legislators are driving the increase in the likelihood of casting the same ballot as their neighboring former interest group members. We further find no differential influence towards those legislators with prior experience in the motion put to vote and those with professional experience in an interest group.

To the best of our knowledge, this is the first study providing evidence of the distort-

ing effects caused by reverse revolving doors on the legislative process. These findings have important implications for policy-making as they shed light on a relatively over-looked lobbying practice used by interest groups, consisting of having insiders seating in democratically elected institutions. Our results support the hypothesis that revolving doors are problematic for the political process even when working in reverse.

This paper contributes to and builds on three literatures. Firstly, we contribute to the literature on lobbying in politics which harks back to Logan and Fellow (1929). Some recent studies have provided compelling evidence in favor of the argument that lobbyists' main asset is their connection with policymakers: (de Figueiredo and Silverman, 2006; Blanes i Vidal et al., 2012; Bertrand et al., 2014, 2020; d'Este et al., 2020). Further reviews on the lobbying literature can be found in De Figueiredo and Richter (2014), DellaVigna et al. (2016) and Bombardini and Trebbi (2019). While most of the literature focuses on how interest groups benefit from their political connections, our paper is the first one to causally study how those interest groups influence legislative voting in the chamber. We do so by focusing on a commonly overlooked practice: the placement of industry insiders in democratically elected institutions.

Secondly, we contribute to the literature on political selection (Besley, 2005; Mattozzi and Merlo, 2008). This literature has expanded in addressing the question of how legislators' careers, before entering parliament, influence different outcomes such as the working committee to which they are assigned (Adler and Lapinski, 1997; McElroy, 2006; Yordanova, 2009; Martin and Mickler, 2019), their leadership roles (Daniel and Thierse, 2018), and voting behavior (Francis, 2014; Van Geffen, 2016).

Thirdly, this paper borrows the empirical methodology used in some of the work on the determinants of legislators' voting behavior, which goes back to Rice (1927) and Routt (1938). Existing evidence on how legislators affect each other's voting behavior is still limited. While some work approximates legislators' social connections using the school in which they graduated from (Cohen and Malloy, 2014; Battaglini et al., 2020), others have used legislators' seats in the chamber as a determinant of their interactions and therefore potential voting influence on each other (Masket, 2008; Saia, 2018; Lowe and Jo, 2021; Harmon et al., 2019). Using the European Parliament setting, Harmon et al. (2019) estimate how seating adjacency affects voting coincidence, as well as heterogeneous effects across various shared personal characteristics, such as gender and nationality, and for close margin votes. We contribute to this literature by focusing on how legislators' previous working experience in an interest group affects their seating peers' voting behavior.

The remainder of the paper is organized as follows: Section 2 explains the institutional setting. In Section 3 and 4, we present our data and describe it, respectively. Section 5

exposes the empirical strategy followed. Section 6 presents the main results, and Section 7 concludes.

2 Institutional Setting

2.1 Legislative voting in the European Parliament

The European Parliament is the lower legislative branch of the European Union. Members of the European Parliament (MEPs) are chosen through elections held in each EU member state. Once elected, they join cross-national European Political Groups (EPGs) based on their national party's ideology. EPGs comprise legislators from different nationalities but with like political affiliations. These groups operate and perform actions similar to those of conventional political parties in national parliaments. Before every vote, each group discusses its position internally; however, and crucially for our analysis, every MEP has always the right to unilaterally choose which ballot to cast in every single vote.

Each EPG's position is actively promoted through the appointment of *rapporteurs* and *shadow rapporteurs*. A rapporteur is the MEP in charge of drafting, and subsequently promoting during plenary sessions, a report on the legislative proposal at stake. Although there is only one rapporteur per piece of legislation, the remaining groups can appoint their own shadow rapporteur to represent their political views in the proposal's drafting process.

We use the role of rapporteurs for two main purposes. First, given the wide variety of legislation voted upon at the European Parliament, ranging from non-binding opinions to far-reaching regulations, we use the appointment of rapporteurs as the means for distinguishing important motions from less prominent ones.[5] Hence, in our analysis we restrict our attention to those motions for which a rapporteur was appointed. Second, rapporteurs are entrusted by their parties to increase the Parliament's support for a specific motion, which requires influencing the vote of not only their party colleagues but also of other groups' members. For this reason, we introduce a set of controls to account for the role and influence of rapporteurs and shadow rapporteurs on their colleagues. Table B1 in the Appendix displays how motions with rapporteur compare to those without. It provides evidence for the higher relative importance of motions with a rapporteur measured by the type of procedures being voted on, as virtually all Budget of the Union and the Ordinary procedures are led by a rapporteur. Moreover, motions

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[5]The selection of a rapporteur is done through a sophisticated auction, in which EPGs bid "points", awarded in relation to their relative size in the chamber. Motions with no rapporteur correspond to those votes where no bid was placed. For further information, see Ringe (2010) and Daniel (2015).

with a rapporteur are characterized by a lower proportion of non-binding parliamentary own resolutions and a lower absence rate.

The European Parliament meets once or twice a month, during the so-called plenary sessions, in one of its two venues, located in Brussels and Strasbourg. These plenary sessions represent the final step of the legislative process, in which legislation is debated and voted on.[6] There are three different ways in which MEPs can cast their ballot, namely by show of hands, by secret ballot, or by electronic vote.[7] In our analysis, we work with electronic votes, which represent around 2/5 of the total votes submitted during the studied period, as they identify the ballot cast by each individual MEP. To cast a vote, legislators need to first obtain recognition in the system by inserting their unique ID card into their own voting device and subsequently pressing the button with their preferred choice. Casting a ballot for a colleague is strictly forbidden and penalized by the Parliament's norms.

2.2 Alphabetical seating in the chamber

The seating arrangement in the European Parliament's chambers is regulated by the rules of the Conference of Presidents. MEPs belonging to the different European political groups are clustered together in the chamber, and groups are allocated from left to right according to their political orientation. Figure 1 shows the seat distribution at Strasbourg's venue, highlighting the block seating allocation by the European political groups. Within these groups, leaders sit in the front rows while the remaining seats are generally allocated in alphabetical order by surname. The five largest groups, namely S&D, Verts/ALE, ALDE, PPE, and ECR, adhere to this seating rule.[8] In total, 55.7% of all MEPs sat alphabetically during our period of study period.[9] Throughout the studied period, the European Parliament had an average of 755 legislators, varying with the access of new member states to the Union. The compliance rate with the

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[6]The average plenary session convenes legislators for 4 days. These voting dates start at 9 a.m. and last till 10 p.m. During that time, MEPs are expected to sit in their allocated seat, only being allowed to move around the hemicycle in between debates.

[7]Electronic voting substituted roll-call voting as the only voting procedure in which the MEPs' individual ballots are recorded. Electronic voting is the default practice at the European Parliament, as it encompasses all final legislative votes since 2009, those in which a qualified majority is required, those in which there is no clear visual majority, and those for which any EPG or any group of at least 40 legislators previously requested it.

[8]The sample of non-alphabetically seated groups is composed by: EFD, EFDD, ENF, GUE/NGL, IND/DEM, ITS, UEN. The Greens (Verts/ALE) changed their seating organization to non-alphabetical at the beginning of Term 8.

[9]ALDE places part of its leaders in an alphabetic manner. We consider these alphabetically seated leaders as part of our sample of interest, pooling them with the rest of the alphabetically seated non-leader members. For simplicity, we refer to them also as non-leaders MEPs.

alphabetic seating rule might vary across groups and time.[10] The explanation for non-perfect adherence to the seating rule within the "alphabetical groups" is explained by the fact that the rule itself allows for members to occupy another seat for "technical or organizational proposes".

Figure 1: Strasbourg seating plan during the Plenary Session
held on February 4th 2013

Strasbourg, 04.02.2013
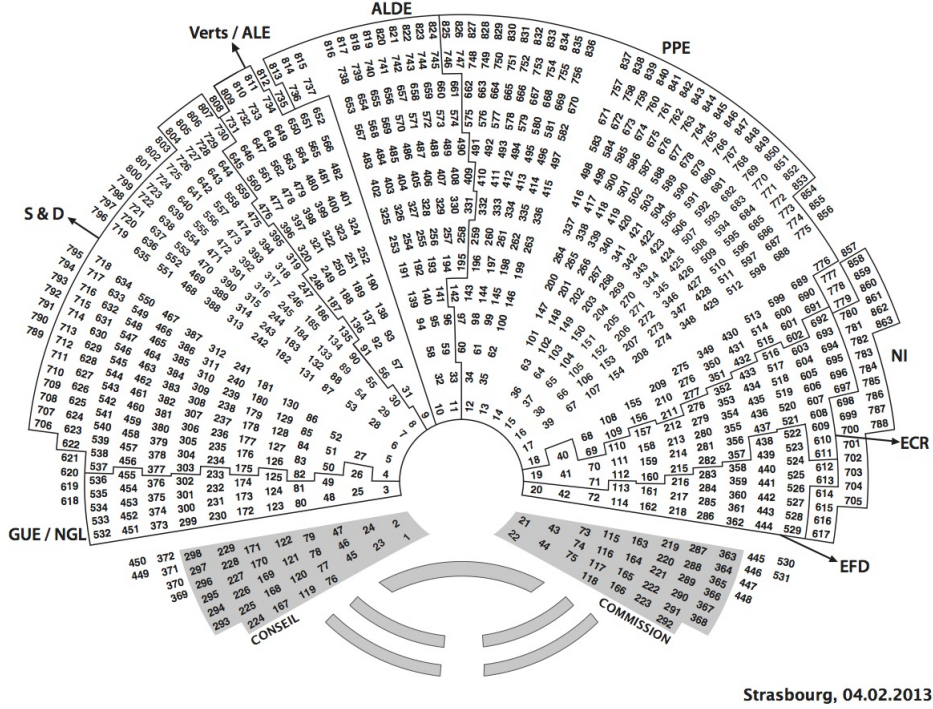
Similar to Harmon et al. (2019), we illustrate the predictive power of the alphabetical rank on the seating rank in Figure 2. It plots the within-EPG alphabetic rank and the within-EPG seating order for two different groups, one that adheres to the seating rule (Panel A) and one that does not (Panel B). In addition, individuals with prior working experience in interest groups are identified. The sample used in our analysis is determined by the change in the seating pattern depicted in Panel A. The dots on the left-hand side of Panel A depict those MEPs that sit in the front rows of their group, who clearly do not adhere to the alphabetic seating rule. We identify those as EPG leaders. The dots on the right-hand side represent those MEPs that do sit alphabetically within the seats designated for their EPG. Those are the non-leader MEPs. Lastly, Panel B contains dots representing MEPs belonging to an EPG that does not adhere to the alphabetic seating rule. Our analysis is restricted to non-leader MEPs belonging to alphabetically seating

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[10]The compliance rate is the correlation between the within-EPG alphabetical and seating rank. The average correlation across all voting dates is 0.92 in our sample of non-leaders from alphabetically organized EPGs.

EPGs. Furthermore, we can visually observe how the seating distribution of legislators with prior experience in an interest group is not spatially nor alphabetically clustered.

Figure 2: Seating and Alphabetical Rank

(a) ECR group
(b) GUE/NGL group
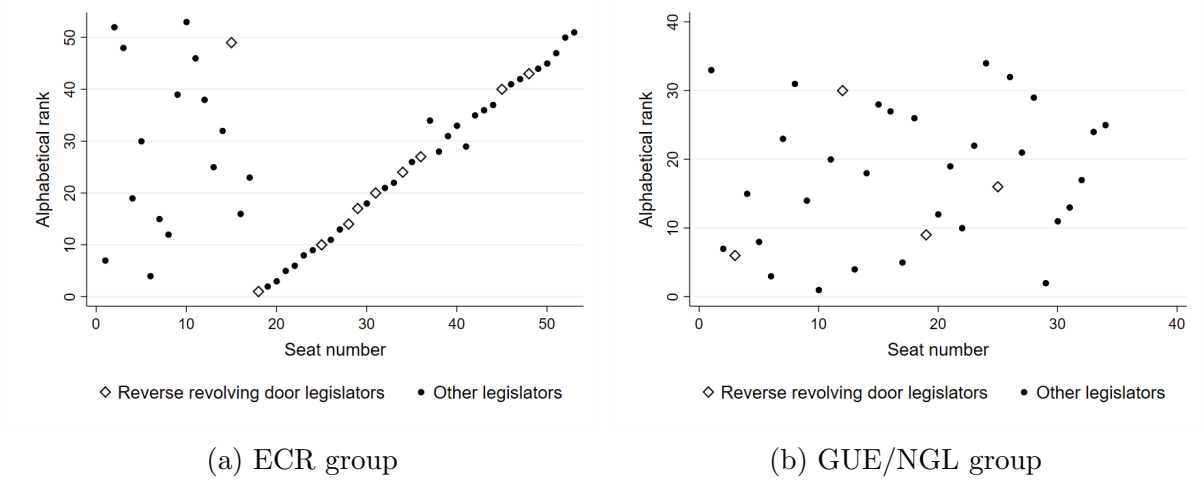
Notes: This figure shows the correlation between within-EPG alphabetic rank and within-EPG seating rank. Sub-figure 2a displays the correlation for the ECR group, which adheres to the alphabetic seating rule. Subfigure 2b looks at the GUE/NGL group, which does not adhere to the alphabetic seating rule. The data plotted corresponds to the plenary seating held on February 5, 2013.

3 Data

3.1 Plenary sessions

We collect the complete record of electronic votes at the European Parliament between June 2004 and May 2019 from each plenary session summary report. This dataset contains all electronically cast ballots for each MEP together with information on the motions' characteristics, such as the subjects covered and the committees involved. We combine this voting information with the MEP's corresponding plenary seating arrangement, published before each plenary session on the European Parliament's website.[11]

3.2 MEPs background

The legislators' biographical information comes from two different sources publicly provided by the European Parliament, namely the MEPs' personal profiles and their résumés. First, we collect the legislators' personal characteristics, such as age, sex, nationality, and national party, and their roles in the internal organization of the Parliament (e.g., working committees, EPG positions, and procedure rapporteurships) from the European

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[11]In the rare event that no seating plan was available for a particular plenary session, we take the preceding seating plan corresponding to the same venue as reference.

Parliament Directory. Second, we put together the biographical records of all the MEPs who took office at any point in time during the 6th, 7th, and 8th legislative terms, using their submitted résumés upon the start of their mandates.[12] The information contained in the résumés, initially collected by the European Parliament, was retrieved from the watchdog *Parltrack*. Using the information contained in these résumés, we classify legislators based on their educational and professional backgrounds.

We identify those MEPs who studied at a "Top 500" university, measured using the 2003 Academic Ranking of World Universities, as a proxy of education excellence as in Fisman et al. (2015). We further characterize MEPs using their professional experience. We use three main measures to classify our legislators, namely their labor profile, skill level, and topics of expertise. Regarding the first measure, we start by classifying the legislators' working spells with the same categories used by the European Parliament: political, professional, or academic. We assign each parliamentarian to a category by selecting the one that had the most repeated type of work spell after weighing them linearly by the duration of each spell. We use a supervised Random Forest algorithm to fill working spells that were not classified by the European Parliament under any of these three categories.[13]

Regarding the legislator's skill level, we use a keyword matching algorithm to capture those spells that reflect high levels of responsibility.[14] We then define each parliamentarian as having or not having managerial skills, following the same methodology used to assign a labor profile. Lastly, we assign each legislator the topics in which they gained expertise prior to entering parliament, so as to be able to rule out any potential confounding effects coming through a better knowledge of the subjects voted upon. We do this in two stages. First, using the educational and professional background of all legislators, we classify each legislator using the 14 different categories proposed in Yordanova (2009) and Daniel and Thierse (2018).[15] Next, using all 48 different predefined subjects attached to each motion voted in parliament, we select those that best map into each of the 14 expertise categories. Table B2 in the Appendix displays such mapping.

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[12]Despite being voluntary, a vast majority of the MEPs (81%) submitted their résumé. We hand-collect the biographical information of the remaining MEPs.

[13]We use as training dataset the résumés submitted during the terms 8th and 9th, as they were classified by the European Parliament under these three categories. The algorithm has a 5% error rate.

[14]Examples of the keywords used are CEO, board member, manager, founder, director, minister, secretary general, rector, dean, etc.

[15]We thank the authors of both studies for kindly providing their data, covering the 6th and 8th parliamentary terms. Following their directions, we hand-coded the same information for the 7th term.

3.3 Interest Groups

The other fundamental source of information is provided by the EU Transparency Register. This voluntary register, created by the European Parliament and the European Commission in 2011, lists those organizations interested in influencing the EU decision-making process. Despite being voluntary, both the European Parliament and the European Commission require individuals to be listed in the register in order to access its facilities and to participate in a diverse range of activities that they promote, i.e., public consultations and expert groups, or to contact high-level decision-makers.[16]

For 2018, the register encompasses around 12.000 entities, with a total lobbying budget of €2.38 billion and almost 30.000 employees. From this source, we build a dataset with more than 17.000 entities registered at any point in time between 2016 and 2019,[17] including information on each organization's lobbying budget, policy interests, and sectors of activity. We use this dataset to extract the list of all organizations that have expressed interest in EU policy-making, and match them with the employers' names found in the MEPs' résumés. We employ a keyword matching algorithm using a wide variety of patterns, such as stemmed words, the interest groups' websites, and different versions and translations of their registered names. The overall matching rate is 85%, computed using a hand-coded sample. A total of 28% of the MEPs in our sample were found to have worked for an interest group at some point before taking up office, ranging from short working spells on regional NGOs to high-level consulting jobs in lobbying firms.

Lastly, and crucial for our analysis, we are interested in identifying those motions that can be considered to be of importance for the economic activity of the interest groups identified in our sample. To do so, we rely on the 48-policy subject categories that the European Parliament assigns to each motion, linking them to each interest group.[18] The result of the hand-coded linkage between policy subjects and interest groups is the indicator variable *Relevant*, which allows us to distinguish which votes are of relevance to each interest group. To construct this variable, we use information scattered over different sources, such as the revealed issues of interest reported in the EU Transparency Register, the issues covered during the meetings with high-level officials from the European Commission, and their activity description from their website, among others.

Table B3 in the Appendix shows the share of interest groups that are assigned to each

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[16]For further information, please refer to the Annual Report on the operations of the Transparency Register (2019) and Rule 11 in the Rules of Procedures of the European Parliament.

[17]We implicitly assume that those organizations registered at least once in the register were always interested in EU policy-making.

[18]The aforementioned level of disaggregation was selected to correctly match the MEPs' résumés information. For further details on the policy topics classification, see the EP Legislative Observatory.

subject and their share over the total number of votes cast. While our main analysis is conducted using a single subject of interest per interest group, in Table B6 in the Appendix, we provide evidence that our main result holds when assigning each interest group with up to 3 relevant subjects.

4 Descriptive Statistics

Table 1 gives some descriptive evidence of how legislators in the sample used for our analysis, i.e., non-leaders affiliated to alphabetic seating groups, compare in a set of observable characteristics to their party leaders and members of non-alphabetic groups. In our main sample, we identify 5 large groups, namely EPP, S&D, Greens, ECR, and ALDE, with 1,703 MEPs in their ranks. These MEPs cast 55.36% of all ballots at the European Parliament during the 6th, 7th, and 8th legislatures.

Panel A displays information on legislators' individual characteristics. Compared to their leaders, our sample of MEPs is characterized by a higher share of women (37% of the votes cast), younger cohorts, and a lower proportion of members having studied in a top-ranked education institution. Note that no large differences in these measures appear between MEPs in our sample and those affiliated to non-alphabetic seating groups.

Panel B presents the roles held in parliament for each subsample. MEPS who seat alphabetically go marginally less often to vote compared to their party leaders, but do so more frequently than non-alphabetic members. They also hold fewer rapporteurships and positions in working committees than their leaders. This comes as a result of their novel status, with 57% of the votes cast by first-term members. Alternatively, we can observe how our sample of members is more actively involved in the parliament than those legislators from non-alphabetic groups.

Panel C reports information on the legislators' previous working experience. The predominant career profile among European Parliament legislators in our sample of interest is a political one rather than a professional or academic profile (69%, 27%, and 3%, respectively), with similar shares in each of those categories in the other two samples. Legislators in our sample are further defined by having a median working profile, both in terms of experience and managerial status, when compared to their leaders and to members of non-alphabetic groups. Similarly, their average number of prior employment spells, 12.2, represents a mid-ground between their party leaders and those legislators in non-alphabetic groups. Key to our study is that MEPs' résumés are exhaustive, something that can be visually verified by comparing the legislators' mean age and years worked.

Panel D details the information about the legislators' prior interest group experience.

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Table 1: European Parliament sample comparison

	Non-leaders at alphabetic seating EPGs		Leaders at alphabetic seating EPGs		EPGs with no alphabetic seating	
	Votes cast	MEPs	Votes cast	MEPs	Votes cast	MEPs
Panel A: Legislators' characteristics						
Share women	0.37	0.36	0.33	0.33	0.31	0.28
Mean age	53.41	53.22	56.33	55.58	53.14	53.62
Share top ranked education	0.30	0.31	0.39	0.37	0.30	0.28
Panel B: Roles in Parliament						
Share first-term elected	0.57	0.58	0.26	0.34	0.66	0.67
Mean tenure at the EP	3.21	3.09	6.05	5.41	2.22	2.20
Share absence	0.13	–	0.12	–	0.15	–
Share rapporteur	0.001	–	0.002	–	0.000	–
Share shadow rapporteur	0.003	–	0.003	–	0.01	–
Mean number committee membership	4.96	–	5.37	–	4.65	–
Panel C: Legislators' prior experience						
Mean number of working spells	12.19	11.90	14.32	13.33	7.94	8.04
Mean years of working experience	24.68	24.39	26.69	26.29	22.68	22.86
Share managerial profile	0.27	0.26	0.30	0.28	0.23	0.23
Share political	0.69	0.70	0.78	0.78	0.56	0.57
Share professional	0.27	0.25	0.17	0.18	0.37	0.37
Share university	0.03	0.04	0.03	0.03	0.07	0.06
Panel D: Legislators' prior interest group experience						
Share worked for an interest group	0.28	0.28	0.31	0.31	0.21	0.19
Years experience in interest group	9.40	9.05	9.19	8.86	9.14	8.90
Interest group's share of relevant subject	0.05	–	0.06	–	0.05	–
Total	6,770,336	1,703	3,056,927	828	2,400,508	527

Notes: The table shows counts and shares in three different subsamples representing all the members of the European Parliament. Every member is coded as part of one of these samples or blocks. Columns 1, 3, and 5 represent shares computed using all the votes cast, while Columns 2, 4, and 6, show those same shares computed using individual legislators. The sample selection criterion used to construct each of these three blocks is the same applied to obtain the sample used in the baseline analysis: we use only votes with an assigned rapporteur and containing at least one subject. In Columns 1 and 2, we look at non-leader legislators in an alphabetic seating group. In Columns 3 and 4, we look at those legislators who are leaders in an alphabetic seating group. Finally, in Columns 5 and 6, we look at all other legislators who are affiliated to non-alphabetic seating groups . Moreover, for all three categories, we use only members who sit beside at least one other legislator belonging to the same category.

We can notice how legislators with such experience are not equally distributed across the three samples. In our main sample, 28% of the legislators have working experience in at least one interest group. Such MEPs are more prevalent among the party leaders of alphabetic seating groups, with 31%, and less among non-alphabetic EPGs, with 19% of their members. Nevertheless, the share of votes considered to be relevant to the economic activity of the interest groups that employed those legislators is similar across the three subsamples (5-6%).

Table 2 provides some descriptive evidence on the type of interest groups represented in our sample of non-leaders in alphabetical seating groups. The average interest group is

a Belgium-based NGO, with on average 15 employees, 2 of which can access the European facilities, and with an average lobbying budget of 500.000€. Furthermore, the sample used contains a wide variety of interest groups, ranging from small to very large interest groups, as highlighted by the large budget and employees' standard deviations.

Table 2: Interest Group's characteristics

	Mean	SD	Min	Max	N
Panel A: Business type					
NGOs	0.23	0.42	0	1	513
Academic institutions	0.19	0.39	0	1	513
Companies & Groups	0.18	0.39	0	1	513
Trade Unions	0.10	0.30	0	1	513
Other institutions	0.09	0.29	0	1	513
Trade and Business associations	0.06	0.24	0	1	513
Think Tanks	0.06	0.23	0	1	513
Transnational associations	0.04	0.19	0	1	513
Consultancies	0.03	0.17	0	1	513
Regional structures	0.03	0.17	0	1	513
Panel B: Headquarter's location					
Belgium	0.23	0.42	0	1	513
Germany	0.12	0.32	0	1	513
United Kingdom	0.11	0.32	0	1	513
Italy	0.07	0.26	0	1	513
France	0.07	0.25	0	1	513
Poland	0.04	0.21	0	1	513
Finland	0.04	0.20	0	1	513
Netherlands	0.04	0.20	0	1	513
Spain	0.04	0.20	0	1	513
Denmark	0.03	0.17	0	1	513
Rest of Europe	0.15	0.36	0	1	513
Rest of the World	0.05	0.22	0	1	513
Panel C: Other characteristics					
Num. Employees	14.81	209.82	0	4750	513
Num. EP Accreditations	1.78	3.86	0	53	513
Lobbying Budget	512,445	1,131,297	0	10,000,000	513

Notes: The table displays the mean, standard deviation, minimum, and maximum values for a set of interest group's characteristics. The interest groups used correspond to those identified in the résumés of non-leader MEPs affiliated with an alphabetic seating group.

5   Empirical Strategy

We are first interested in examining the extent to which MEPs' voting behavior is influenced by being placed adjacent to a colleague with working experience in an interest group using the following model:

$$Agree_{iv} = \alpha + \beta_1 Peers\ IG_{iv} + \eta_{iv} \qquad (1)$$

where $Agree_{iv}$ is a variable capturing the fraction of legislators seating to the left and to the right of the focal legislator i during vote v casting the same vote as i. $Peers\ IG_{iv}$ is the fraction of adjacent legislators to the focal legislator i during vote v who used to work for an interest group before joining parliament.[19]

To interpret β_1 as the causal effect of seating besides a colleague with previous interest group experience, we need legislators not to be able to choose where to sit; otherwise, some of their unobserved characteristics might correlate both with their voting behavior and their previous professional experience, biasing our estimation of β_1. We address this concern by restricting our attention to those members who sit in alphabetical order. Despite the high compliance rate with the alphabetic seating rule, as shown in Section 2, we estimate both the intention-to-treat (ITT) and the average treatment effect of the compliers (LATE) instrumenting the group of individuals that sit adjacently to the focal MEP using the individuals whose surname is adjacent in the group's alphabetic rank. Hence, $Name\ Peers\ IG_{iv}$ is the fraction of legislators who previously worked at an interest group, and whose surnames are adjacent to that of the focal MEP i in her EPG's alphabetic list in a given vote v.

A concern when using surname contiguity as an instrument for seat adjacency is that the former might be confounding other unobserved heterogeneous characteristics that cause legislators to vote in a similar way, such as having similar background. Using a dyadic approach, Harmon et al. (2019) assesses such concern by showing that, after conditioning for party affiliation and surname similarity controls, surname adjacency between two MEPs does not predict their shared characteristics, such as shared nationality, similar education, freshman status, or gender. Using their results, in our preferred specification we control for surname similarity by using the fraction of adjacent legislators sharing the same surname as the focal MEP and the absolute alphabetic rank across EPGs and terms. These two controls help us mitigate unobservable characteristics shared by the focal and peer legislators.

In addition to the name similarity controls, we further include a comprehensive set of controls to capture any other type of characteristic of the focal legislator and her group of peers that might affect their voting agreement, together with fixed effects by EPG-Term, plenary sessions since the term started, procedure type and vote subject. Section A in the Appendix includes the list with all the controls introduced in our specifications and their descriptive statistics are reported in Table B4 in the Appendix.

Next, we analyze whether the effect captured by β_1 depends on whether the subject of the motion being voted on is related to the adjacent legislators' former interest groups. To that end, we introduce a new variable that identifies whether any of the subjects of the

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[19]MEPs seated at the beginning or the end of their rows, as well as those seated by an aisle, are coded as only having one seat next to them instead of two.

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proposal being voted are related to the interest group in which the adjacent colleagues used to work, *Relevant*. Importantly, we code this variable only for the interest groups identified in our sample. Thus, this variable only takes a value of 1 if any adjacent MEP worked for an interest group before taking office; it takes a value of 0 when no adjacent legislator has experience in an interest group, or when the voting subject is unrelated to their interest group's sector of activity. Thus, we estimate the following fully saturated model:

$$Agree_{iv} = \alpha + \gamma_1 Peers\ IG_{iv} + \gamma_2 Peers\ IG_{iv} \times Relevant_{iv} + \epsilon_{iv} \tag{2}$$

as in Equation 1, we instrument Equation 2 using *Name Peers IG$_{iv}$* and *Name Peers IG$_{iv}$* × *Relevant*, in a twin first stage regression setting. We cluster all standard errors at the legislator level.

6   Results

We present our first set of results in Table 3. Columns 1 to 5 display the ITT estimates from equation 1, using *Name Peers IG* instead of *Peers IG* and progressively including different fixed effects and individual and peer controls. Our first coefficient of interest, present in column 1, is estimated using a specification that does not include any fixed effect nor control variables. It indicates that there is a statistically significant increase of 3.5 percentage points in the probability of MEPs casting the same ballot as their alphabetic adjacent peers when all of them have professional experience in an interest group. By including EPG-by-Term and plenary session fixed effects and name similarity controls, we then account for the possibility that those effects might come from a specific EPG at a given legislative term, from some sort of temporal trend, or from name similarity conditions. The effect on the agreement probability is still statistically significant, while attenuated to an increase of 2.07 percentage points. In Column 3, we further control by some vote characteristics, namely by the procedure type and the vote subject, finding a similar effect of 2.06 percentage points.

In Column 4, we introduce focal legislators' characteristics, reducing the average probability of casting the same ballot as those surname adjacent MEPs with prior experience in an interest group to 1.27 percentage points. Introducing peer-related controls in Column 5 produces a considerable drop in the probability of co-voting to 0.66 percentage points, and the coefficient becomes statistically insignificant.

Column 6 introduces our main regressor of interest, *Name Peers IG* × *Relevant*. It captures the additional effect of voting on a motion deemed relevant to the former employer of alphabetically adjacent MEPs on their probability of co-voting. It can be

interpreted as the additional effect of being adjacent in the alphabetic list to a legislator who used to work for an interest group when the subject of the motion is related to that group's economic activity. When the subject's motion is not of interest to the peers' former employers, *Name Peers IG*, the agreement rate is smaller and not precisely estimated. This is not the case when the subject at stake is relevant to the peers' former interest group. In that case, *Name Peers IG × Relevant* significantly increases the probability of vote coincidence, by 0.7 percentage points.

Compared to those MEPs with no adjacent former interest group legislators, surname adjacency to legislators with prior interest group exposure when the vote is deemed to be relevant to their interest groups increases the probability of casting the same ballot by 1.9 percent. The magnitude of this effect is 16% and 44% the size of the effects found for being name adjacent to the rapporteur and shadow rapporteur of the motion, respectively.[20] Given that the primary task of a rapporteur, and shadow rapporteurs, is to convince other legislators to vote like them on the motion they represent, we argue that former interest group members have a sizable influence on their adjacent colleagues.

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[20]Table B7 displays Table 3 together with the coefficients for both focal and peer rapporteur and shadow rapporteurs, and for whether both focal and peer MEPs are from the same national party. Our main effect explains 43% of the variation in co-voting with a colleague from the same national party.

Table 3: Average effect of reverse revolving doors connections on vote coincidence

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) OLS Agree	(5) OLS Agree	(6) OLS Agree	(7) 2SLS Agree
Name Peers IG	0.0350*** (0.0076)	0.0207*** (0.0067)	0.0206*** (0.0067)	0.0126** (0.0053)	0.0066 (0.0049)	0.0059 (0.0050)	
Name Peers (IG * Relevant)						0.0074* (0.0039)	
Peers IG							0.0080 (0.0066)
Peers (IG * Relevant)							0.0092* (0.0049)
EPG x Term FEs	No	Yes	Yes	Yes	Yes	Yes	Yes
Sessions since term started FEs	No	Yes	Yes	Yes	Yes	Yes	Yes
Procedure type FEs	No	No	Yes	Yes	Yes	Yes	Yes
Vote subject FEs	No	No	Yes	Yes	Yes	Yes	Yes
Name controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Focal MEP controls	No	No	No	Yes	Yes	Yes	Yes
Peers controls	No	No	No	No	Yes	Yes	Yes
Observations	6,770,336	6,770,336	6,770,336	6,770,336	6,770,336	6,770,336	6,770,336
Mean Agree	0.707	0.707	0.707	0.707	0.707	0.707	0.707
Joint p-value						0.0236	0.0254
F-stat 1							1056
F-stat 2							1308

Notes: This table shows the results of estimating Equation (2). We denote as joint p-value the test on the joint significance of the adjacency to a legislator with previous experience in an interest group, and when the topic is relevant for such interest group (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at the legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Finally, Column 7 provides an estimate of the LATE using both regressors of interest. The high predictive power of the instrument is displayed in Table B5, which reports the results of the two first stages using the same controls and fixed effects as the specification in Column 7. Compared to Column 6, we can appreciate how both *Peers IG* and *Peers IG*Relevant* are similar in magnitude to their surname counterparts, as a result of the strong first stages. We find an increase in the average probability of casting the same ballot as the adjacent MEPs when voting on a subject deemed of relevance to their interest groups by 1.7 percentage points, or 2.4% when compared to those legislators with no adjacent former interest group member.[21] This effect corresponds to 21% or 57% of the influence exerted by an adjacent rapporteur or shadow rapporteurs, respectively.[22,23]

We are now interested in understanding the potential mechanisms that are at play when former interest group employees turned politicians persuade their colleagues to vote like them. To that end, we shed light on the channels through which these legislators affect voting behavior, such as voting mobilization, the emphasis on high stake votes, the type of MEPs who are more susceptible to this practice, the importance of the connection persistence, and various interest group's characteristics.

6.1 Voting mobilization

We turn now to analyze how the legislators' ballots are influenced. Under the implicit assumption that legislators who previously worked for an interest group have a clear stance on those motions with a subject related to their previous employers,[24] their objective is to mobilize their network to vote in favor or against specific motions along their previous employer's economic activity. Using the specification in Equation (2), we start by estimating whether being in close proximity to a legislator with prior experience in an interest group affects the probability of abstaining from relevant votes.

We use an indicator variable taking a value of 1 if the focal legislator i casts an abstention ballot in vote v and of 0 otherwise. Columns 1-3 in Table 4 display the results from such estimation. Seating adjacent to reverse revolvers does not have on average an effect on voting abstention, while it does when the motion is relevant for

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[21]We show in Table B8 that such influence is not present in cross-party neighbors.

[22]Relevant for the consideration of the magnitude of our effects is the fact that seating adjacency, by itself, already increases the probability of *agreeing* by 0.6 percentage points (Harmon et al., 2019).

[23]We show in Table B9 how legislators who previously worked in an interest group not only affect their closest peers, but also those at higher distances, with a decaying influence as distance increases. In the same line, Table B10 shows that using row-aggregated information produces consistent results with our main specification. In Table B11, we provide evidence that our benchmark results are not sensitive to different clustering choices.

[24]In our sample, we can observe how legislators have a clearer stance in those votes deemed to be relevant for their former employers (they vote yay or nay, in 86% of the votes when relevant and 85% when not relevant, as compared with the average baseline likelihood, 84 percent).

the interest group in which the neighboring legislator used to work. In our preferred specification, the effect, although small in absolute magnitude, predicts that legislators seating adjacent reverse revolvers when the vote is of interest for their interest groups are on average 0.3 percentage points or 9% less likely to abstain. However, the joint significance test is not statistically significant at standard levels.

Table 4: Average effect of reverse revolving doors connections on voting abstention and absenteeism

	(1) OLS Abstain	(2) OLS Abstain	(3) 2SLS Abstain	(4) OLS Absent	(5) OLS Absent	(6) 2SLS Absent
Name Peers IG	-0.0010 (0.0016)	-0.0009 (0.0016)		-0.0086* (0.0047)	-0.0086* (0.0047)	
Name Peers (IG * Relevant)		-0.0017** (0.0008)			-0.0000 (0.0038)	
Peers IG			-0.0012 (0.0021)			-0.0115* (0.0062)
Peers (IG * Relevant)			-0.0020** (0.0010)			-0.0000 (0.0047)
EPG x Term FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes	Yes	Yes	Yes
Name controls	Yes	Yes	Yes	Yes	Yes	Yes
Focal MEP controls	Yes	Yes	Yes	Yes	Yes	Yes
Peers controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,881,658	5,881,658	5,881,658	6,770,336	6,770,336	6,770,336
Mean dep. variable	0.0229	0.0229	0.0229	0.131	0.131	0.131
Joint p-value		0.131	0.139		0.141	0.134
F-stat 1			1020			1056
F-stat 2			1236			1308

Notes: This table shows the results of estimating Equation (2) using as the dependent variable whether the legislator cast an abstention ballot or was absent during the vote. Columns 1-3 analyze the intensive margin of voting, using only those days in which the focal legislator attended the voting plenary. Columns 4-6 study the extensive margin of voting, i.e., whether the focal legislator attended the voting plenary. We denote as joint p-value the test on the joint significance of the adjacency to a legislator with previous experience in an interest group, and when the topic is relevant for such interest group (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at the legislator level. *** p<0.01, ** p<0.05, * p<0.1.

We have just shown how indeed reverse revolvers influence their peers out of abstention when the motion voted on is relevant for their former employer. This influence is possible because the limited party line enforcement at the European Parliament reduces the individual cost of casting a vote instead of actively abstaining. Our results seem to indicate that legislators with past professional experience in an interest group affect

their peers when they are in the chamber.

In the same direction, we could expect that they would also mobilize their network to participate in the voting process, as that would increase their support for a specific motion. Columns 4-6 in Table 4 display the analogous analysis for MEPs' absenteeism. We estimate Equation (2) using as the dependent variable an indicator variable taking a value of 1 when the focal legislator i was absent during vote v, and a 0 otherwise. In our preferred specification, being designated to sit next to legislators with prior interest group experience does indeed decrease the focal legislator's probability of absenting from voting by 1.15 percentage points. Since MEPs in our sample are on average absent for 13% of the votes, the effect implies an 8.7% decrease in the mean absenteeism or conversely a 1.3% increase in the mean attendance.[25]

6.2 Connection persistence

In the previous sections, we showed that seating adjacency to a reverse revolver increases the likelihood of casting the same ballot, especially in relevant voting motions. We now want to explore how such co-voting evolves as peers get to know each other.

On the one hand, seating next to the same colleagues for long periods of time could facilitate the exchange of ideas and the negotiation process, thus potentially increasing the agreement rate between those members. In our case, this would allow reverse revolvers to draw adjacent legislators closer to their views. On the other hand, the opposite effect could play a role too; legislators might learn about each other's points of view and hidden interests, and as a result, avoid co-voting with them. In our case, this would imply that the influence of reverse revolvers would decrease over time as their peers learned about each other's inclinations.

Figure 3 shows the results of estimating Equation 2 looking at the cumulative time legislators have spent with their seating colleagues in a given legislature. As shown in the results for the baseline analysis, reverse revolvers only influence their peers' voting behavior in those motions classified as relevant to their previous employer. Nevertheless, this effect decays as the group of legislators spends time together. This result provides suggestive evidence that legislators learn from their peers' inclinations, limiting the initial influence exerted by reverse revolvers. It is worth mentioning that all the regressions include time fixed effects, ruling out confounding effects with the parliamentarian learning process. More concretely, we show that reverse revolvers' influence is short-lived, leading to an increase in co-voting by 3 percentage points only during the first year

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[25]Table B12 shows how the agreement rate with neighboring colleagues with an interest group background is similar for the voting of amendments and final votes. Similarly, Table B13 shows that reverse revolvers do not influence legislators' voting corrections or intentions.

spent together. No significant effect is found at higher time horizons.[26]

Figure 3: Revolving doors and vote coincidence over time
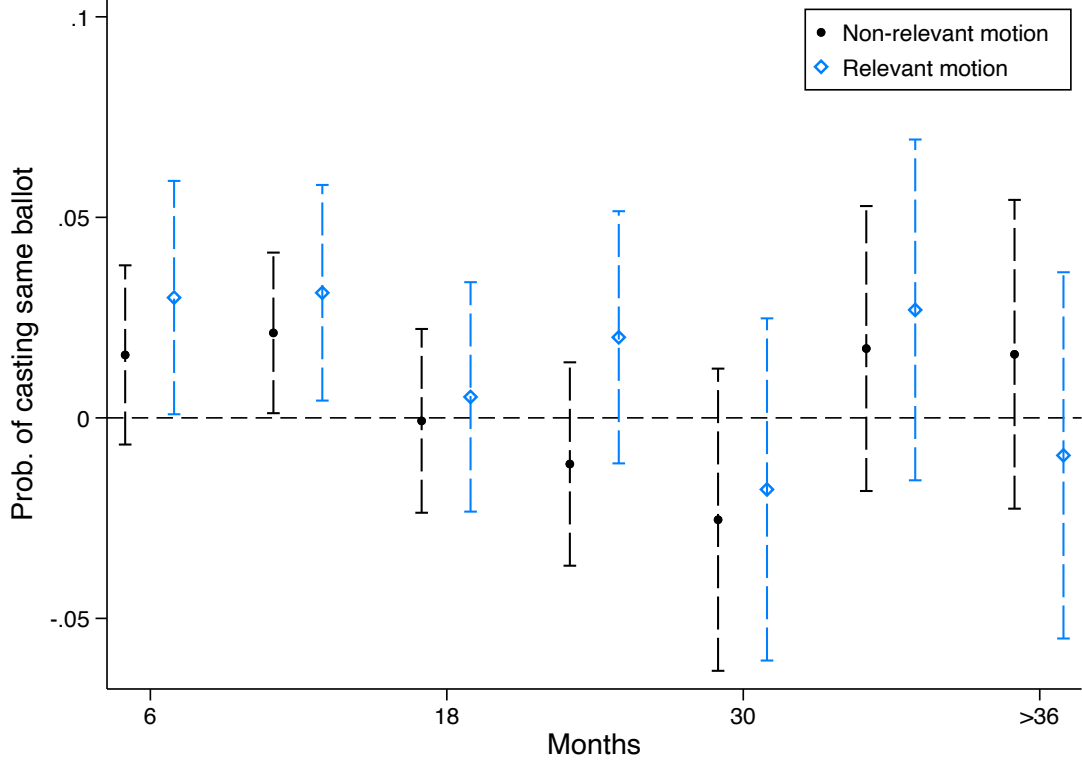
Notes: This figure shows the results of estimating Equation (2) showing the results depending on the cumulative time focal legislators and their adjacent peers have spend together during a given legislature. The results shown correspond to the effect of seating adjacently to a legislator who previously worked for an interest group, when the subject of the motion is not relevant for its former employer, *Non-Relevant motion*, and when it is, *Relevant motion*. A comprehensive set of controls for the focal and peer legislators is used in the analysis. See Appendix A for further information on the included controls. Standard errors are clustered at the legislator level. Confidence intervals represent the 95% confidence level.

6.3 High-stake votes

We want to understand whether the influence of reverse revolvers is stronger in high-stakes situations. To that end, we rely on different vote characteristics to identify these types of situations.

First, in order to infer a motion's intrinsic importance, we turn our attention to whether it concerns the budget of the Union or not. We consider this indicator to be a good proxy for high-stakes situations as such voting motions help determine how the entire annual EU budget is spent. Indeed, more than 16% of ballots in our sample refer to votes on the budget. Second, to infer the motion's relative voting importance, we

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[26]Table B14 and Table B15 present the fully interacted version of Figure 3, using the number of voting days and sessions together, respectively showing quantitatively similar results.

look at those that passed by a narrow margin. We consider these to be a good ex-post measure capturing the legislators' voting pivotality in a given motion. In our sample, 2, 9.5, and 18% of the votes refer to motions passed by less than a 1, 5, and 10% margin of victory, respectively. Figure 4 presents the heterogeneous effects by voting importance. It is constructed by interacting our benchmark specification, as in Equation 2, with each one of the previously explained measures of voting importance.

Figure 4: Reverse revolving doors and vote coincidence in high-stake votes
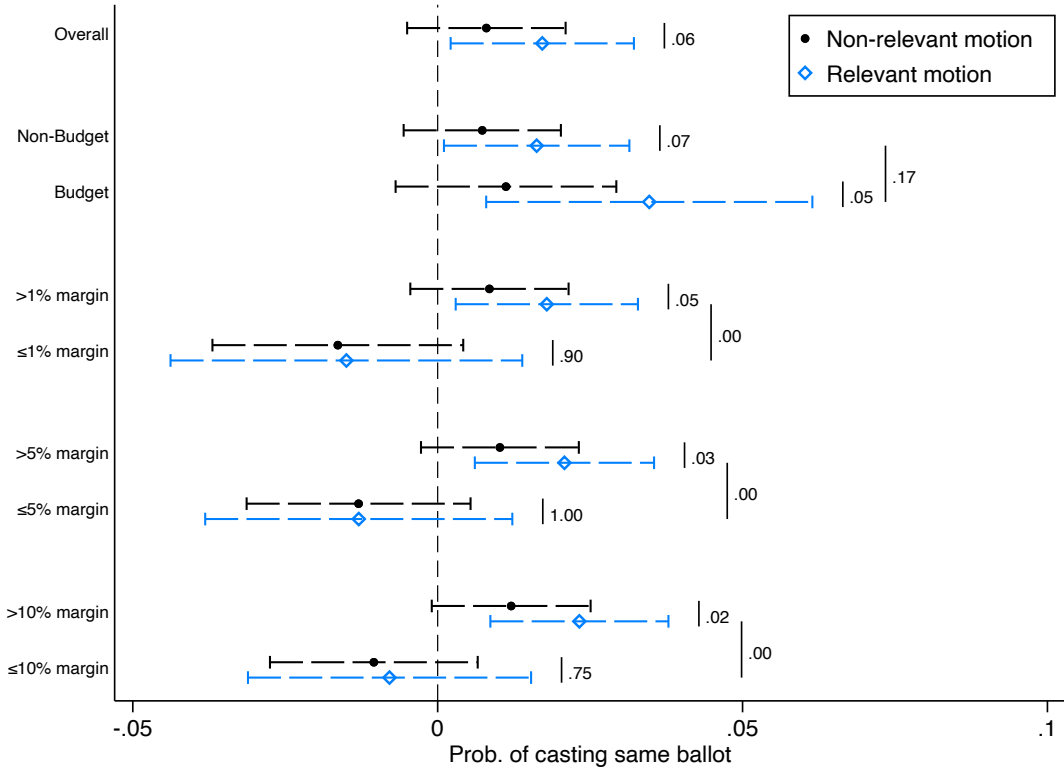
Notes: This figure shows the results of estimating Equation (2), interacted with each one of our measures of voting importance. The results shown correspond to the effect of seating adjacently to a legislator who previously worked for an interest group, when the subject of the motion is not relevant for its former employer, *Non-Relevant motion*, and when it is, *Relevant motion*. A comprehensive set of controls for the focal and peer legislators is used in the analysis. See Appendix A for further information on the included controls. Standard errors are clustered at the legislator level. Confidence intervals represent the 95% confidence level. *p*-values from Wald tests for the equality of two estimates are reported next to each solid vertical line between the two estimates.

Regarding budget-related motions, we can observe that legislators are influenced when seating in close proximity to a former interest group member, both when voting on budget and non-budget-related motions. For instance, having all seating neighbors with an interest group background when the subject is relevant for any of their prior employers increases the probability of casting the same ballot by 1.6 percentage points in the case of non-budgetary votes and by 3.4 percentage points on budget votes. Both effects are statistically significant at the 5% level and, when compared to their corresponding average agreement rates, the probability of voting like the seating peers increases by

2.2% for non-budget votes and by 5% for budget-related motions. However, we fail to reject by a p-value of 0.17 that the two coefficients are equal.

Regarding highly contested motions, we can observe that seating next to reverse revolvers does not affect the probability of co-voting along the three winning margins considered, namely winning by 1, 5, or 10 percent. While interest groups might put more resources into winning highly contested motions, legislators are also subject to higher scrutiny from their own party in such votes, making it more costly to deviate from other party peers. As a result, the reverse revolving door practice might not play a relevant role during highly contested votes, influencing only uncontested voting motions. Our results provide suggestive evidence that reverse revolvers, rather than fighting for individual voting motions, put more effort into creating majorities.

Overall, all these results suggest that legislators with an interest group background invest significant effort in persuading their colleagues in close proximity during budget-related votes, but are not found to do so during highly contested votes.

6.4   MEPs' characteristics

We want to understand which personal characteristics define a legislator as more susceptible to being influenced by colleagues with an interest group background. Following the same strategy as with the high-stake votes, Figure 5 shows whether being in close contact to reverse revolvers differentially influences legislators along their personal characteristics.

We first analyze whether the gender of the focal legislator – whose vote is analyzed – plays a role. Results reported in Figure 5 highlight that the effect on the co-voting probability is driven entirely by women, while no effect is found for male legislators. In particular, female legislators are 3 percentage points more likely to cast the same ballot as their seating neighbors with an interest group background. Looking at the overall average agreement rate, this effect implies a 4.2% increase in the likelihood of casting the same ballot. However, the effect of seating next to a former interest group member, when the vote is deemed to be relevant, does not significantly differ along the focal legislators' gender.

Another group of legislators that may be prone to the influence of their colleagues' previous professional experience is first-term elected legislators. Several reasons might lie behind such behavior, ranging from not being familiar enough with most subjects that are voted upon in the Parliament to their higher willingness to align with more tenured colleagues. This hypothesis is tested in Figure 5, in which we identify those MEPs that have been present for more than one legislative term, and those who just got elected, whom we label as first-termer. While the agreement rate of more tenured MEPs

Figure 5: Reverse revolving doors and vote coincidence by personal characteristics

with their seating neighbors is not significantly affected by the neighbors' background in an interest group, first-term MEPs are more likely to cast the same ballot. More concretely, the agreement rate of first-term MEPs with their seating colleagues when all of their neighbors have worked in interest groups increases by 2 percentage points. This estimate is statistically significant at a 5% level and corresponds to a 2.8% increase over the average agreement rate. However, there is no significantly different effect between first and non-first-termers when the vote is relevant for their adjacent colleagues.

Similarly, legislators with expertise in the voted motion might be more likely to follow their own voting rationale, given their broader knowledge, and avoid their neighboring colleagues' influence. Figure 5 tests this hypothesis by showing how seating next to reverse revolvers influences legislators' voting behavior depending on their formal and political expertise on the motion at stake. We say that a legislator has formal expertise when she had education/working exposure prior to entering parliament on any of the motion's topics. We say that a legislator has political expertise when she was part of

the working committee responsible for drafting the voted motion. Figure 5 shows that reverse revolvers influence only those legislators lacking any formal or political expertise on the voting subjects. No statistically significant effects at conventional levels, are found when the focal legislator has any expertise on the motion voted upon. More concretely, legislators with no formal or political expertise increase by 1.8 and 1.7 percentage points, respectively, their agreement with their neighbors when they are reverse revolvers.

Finally, while legislators with prior experience in interest groups affect their peers, such possibly partisan influence may be easily spotted, and avoided, by other legislators with similar professional backgrounds. The last block in Figure 5 tests this hypothesis by looking at whether those legislators with an interest group background themselves are also influenced by their colleagues' interests. It shows that those legislators who worked for an interest group before entering parliament are not influenced by their peers who also worked for an interest group. Meanwhile, the agreement rate of MEPs with no ties to interest groups and their seating colleagues when all of their neighbors have an interest group background increases by 2.1 percentage points, which corresponds to a 3% increase over the average agreement rate. Despite that, there is no significant difference in the way former interest group members influence their colleagues with and without prior interest group exposure.

These results indicate that not all MEPs are affected in the same way by their seating colleagues' previous professional experience in an interest group. Specifically, we find suggestive evidence that female legislators are the main subgroup behind the increase in the likelihood of casting the same ballot as their neighboring former interest group members. However, contrary to our hypotheses, we do not find significantly different effects of seating next to a former interest group member on the co-voting probability along the focal legislator's expertise and interest group exposure.

6.5   Interest groups' characteristics

We now shed light on whether the influence of those legislators with prior ties to interest groups varies depending on various interest groups' characteristics.

First, we look at whether the influence former interest group members exert on their peers depends on the interest groups' business type. To that end, we define an interest group as private good if its legal status is business-related (e.g., companies and corporations which are not state-owned) and public good if its legal status is non-business-related, such as NGOs, trade unions, and the like. Figure 6 reports the results of our preferred specification. Results show that only legislators with experience in a public good interest group are able to weakly influence their peers, achieving a 3.2% increase in the agreement rate. While similar in size, no statistically significant results

are found for private good interest groups. Similarly we find no significant differences between public and private good interest groups. Overall, these results provide suggestive evidence on the relative importance public good interest groups have in the European lobbying sphere.

Figure 6: Reverse revolving doors and vote coincidence by interest group characteristics
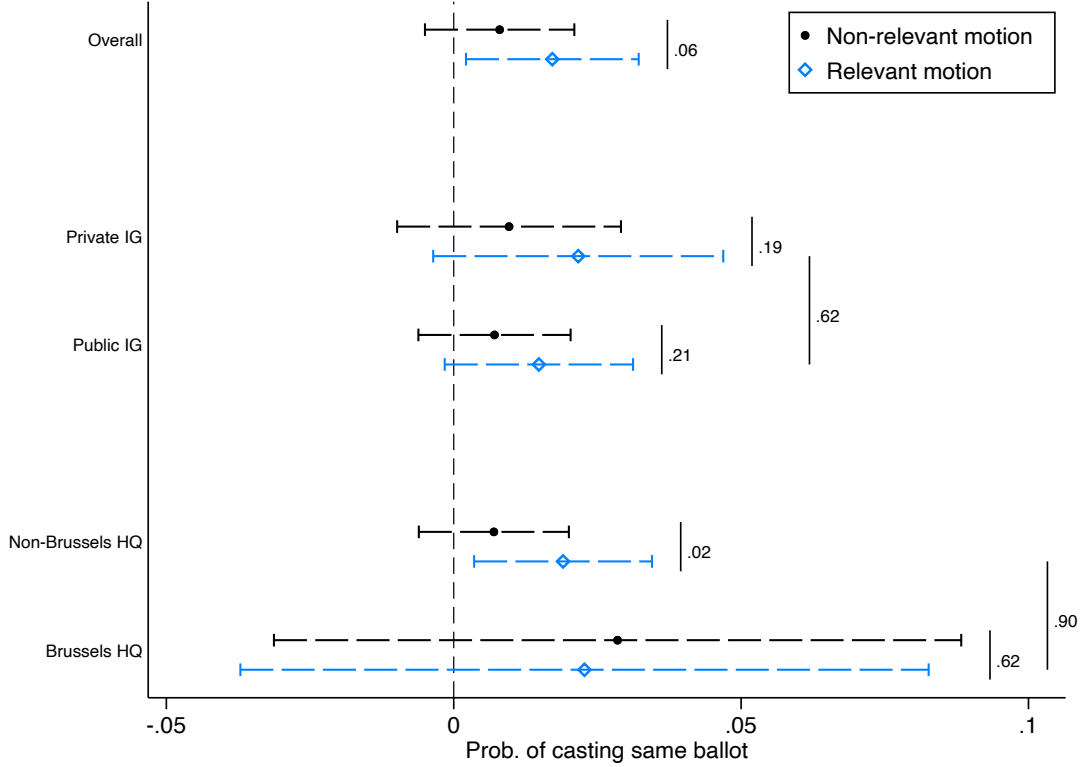
Notes: This figure shows the results of estimating Equation (2), interacted with the Interest Group's characteristics. The results shown correspond to the effect of seating adjacently to a legislator who previously worked for an interest group, when the topic is not relevant for its former employer, *Non-Relevant motion*, and when the topic is relevant for its former employer, *Relevant motion*. A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at the legislator level. Confidence intervals represent the 95% confidence level. *p*-values from Wald tests for the equality of two estimates are reported next to each solid vertical line between the two estimates.

Second, we explore whether the location of the interest group's headquarters affects its relative influence. On the one hand, we might think that those interest groups located in Brussels, where most EU bodies are based, would have a higher interest in EU policy-making and hence might mobilize their former employees-turned-politicians to exert a greater influence on their current colleagues. On the other hand, interest groups based in the European capital already have many other means to influence legislative voting and therefore might not utilize all their network. In contrast, interest groups located in their respective member states might not have such an extensive network, relying on placing their former employees in parliament to influence EU policy-making.

Figure 7: Temporal distribution of reverse revolving doors and vote coincidence
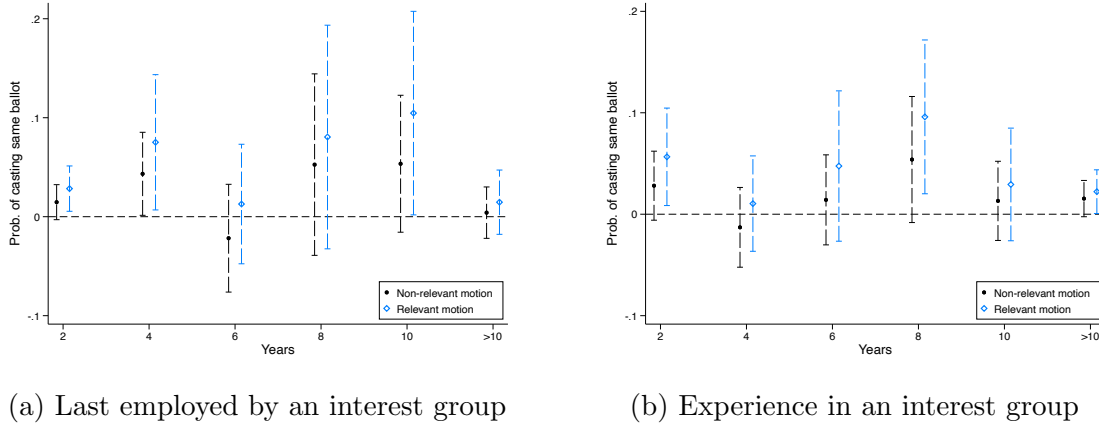
(a) Last employed by an interest group

(b) Experience in an interest group

Notes: This figure shows the results of estimating Equation (2) showing the results depending on the years since the employment of the legislators with an interest group background ended and their years of experience. Subfigure 7a studies how this influence evolves vis-à-vis their adjacent peers' years since they last worked for an interest group. Subfigure 7b focuses on how such effect depends on the years of experience adjacent legislators had in interest groups. The results shown correspond to the effect of seating adjacently to a legislator who previously worked for an interest group, when the topic is not relevant for its former employer, *Non-Relevant motion*, and when the topic is relevant for its former employer, *Relevant motion*. A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at the legislator level. Confidence intervals represent the 95% confidence level.

Figure 6 seems to provide evidence for the latter hypothesis. The results indicate that only legislators with prior experience in interest groups located somewhere other than in Brussels exert influence on their peers when the vote is deemed to be relevant for their former employers. Such effect amounts to 1.9 percentage points, or a 2.7% increase in the agreement rate. No statistically significant effect is found for those legislators seated adjacent to colleagues who used to work in a Brussels-based interest group.

Finally, we focus on whether the time that has passed since leaving an interest group and the time spent in such an interest group affects the influence that legislators have on their peers. Figure 7 displays the average effect of all seating neighbors having worked in an interest group and voting on a motion related to the group's economic activity. More concretely, Subfigure 7a shows how the influence of these reverse revolving doors' MEPs depends on how long ago they stopped working for their respective interest groups. Overall, there is a positive effect, with significant influence only for those legislators who finished such employment in the previous 4 years before entering parliament. For instance, having all seating neighbors with experience in an interest group when the vote subject is relevant increases the probability of casting the same ballot by 2.9 and 7.5 percentage points, when the neighbors finished working for an interest group in the last 2 and 4 years before entering parliament, respectively. No significant influence is exerted at higher time horizons. Subfigure 7b shows that the influence legislators with prior interest group exposure have on their peers does not systematically depend on their interest group's tenure.

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7 Conclusion

This paper estimates and provides evidence of the causal influence that members of the European Parliament who used to work for an interest group have on the voting behavior of legislators in their close network during specific motions. We do so by first identifying those members of the European Parliament with working experience in an interest group using detailed individual résumé information. We rely on the list of organizations registered as exhibiting interest in the European Union policy-making to classify legislators' former employers as interest groups. In order to avoid any of the classical obstacles to identifying causal effects stemming from social networks, we exploit the alphabetic seating rule imposed on most members of the European Parliament to construct an exogenous measure of network formation. Furthermore, we map each interest group's economic activity to one of the 48 subjects used to categorize each motion voted in the European Parliament. This allows us to identify motions of relevance to the interest groups which formerly employed legislators in our sample.

The results from our analysis show that those legislators with working experience in interest groups influence their adjacent colleagues when voting on a motion relevant for their former employer. Such influence represents a 2.4% increase over the average agreement rate. Meanwhile, adjacent legislators do not influence their colleagues when the vote is not relevant for their previous employers. We shed light on how these legislators influence their peers' ballots by showing that they reduce their seating neighbors' abstention ballots by 9% and increases their voting attendance by 1.3%. Further results suggest, however, that legislators progressively learn from their peers' inclinations, reducing the number of ballots on which they agree.

We further find suggestive evidence that these effects are driven by legislators' who finished working in an interest group up to four years before entering parliament. Additional evidence highlights that those motions on the Budget of the European Union are the ones in which former interest group members exert a larger influence. Finally, we also find evidence that female legislators are driving the increase in the likelihood of casting the same ballot as their neighboring former interest group members.

To the best of our knowledge, this is the first study providing evidence of the distorting effects caused by reverse revolving doors on the legislative process. These findings have important implications for policy-making as they shed light on a relatively overlooked lobbying practice used by interest groups, consisting of having insiders seating in democratically elected institutions. Our results support the hypothesis that revolving doors are problematic for the political process even when working in reverse.

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Appendix

A Description of controls used for focal and peer legislators

This section presents the variables used as control in our main analysis, both for focal and peer legislators. We classify them into *Name controls*, *Focal MEP controls* and *Peers controls*.

i) *Name controls*: Owing to the possibility that surnames may represent the individuals, observable and unobservable, characteristics, such as socioeconomic background or family ties, in the spirit of Harmon et al. (2019), we control by the fraction of focal and individuals in the same group of peers sharing the same surname, and by the absolute alphabetic rank across EPGs and terms.

ii) *Focal MEP controls*: We characterize legislators using a wide set of controls. As for the legislators' personal characteristics, we control for their age, gender, national party, country of origin and whether they attended a top 500 university. As for the legislators' professional characteristics, we control for their years of professional experience before entering parliament, the total number of working positions, whether they have a managerial profile, whether their professional experience was conducted in the public, private, or academic sector, and their number of professional spells. We also control their topics of expertise, measured using Yordanova (2009)'s classification, and the number of such topics, as well as whether previously worked for an interest group and if the topic is relevant for such previous employers. Regarding their previous interest groups' characteristics, we control by whether they have their headquarters in Brussels, and by their average reported EU lobbying budget. As for the legislator's in parliament characteristics, we control for their freshman status, their share of previous dates absent, their role at their EPG, whether they are part of the alphabetically seated leader sector in ALDE, whether they are the rapporteur or shadow rapporteur in the specific procedure voted, whether their EPG had one of these figures, whether such procedure refers to their own country, and whether they were at the responsible and opinion committees of the procedure voted on. We further control by whether the motion voted upon was a final vote or an amendment.

iii) *Peers controls*: We characterize connections, i.e., adjacent (left and right) siting peers, by expanding the above mentioned variables. We include as controls the fraction of the adjacent peers in the same EPG as the focal, the fraction in the

same national party as the focal, the fraction from the same country as the focal, the fraction with the same EPG role as the focal, the fraction with the same profession profile as the focal, the fraction with the same managerial profile as the focal, the fraction with the same freshman status as the focal, the fraction with the same gender as the focal, the fraction having the same "Top 500" education as the focal, and the fraction of the peers in the same committee as the focal. We also use peer controls that are irrespective of the focal characteristics such as the fraction of peers with freshman status, the fraction of female peers, the fraction of peers with a Top 500 education, the fraction of peers with a managerial profile, the fraction of rapporteur and shadow rapporteur peers, the fraction of peers in the committee responsible or committee of opinion for the procedure voted on, the fraction of peers with expertise in the topics voted on, the fraction of the peers for which the procedure voted on is of national relevance, the number of peers (from 1 to 2), the average absenteeism rate of the peers, the average number of topics of expertise of the peers, as well as, the fraction of peers with an interest group based in Brussels, and the average EU lobbying budget of these interest groups. Additionally, using information from peers and focal legislators, we control for the standard deviation in their age, professional experience, number of positions at the European Parliament, number of working positions, number of topics of expertise, and absenteeism rate.

B Additional tables

Table B1: Summary of samples by rapporteur presence

	Votes cast with rapporteur	Votes cast without rapporteur
Panel A: Voting distribution		
Electronically cast ballots	13,365,545	4,067,500
In favour	51.78	42.52
Abstained	3.49	3.84
Against	31.37	34.62
Absence	13.36	19.03
Panel B: Vote characteristics		
Average position on day voting order	40.10	35.52
Budget of the Union procedure	13.12	0.09
Legislative and Non-legislative procedure	38.32	2.13
Parliament resolutions and initiatives	48.56	97.78

Notes: The table shows counts and shares by whether a vote had a rapporteur assigned or not. It displays the absolute frequency of electronic ballots cast with and without rapporteur during the terms 6, 7 and 8. The distributions by vote outcome and by vote characteristics are expressed in percentages. The three type of procedure categories shown in Panel B are based on the procedure description present at the European Parliament website.

Table B2: Mapping of expertise and vote subjects

Variable as in Yordanova (2009)	Vote subjects
Business/Industry	Common commercial policy in general; Competition; Enterprise policy, inter-company cooperation; Free movement of goods; Free movement of services, freedom to provide; Industrial policy; Taxation
Economics/Finance	Common commercial policy in general; Competition; Economic union; Enterprise policy, inter-company cooperation; European statistical legislation; Free movement of capital; Monetary union; Taxation
Education	Common cultural area, cultural diversity; Education, vocational training and youth; Research and technological development and space
Farming	Agricultural policy and economies; Fisheries policy
Green ties	Agricultural policy and economies; Environmental policy; Fisheries policy
International relations	Common foreign and security policy; Development cooperation; Emergency, food, humanitarian aid, aid to refugees, Emergency Aid Reserve; Enlargement of the Union; Relations with third countries
Legal	Citizen's rights; Consumers' protection in general; EU law; Free movement and integration of third-country nationals; Fundamental rights in the EU, Charter; Institutions of the Union; Judicial cooperation; Justice and home affairs; Police, judicial and customs cooperation in general; Revision of the Treaties, intergovernmental conferences; Treaties in general
Local government	Common cultural area, cultural diversity; Regional policy; Tourism
Media	Information and communications in general
Medicine	Public health
Science/Engineering	Energy policy; Environmental policy; Information and communications in general; Research and technological development and space
Social group	Citizen's rights; Free movement and integration of third-country nationals; Fundamental rights in the EU, Charter; Social policy, social charter and protocol
Trade Union	Employment policy, action to combat unemployment; Free movement of workers; Social policy, social charter and protocol
Transport/Telecommunications	Transport policy in general

Notes: The table displays how the expertise topics, as in Yordanova (2009), map into the vote subjects at the European Parliament.

Table B3: Vote and interest groups share by procedure subject

Vote Subjects	Share votes	Share IGs	Num. MEPs	Extra subjects
Budget of the Union	16.52	0	0	2.068
Environmental policy	12.08	3.824	15	2.558
Social policy, social charter and protocol	10.24	4.706	17	2.032
Employment policy, action to combat unemployment	8.815	10.29	35	2.366
Agricultural policy and economies	8.577	3.529	12	2.361
Industrial policy	7.753	3.235	11	2.767
Institutions of the Union	6.804	0.588	3	2
Consumers' protection in general	6.757	1.765	7	2.673
Common commercial policy in general	6.728	0.882	4	2.433
Transport policy in general	6.221	3.824	14	2.359
Common foreign and security policy	5.296	3.824	16	1.886
Energy policy	5.218	3.235	11	2.638
Police, judicial and customs cooperation in general	4.871	0.294	1	2.253
Relations with third countries	4.812	0	0	2.123
Research and technological development and space	4.120	5.588	20	2.394
Enterprise policy, inter-company cooperation	3.697	3.529	14	2.468
Fisheries policy	3.672	0.588	2	2.195
Public health	3.596	4.706	19	2.426
Free movement and integration of third-country nationals	3.498	1.471	5	1.821
Regional policy	3.346	8.529	30	2.311
Economic union	3.187	0	0	2.125
Free movement of capital	3.080	8.529	31	2.133
Free movement of services, freedom to provide	3.050	0.294	1	2.561
Information and communications in general	2.993	16.18	55	2.292
Free movement of goods	2.836	0	0	2.781
Development cooperation	2.719	1.176	5	2
Economic growth	2.660	0	0	2.417
Citizen's rights	2.657	0.588	3	2.441
Monetary union	2.300	0.294	1	1.833
Taxation	2.203	0.588	2	2.122
Judicial cooperation	1.917	0	0	2
Fundamental rights in the EU, Charter	1.867	1.471	6	2.148
Competition	1.661	0	0	2.308
Cooperation between administrations	1.489	0.294	1	2.532
Enlargement of the Union	1.409	0.294	2	1.375
Education, vocational training and youth	1.406	27.35	95	1.933
Revision of the Treaties, intergovernmental conferences	1.249	0	0	1.400
EU law	1.130	0	0	2.163
Common cultural area, cultural diversity	0.814	1.176	4	2.222
Global economy and globalisation	0.766	0.294	2	1.789
Treaties in general	0.672	0.294	2	1.222
Free movement of persons	0.338	0	0	2
Emergency, food, humanitarian aid, aid to refugees, Emergency Aid Reserve	0.281	1.471	5	1.786
Tourism	0.231	0.294	1	1.143
European statistical legislation	0.223	0	0	1.429
Free movement of workers	0.126	0	0	2.857
Justice and home affairs	0.0851	0	0	2
Civil protection	0.0774	0.294	1	1.250

Notes: The table displays the share of votes by procedure subject in Column 1. Column 2 shows the share of legislators who previously worked for an interest group, and for which the subject is considered to be relevant, and Column 3 shows the total number of them. Column 4 displays the average number of subjects each procedure classified with a particular subject is accompanied by. The sample used is the same as in the main analysis, namely only votes with a rapporteur and cast by legislators identified as non leader in alphabetically organized groups with peers satisfying the same requirements.

Table B4: Summary statistics

	Mean	SD	Min	Max	N
Agree	0.71	0.38	0	1	6770336
Absention	0.02	0.14	0	1	6770336
Lobbyist Legislator	0.28	0.45	0	1	6770336
Ratio Relevant Topic (not political) (main)	0.01	0.07	0	1	6770336
Peers IG	0.28	0.33	0	1	6770336
Peers (IG * Relevant)	0.03	0.16	0	1	6770336
Name Peers IG	0.28	0.33	0	1	6770336
Name Peers (IG * Relevant)	0.03	0.17	0	1	6770336
Final vote	0.23	0.42	0	1	6770336
Expertise	0.28	0.45	0	1	6770336
Age	53.42	10.68	26	86	6770336
Rapporteur	0.00	0.04	0	1	6770336
Shadow Rapporteur	0.00	0.06	0	1	6770336
Part of the responsible committee	0.01	0.08	0	1	6770336
Part of the opinion committee	0.00	0.07	0	1	6770336
National law	0.00	0.01	0	1	6770336
National party	241.45	129.08	2	453	6770336
Country	16.07	7.85	1	28	6770336
EPG Role	4.87	0.50	2	5	6770336
Female	0.37	0.48	0	1	6770336
Part of the ALDE leader section	0.05	0.22	0	1	6770336
Freshman status	0.58	0.49	0	1	6770336
Number of professional positions	4.95	1.24	0	12	6770336
Rapporteur in the EPG	0.70	0.46	0	1	6770336
Top 500 education	0.31	0.46	0	1	6770336
Previous sector of activity	1.34	0.54	1	3	6770336
Professional experience	24.68	10.97	1	56	6770336
Managerial profile	0.27	0.45	0	1	6770336
Number of working spells	12.19	9.84	1	87	6770336
Share previous days absent	0.13	0.11	0	1	6770336
IG - Brussels HQ	0.05	0.20	0	1	6770336
IG - EU Lobbying budget	127203.57	447452.89	0	5002500	6770336
Number of expertise topics	11.01	5.95	0	31	6770336
National law (peers)	0.00	0.01	0	1	6770336
Freshman (peers)	0.58	0.37	0	1	6770336
Female (peers)	0.37	0.36	0	1	6770336
Managerial profile (peers)	0.27	0.33	0	1	6770336
Top 500 education (peers)	0.31	0.34	0	1	6770336
Rapporteur (peers)	0.00	0.03	0	1	6770336
Shadow Rapporteur (peers)	0.00	0.04	0	1	6770336
Part of the responsible committee (peers)	0.01	0.06	0	1	6770336
Part of the opinion committee (peers)	0.00	0.05	0	1	6770336
Number of peers	1.91	0.29	1	2	6770336
Expertise (peers)	0.28	0.36	0	1	6770336
Share previous days absent (peers)	0.13	0.08	0	1	6770336
IG - Brussels HQ (peers)	0.04	0.14	0	1	6770336
IG - EU Lobbying budget (peers)	129014.55	335746.82	0	5002500	6770336
Number of expertise topics (peers)	11.03	4.42	0	31	6770336
Same gender (peers)	0.53	0.38	0	1	6770336
Same EPG (peers)	0.96	0.14	0	1	6770336
Same national party (peers)	0.08	0.21	0	1	6770336
Same country (peers)	0.10	0.23	0	1	6770336
Same EPG role (peers)	0.93	0.21	0	1	6770336
Same freshman status (peers)	0.51	0.38	0	1	6770336
Same previous sector of activity (peers)	0.57	0.40	0	1	6770336
Same managerial profile (peers)	0.61	0.38	0	1	6770336
Same Top 500 education (peers)	0.57	0.39	0	1	6770336
Same position at the same committee (peers)	0.20	0.30	0	1	6770336
Age SD (peers)	9.43	4.98	0	34	6770336
Professional experience SD (peers)	9.73	5.14	0	33	6770336
Number of professional positions SD (peers)	1.03	0.65	0	6	6770336
Share previous days absent SD (peers)	0.08	0.06	0	1	6770336
Number of working spells SD (peers)	7.39	6.42	0	60	6770336
Number of Expertise Topics SD (peers)	5.29	2.81	0	20	6770336

Notes: The table displays the mean, standard deviation, minimum and maximum value for every variable used in the baseline regression. For further information, see Appendix A.

Table B5: First stage estimates of name adjacency on seating adjacency

	(1) OLS Peers IG	(2) OLS Peers (IG * Relevant)
Name Peers IG	0.7507*** (0.0164)	-0.0083*** (0.0020)
Name Peers (IG * Relevant)	0.0020 (0.0051)	0.8007*** (0.0157)
EPG x Term FEs	Yes	Yes
Sessions since term started FEs	Yes	Yes
Procedure type FEs	Yes	Yes
Vote subject FEs	Yes	Yes
Name controls	Yes	Yes
Focal MEP controls	Yes	Yes
Peers controls	Yes	Yes
Observations	6,770,336	6,770,336

Notes: The table presents the estimates for the baseline first stage regressions. A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B6: Average effect of reverse revolving doors connections on vote coincidence using multiple topics of interest

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) OLS Agree	(5) OLS Agree	(6) OLS Agree	(7) 2SLS Agree
Name Peers IG	0.0350*** (0.0076)	0.0207*** (0.0067)	0.0206*** (0.0067)	0.0126** (0.0053)	0.0066 (0.0049)	0.0056 (0.0050)	
Name Peers (IG * Relevant)						0.0049* (0.0029)	
Peers IG							0.0076 (0.0066)
Peers (IG * Relevant)							0.0061* (0.0036)
EPG x Term FEs	No	Yes	Yes	Yes	Yes	Yes	Yes
Sessions since term started FEs	No	Yes	Yes	Yes	Yes	Yes	Yes
Procedure type FEs	No	No	Yes	Yes	Yes	Yes	Yes
Vote subject FEs	No	No	Yes	Yes	Yes	Yes	Yes
Name controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Focal MEP controls	No	No	No	Yes	Yes	Yes	Yes
Peers controls	No	No	No	No	Yes	Yes	Yes
Observations	6,770,336	6,770,336	6,770,336	6,770,336	6,770,336	6,770,336	6,770,336
Mean Agree	0.707	0.707	0.707	0.707	0.707	0.707	0.707
Joint p-value						0.0504	0.0540
F-stat 1							1052
F-stat 2							2023

Notes: This table shows the results of estimating Equation (2). We define interest groups to have up to three topics of interest. We denote as Joint p-value the test on the joint significance of the adjacency to a legislator with previous experience in an interest group, and when the topic is relevant for such interest group (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B7: Average effect of reverse revolving doors connections on vote coincidence - Displaying rapporteur and national party's influence

	(1) OLS Agree	(2) OLS Agree	(3) 2SLS Agree
Name Peers IG	0.0066	0.0059	
	(0.0049)	(0.0050)	
Name Peers (IG * Relevant)		0.0074*	
		(0.0039)	
Peers IG			0.0080
			(0.0066)
Peers (IG * Relevant)			0.0092*
			(0.0049)
Rapporteur	0.0767***	0.0767***	0.0767***
	(0.0132)	(0.0132)	(0.0132)
Shadow Rapporteur	0.0306***	0.0306***	0.0308***
	(0.0085)	(0.0085)	(0.0085)
Peer Rapporteur	0.0834***	0.0832***	0.0832***
	(0.0184)	(0.0184)	(0.0184)
Peer Shadow Rapporteur	0.0305**	0.0302**	0.0302**
	(0.0123)	(0.0123)	(0.0123)
Same National party	0.0393**	0.0393**	0.0396**
	(0.0200)	(0.0200)	(0.0200)
EPG x Term FEs	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes
Name controls	Yes	Yes	Yes
Focal MEP controls	Yes	Yes	Yes
Peers controls	Yes	Yes	Yes
Observations	6,770,336	6,770,336	6,770,336
Mean Agree	0.707	0.707	0.707
Joint p-value		0.0236	0.0254
F-stat 1			1056
F-stat 2			1308

Notes: This table shows the results of estimating Equation (2). It is analogous to the Columns 5, 6, and 7, in Table 3, respectively. We denote as Joint p-value the test on the joint significance of the adjacency to a legislator with previous interest group, and when the topic is relevant for such interest group (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B8: Average effect of reverse revolving doors connections
on vote coincidence using a cross-EPG sample

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) OLS Agree	(5) OLS Agree	(6) OLS Agree
Peer IG	-0.0005 (0.0118)	-0.0021 (0.0088)	-0.0013 (0.0088)	0.0022 (0.0075)	0.0006 (0.0077)	0.0005 (0.0077)
Peer (IG × Relevant)						0.0010 (0.0130)
EPG x Term FEs	No	Yes	Yes	Yes	Yes	Yes
Sessions since term started FEs	No	Yes	Yes	Yes	Yes	Yes
Procedure type FEs	No	No	Yes	Yes	Yes	Yes
Vote subject FEs	No	No	Yes	Yes	Yes	Yes
Name controls	No	Yes	Yes	Yes	Yes	Yes
Focal MEP controls	No	No	No	Yes	Yes	Yes
Peers controls	No	No	No	No	Yes	Yes
Observations	582,833	582,833	582,833	582,833	582,833	582,833
Mean Agree	0.654	0.654	0.654	0.654	0.654	0.654
Joint p-value						0.916

Notes: This table shows the results of estimating Equation (2) using only those legislators with adjacent colleagues from a different European group. *Peer IG* takes a value of 1 if the peer who was part of an interest group is from a different party, and a value of 0 if no peer was part of an interest group. We denote as Joint p-value the test on the joint significance of the seating adjacency to a legislator with previous experience in an interest group, and when the topic is relevant for such interest group. A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B9: Average effect of reverse revolving doors connections on vote coincidence by name distance

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) OLS Agree	(5) OLS Agree
Name Peers IG dist. 1	0.0058	0.0051	0.0049	0.0041	0.0039
	(0.0049)	(0.0048)	(0.0048)	(0.0047)	(0.0047)
Name Peers IG * Relevant dist. 1	0.0071*	0.0071*	0.0071*	0.0073*	0.0073*
	(0.0039)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
Name Peers IG dist. 2	0.0027	0.0025	0.0013	0.0005	-0.0001
	(0.0047)	(0.0046)	(0.0047)	(0.0046)	(0.0046)
Name Peers IG * Relevant dist. 2	0.0078**	0.0073*	0.0072*	0.0072*	0.0076**
	(0.0039)	(0.0039)	(0.0039)	(0.0039)	(0.0038)
Name Peers IG dist. 3		0.0050	0.0055	0.0041	0.0033
		(0.0042)	(0.0042)	(0.0042)	(0.0042)
Name Peers IG * Relevant dist. 3		0.0076**	0.0068*	0.0065*	0.0067*
		(0.0036)	(0.0036)	(0.0036)	(0.0036)
Name Peers IG dist. 4			-0.0001	-0.0005	-0.0011
			(0.0050)	(0.0050)	(0.0050)
Name Peers IG * Relevant dist. 4			0.0073*	0.0077*	0.0078*
			(0.0042)	(0.0042)	(0.0041)
Name Peers IG dist. 5				0.0019	0.0014
				(0.0040)	(0.0040)
Name Peers IG * Relevant dist. 5				0.0017	0.0014
				(0.0037)	(0.0037)
Name Peers IG dist. 6					0.0002
					(0.0038)
Name Peers IG * Relevant dist. 6					0.0037
					(0.0038)
EPG x Term FEs	Yes	Yes	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes	Yes	Yes
Observations	6,767,838	6,742,171	6,718,746	6,704,043	6,724,801
Mean Agree	0.707	0.707	0.706	0.706	0.705
p-value, coefficients zero	0.0202	0.0108	0.00671	0.0116	0.0129
p-value, coefficient dist. 1 equal to dist. 2	0.764	0.770	0.663	0.642	0.641
p-value, coefficient dist. 1 equal to dist. 3	-	0.957	0.980	0.909	0.867
p-value, coefficient dist. 1 equal to dist. 4	-	-	0.603	0.645	0.620
p-value, coefficient dist. 1 equal to dist. 5	-	-	-	0.302	0.261
p-value, coefficient dist. 1 equal to dist. 6	-	-	-	-	0.317

Notes: This table shows the results of estimating how name adjacency to legislators with interest group background affect their probability of voting alike at different distance levels. A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B10: Average effect of reverse revolving doors connections on vote coincidence - Row level analysis

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) OLS Agree
Num. IG members	0.0835** (0.0339)	0.0509** (0.0225)	0.0511** (0.0227)	0.0396 (0.0243)
Num. IG members * Relevant				0.0737*** (0.0209)
EPG x Term FEs	No	Yes	Yes	Yes
Sessions since term started FEs	No	Yes	Yes	Yes
Procedure type FEs	No	No	Yes	Yes
Vote subject FEs	No	No	Yes	Yes
MEP controls	No	No	No	Yes
Observations	638,461	638,455	638,455	638,455
Mean Agree	0.704	0.704	0.704	0.704
Joint p-value				0.000249

Notes: This table shows the results of estimating Equation (2) collapsed at the row (by aisle) level. It tests whether having more legislators with previous experience in Interest Groups in a given chamber row affects the row voting agreement. We denote as Joint p-value the test on the joint significance of the number of legislators with previous interest group experience, and the number of those for whom the topic is relevant. We control by row size and by a comprehensive set of controls collapsed at the row level. See Appendix A for further information on the controls included. Standard errors are clustered both at the plenary session and at the row-by-aisle level. *** p<0.01, ** p<0.05, * p<0.1.

Table B11: Average effect of reverse revolving doors connections on vote coincidence using different clustering levels

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) OLS Agree
Name Peers IG	0.0059	0.0059	0.0059	0.0059*
	(0.0050)	(0.0050)	(0.0047)	(0.0034)
Name Peers (IG * Relevant)	0.0073*	0.0074*	0.0073*	0.0073**
	(0.0039)	(0.0042)	(0.0041)	(0.0035)
EPG x Term FEs	Yes	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes	Yes
Name controls	Yes	Yes	Yes	Yes
Focal MEP controls	Yes	Yes	Yes	Yes
Peers controls	Yes	Yes	Yes	Yes
Observations	6,770,336	6,770,336	6,770,336	6,770,336
Mean of Dependent Var.	0.707	0.707	0.707	0.707
Joint p-value	0.0239	0.0453	0.0360	0.00602

Notes: This table shows the results of estimating Equation (2) using different clustering levels. All columns mimic Column 6 in Table 3, with differences in the clustering level, i) Column 1 clusters at the legislator level, ii) Column 2 clusters at the legislator and plenary session levels, iii) Column 3 clusters at the row and plenary session level, and iv) Column 4 clusters at the EPG and plenary session level. We denote as Joint p-value the test on the joint significance of the name adjacency to a legislator with previous interest group, and when the topic is relevant for such interest group. A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B12: Average effect of reverse revolving doors connections on vote coincidence by voting stage

	Amendments			Final votes		
	(1) OLS Agree	(2) OLS Agree	(3) 2SLS Agree	(4) OLS Agree	(5) OLS Agree	(6) 2SLS Agree
Name Peers IG	0.0056 (0.0052)	0.0048 (0.0052)		0.0096* (0.0054)	0.0091* (0.0055)	
Name Peers (IG * Relevant)		0.0081* (0.0046)			0.0061** (0.0030)	
Peers IG			0.0065 (0.0069)			0.0122* (0.0073)
Peers (IG * Relevant)			0.0102* (0.0057)			0.0075** (0.0037)
EPG x Term FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes	Yes	Yes	Yes
Name controls	Yes	Yes	Yes	Yes	Yes	Yes
Focal MEP controls	Yes	Yes	Yes	Yes	Yes	Yes
Peers controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,220,263	5,220,263	5,220,263	1,550,073	1,550,073	1,550,073
Mean Agree	0.703	0.703	0.703	0.722	0.722	0.722
Joint p-value		0.0466	0.0495		0.00497	0.00573
F-stat 1			1034			1048
F-stat 2			1180			1756

Notes: This table shows the results of estimating Equation (2) using only amendment and final votes. We denote as Joint p-value the test on the joint significance of the adjacency to a legislator with previous experience in an interest group, and when the topic is relevant for such interest group (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B13: Average effect of reverse revolving doors connections on vote correction and intention

	(1) OLS Correction	(2) OLS Correction	(3) 2SLS Correction	(4) OLS Intention	(5) OLS Intention	(6) 2SLS Intention
Name Peers IG	-0.0000	-0.0000		-0.0013	-0.0013	
	(0.0003)	(0.0003)		(0.0018)	(0.0018)	
Name Peers (IG * Relevant)		-0.0003*			0.0009	
		(0.0002)			(0.0009)	
Peers IG			-0.0000			-0.0018
			(0.0004)			(0.0025)
Peers (IG * Relevant)			-0.0004*			0.0011
			(0.0002)			(0.0012)
EPG x Term FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes	Yes	Yes	Yes
Name controls	Yes	Yes	Yes	Yes	Yes	Yes
Focal MEP controls	Yes	Yes	Yes	Yes	Yes	Yes
Peers controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,881,658	5,881,658	5,881,658	888,675	888,675	888,675
Mean Agree	0.0023	0.0023	0.0023	0.0051	0.0051	0.0051
Joint p-value		0.290	0.304		0.841	0.810
F-stat 1			1020			771.4
F-stat 2			1236			860.1

Notes: This table shows the results of estimating Equation (2). Columns 1, 2 and 3 use the sample of votes in which legislators actually cast a vote, and test whether they correct it afterwards, denoted by *Correction*. Columns 4, 5 and 6 use the sample of votes in which legislators did not go to vote and test whether they announced what was their voting intention, denoted by *Intention*. We denote as Joint p-value the test on the joint significance of the adjacency to a legislator with previous experience in an interest group, and when the topic is relevant for such interest group (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B14: Average effect of reverse revolving doors connections on vote coincidence persistence by voting days

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) 2SLS Agree
Name Peers IG	0.0060	0.0046	0.0037	
	(0.0050)	(0.0068)	(0.0068)	
Name Peers (IG * Relevant)	0.0073*	0.0073*	0.0164**	
	(0.0039)	(0.0039)	(0.0065)	
Vote days name adjacent	-0.0000	-0.0000	-0.0000	
	(0.0000)	(0.0000)	(0.0000)	
Name Peers IG * Vote days name adjacent		0.0000	0.0000	
		(0.0001)	(0.0001)	
Name Peers (IG * Relevant) * Vote days name adjacent			-0.0001	
			(0.0001)	
Peers IG				0.0052
				(0.0093)
Peers (IG * Relevant)				0.0225**
				(0.0089)
Vote days seat adjacent				-0.0000
				(0.0001)
Peers IG * Vote days seat adjacent				0.0001
				(0.0001)
Peers (IG * Relevant) * Vote days seat adjacent				-0.0002*
				(0.0001)
EPG x Term FEs	Yes	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes	Yes
Name controls	Yes	Yes	Yes	Yes
Focal MEP controls	Yes	Yes	Yes	Yes
Peers controls	Yes	Yes	Yes	Yes
Observations	6,770,336	6,770,336	6,770,336	6,770,336
Mean Agree	0.707	0.707	0.707	0.707
Joint p-value		0.125	0.0308	0.0306
F-stat (KP)				172

Notes: This table shows the results of estimating Equation (2) adding as regressors the number of previous voting days in which each legislator has been assigned to sit adjacent to the same two other legislators, as well as the interactions with *Peers IG* and *Peers IG * Relevant*, and their correspondent instruments. We denote as joint p-value the test on the joint significance of all the variables displayed in the table (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. The reported F Statistics has been calculated following Kleibergen and Paap (2006). Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.

Table B15: Average effect of reverse revolving doors connections on
vote coincidence persistence by plenary sessions

	(1) OLS Agree	(2) OLS Agree	(3) OLS Agree	(4) 2SLS Agree
Name Peers IG	0.0059	0.0043	0.0034	
	(0.0050)	(0.0069)	(0.0068)	
Name Peers (IG * Relevant)	0.0073*	0.0073*	0.0164**	
	(0.0039)	(0.0039)	(0.0064)	
Sessions name adjacent	-0.0000	-0.0000	-0.0000	
	(0.0001)	(0.0001)	(0.0001)	
Name Peers IG * Sessions name adjacent		0.0001	0.0001	
		(0.0002)	(0.0002)	
Name Peers (IG * Relevant) * Sessions name adjacent			-0.0003	
			(0.0002)	
Peers IG				0.0048
				(0.0094)
Peers (IG * Relevant)				0.0225**
				(0.0089)
Sessions seat adjacent				-0.0001
				(0.0002)
Peers IG * Sessions seat adjacent				0.0002
				(0.0004)
Peers (IG * Relevant) * Sessions seat adjacent				-0.0006*
				(0.0004)
EPG x Term FEs	Yes	Yes	Yes	Yes
Sessions since term started FEs	Yes	Yes	Yes	Yes
Procedure type FEs	Yes	Yes	Yes	Yes
Vote subject FEs	Yes	Yes	Yes	Yes
Name controls	Yes	Yes	Yes	Yes
Focal MEP controls	Yes	Yes	Yes	Yes
Peers controls	Yes	Yes	Yes	Yes
Observations	6,770,336	6,770,336	6,770,336	6,770,336
Mean Agree	0.707	0.707	0.707	0.707
Joint p-value		0.131	0.0322	0.0322
F-stat (KP)				188

Notes: This table shows the results of estimating Equation (2) adding as regressors the number of previous plenary sessions in which each legislator has been assigned to sit adjacent to the same two other legislators, as well as the interactions with *Peers IG* and *Peers IG * Relevant*, and their correspondent instruments. We denote as Joint p-value the test on the joint significance of all the variables displayed in the table (both at the surname and seating level). A comprehensive set of controls at the focal and peer legislators is used in the analysis. See Appendix A for further information on the controls included. The reported F Statistics has been calculated following Kleibergen and Paap (2006). Standard errors are clustered at legislator level. *** p<0.01, ** p<0.05, * p<0.1.