Abstentions and Social Networks in Congress

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We study the extent to which personal connections among legislators influence abstentions in the U.S. Congress. Our analysis is conducted by observing representatives' abstention for the universe of roll call votes held on bills in the 109th-113th Congresses. Our results show that a legislator's propensity to abstain increases when the majority of his or her alumni connections abstains, even after controlling for other well-known predictors of abstention choices and a vast set of fixed effects. We further reveal that a legislator is more prone to abstain than to take sides when the demands from personal connections conflict with those of the legislator's party.
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> "Before one vote –on a measure about which Byrd did not have strong feelings but on which he would ordinarily have voted no–Johnson confided to a Senate aide that he might persuade him to abstain instead. "Harry Byrd is a man of principle, he said. "I can't ask Harry to do anything against his principles. But I *can* ask Harry Byrd–and may oblige me–to stay away [during the vote]."" [1]

I. Introduction

A long standing question in political economy is legislators' participation in roll call voting. There are many theories explaining politicians' turnout and abstention. None of them, however, considers the importance of personal social ties. A growing literature in political science and economics has provided causal evidence that the social networks of legislators have a major impact on their future political carrers and their legislative activities (see Battaglini and Patacchini [2019] for a recent review).

The goal of this paper is to determine whether and how the decision of a legislator to abstain is swayed by the behavior of his or her personal contacts. We examine participation on the universe of roll calls held on bills in the U.S. House of Representatives from 2005 to 2015 (i.e. from the 109th Congress (2005-2007) to the 113th Congress (2013-2015)). Following extant literature (Cohen and Malloy [2014], Battaglini and Patacchini [2018], Battaglini et al. [2020]), social connections are measured by looking at legislators' alumni connections: two Congress members are connected if they graduated from the same institution within a given time window. The advantage of this approach is that these connections cannot be the consequence of the behavior we attempt to explain.

To isolate the effect of personal contact from the influence of confounding factors, we assemble and hand-collect data from a variety of sources and use an empirical design based on a comprehensive set of control variables and fixed effects. In particular, we collect novel information on the identity of the party leaders during each roll call vote together with their voting behavior to identify the votes that are relevant to each party. This approach improves upon the definition of key votes the definition of key votes provided by the Congressional Quarterly Almanac (CQA). Such a categorization has been often subject to criticism, because votes salient to a given party are not always defined as key votes in all Congresses (see e.g. Shull and Vanderleeuw [1987]). We also use a novel definition of votes that are salient to a legislator's agenda by merging information on the legislator's sponsorship and cosponsorship activity with the content of the bill under vote. This is done by identifying the most recurrent policy issue in the bills sponsored or cosponsored by a legislator, and then selecting the set of

[1] Citation Ch. 19 ("Old Harry") p. 474 in Caro [2013] in which R. Caro discusses how Lyndon B. Johnson cultivated and used his personal relationship with Senator Harry Byrd of Virginia to advance his legislative projects.

roll call votes in which this issue is discussed. Prior research instead defines vote salience by looking at the extent to which the economic activities of the legislator's district could be potentially affected by the outcome of the roll call vote. This was done by categorizing the content of a roll call vote as being related to a certain industry, and then assuming that the vote's outcome is relevant for the economy of the legislator's district if there is at least one firm in that industry in the district (Cohen and Noll [1991], Cohen and Malloy [2014]).

Our identification strategy relies primarily on the use of fixed effects for each legislator and roll call topic. Specifically, we are interested in the difference between a legislator's abstention behavior in a roll call vote on a specific topic when a given share of alumni connections abstain and that legislator's behavior in a roll call on the same topic if a different share of his or her alumni connections happen to abstain, controlling for roll call, Congress and time-varying individual characteristics.

Our results show that a legislator's propensity to abstain increases when the majority of his or her alumni connections choose to abstain. This finding is robust when conditioning on the party affilliations of the connected alumni and on the shared interests in law-making of connected legislators, as captured by their cosponsorship activity and state. In addition, because multiple roll call votes are held on the same bill, we are able to provide a model specification with bill fixed effects and to show that the estimated network effects are not determined by a specific predisposition of the legislator and his or her social connections toward the characteristics of the bill under vote.

A unique feature of our data and empirical design is that we are able to examine situations where network mechanisms may be responsible for a dissent from party lines. A literature in political science documents that facing divergent pressures when casting a vote may motivate the choice to abstain. The choice to abstain may in fact be a strategic behavior of legislators who are cross-pressured between competing demands from a conflictual constituency (Cohen and Noll [1991]), different party wings (Mühlböck [2017]), or constituency on the one hand, and the party leadership on the other hand (Longley [2003]). In these circumstances, abstaining may represent the least costly option, even though it may be interpreted by constituents as evidence of poor representation, and by the leadership as an indication of poor party discipline. We consider the situation in which a legislator is likely to receive a strong pressure by personal connections to support a bill in a roll call vote, while he or she is pushed from the majority of party colleagues to vote against it. This is the case when the majority of a legislator's party colleagues vote against the bill sponsored or cosponsored by an alumni connection. Our results shows that, if the bill under vote is not focal in a legislator's agenda and if the vote is not close, the legislator is more likely to abstain in these situations of conflict than without conflict.[2]

[2]A long standing theoretical literature beginning with the seminal works by Downs [1957], and Riker and Ordeshook [1968] predicts that abstention is more likely to occur when the policy stakes of the

The effect of social connections is found to be heterogenous across several dimensions. Perhaps unsurprisingly, we find that the impact of social ties on the choice to abstain is lower when the demand for party unity is strongest, that is when there the bill in question is salient to the party. On the contrary, we find no evidence that the influcence of social connections over a legislator's decision to abstain significantly varies when it increases the closeness of the vote. Demographics are another factor that modifies the extent to which social connections impact the choice to abstain. Specifically, we find that ethnic minorities seem to be more supportive of their social connections than other groups, and they are more likely than others to abstain with their political ties. The same is not true when looking at gender, meaning that social connections have similar effects for male and female legislators. The role played by social connections also varies with party affiliation because Democrats show a higher propensity to follow the behavior of connected peers with respect to Republicans. Interestingly, we find that the seniority and the institutional position held by a Congress member does not interfere with the role played by social connections: the effect of alumni peers is not statistically different for legislators with a different seniority in Congress, and between the chair of a committe and the committee members. Also, whereas geography plays a central role in explaining individual turnout (see among others Poole and Rosenthal [1997], Rothenberg and Sanders [1999, 2002], Brown and Goodliffe[2017]), we find that legislators are equally affected by their social connections regardless of how far they must travel to reach Washington D.C..

Our paper adds to a large literature studying the determinats of legislators' abstention in different contexts.[3] We contribute to this literature by uncovering a novel factor in shaping abstention behavior and revealing a possible mechanism behind this effect.

Building on theoretical work from Fiorina [1974], a small literature focuses specifically on the extent to which the probability of abstention in voting is predicted by the presence of a conflictual situation.[4] Cohen and Noll [1991] study the roll call votes held on eight bills concerning the funding of the Clinch River Breeder Reactor program during three Congresses (the 94th through the 97th). They find that a legislator is more likely to abstain when he or she faces a conflictual constituency: e.g., constituent groups with opposing views on the same issue. Longley [2003] examines legislators' participation in a single vote held in the Canadian House of Representatives to implement the Canada-U.S. Free Trade Agreement in August 1988. He finds that the probability of abstention increases

legislator are low and when his/her potential policy influence is minimal.

[3]Specifically, the US House of Representatives (Cohen and Noll [1991]; Poole and Rosenthal [1997]; Rothenberg and Sanders [1999, 2000, 2002]), the US Senate (Forgette and Sala [1999]; Jones [2003]), the US state legislatures (Brown and Goodliffe [2017]), the Canadian House of Commons (Longley [2003]), the European Parliament (Carrubba et al. [2006], Mühlböck and Yordanova [2017]; Noury [2004]), and the Swedish Parliament (Willumsen and Öhberg [2013]).

[4]Theories of abstention in environments with common values and asymmetric information are presented by Dekel and Piccione [2000], Battaglini [2005] and Battaglini, Morton and Palfrey [2007]. These theories focus on the study of how abstention affects information aggregation in elections.

when the interest of the party conflicts with the individual ideology of the legislator, or with the interest of his or her consituency. More recently, Mühlböck and Yordanova [2017] contribute to this strand of research by considering a larger set of roll call votes. Specifically, they investigate abstention during the 6th legislature of the European Parliament, and find that legislators are more prone to abstain on a roll call vote when torn between different requests from their national party, their transnational party group, and their country's minister. With respect to this literature, we consider a measure of conflict beyond those currently explored and adopt an improved empirical design that helps with identification issues.

Our paper is also related to the literature in political science and economics on political networks (see for a review Victor et al. [2017]). Specifically, we contribute to the large branch of studies investigating the role of social networks in Congress. This line of research has been conducted by examining different forms of social connections among Congress members, namely those arising from cosponsorship activities (Fowler [2006a], Garro [2020], Kirkland [2011], Kirkland and Gross [2014]), Caucus co-membership (Victor and Ringe [2009]), "Dear Colleague" letters (Box-Steffensmeier et al. [2018] and Craig [2017]), electoral collaborations (Box-Steffensmeier et al. [2020]), contacts through personal staff (Ringe et al. [2013]), shared educational experiences (Cohen and Malloy [2014], Battaglini and Patacchini [2018], Battaglini et al. [2020]), and press events (Desmarais et al. [2015]).

The rest of the paper is organized as follows. Section 2 describes the data and defines the variables used in our empirical investigation. While Section 3 is devoted to a first exploration of the data, Section 4 presents the empirical model and the estimation results. Sections 5 and 6 present some additional results and robustness checks. Finally, Section 7 concludes.

II. Data and Definition of Variables

We combine data from several sources.

Abstention in roll call votes. Roll call votes are retrieved from the dataset "Members Votes" of the "Voteview: Congressional Roll-Call Votes Database".[5] We consider all votes on bills which took place in the House of Representatives from the 109th Congress (2005-2007) to the 113th Congress (2013-2015).[6] For each member of Congress, the data indicate whether he or she abstained or cast a vote (either 'yeah' or 'nay') on each roll call. Actual abstention behavior, however, is not so easy to identify. Because the list of representatives changes over a legislature, a problem with using this data to study abstention behavior is

[5]Lewis, Jeffrey B., Keith Poole, Howard Rosenthal, Adam Boche, Aaron Rudkin, and Luke Sonnet (2019). Voteview: Congressional Roll-Call Votes Database. https://voteview.com/

[6]We do not consider roll call votes held on Congressional resolutions because the data sources on these votes are much more limited with respect to those available on bills. Roll call votes held on bills represent 81% of the roll call votes in our sample

that a Congress member is recorded as abstaining on a given roll call vote also when that vote was held while he or she was not serving as a representative. For this reason, we retrieve the official list of representatives on each day of a legislature from the official GitHub page of the government of the United States (https://github.com/unitedstates/congress-legislators), which records the name of all Congress members who served at the House in a given legislature, and the time period in which they were in office. By using this data, we are able to correctly identify the list of actual abstainers in each roll call vote in the considered time period.

Our dependent variable, $Abstain_{ij}$, is a dummy variable equal to one if Congress member i abstained on roll call vote j , and equal to zero if Congress member i voted either yeah or nay on roll call vote j. [7]

Drivers of abstention behavior. Several factors are indicated in the existing literature as drivers of legislative turnover. A large literature documents that absenteeism is low on partisan-salient votes, that is when most of the party leaders vote in the same way, the so-called key votes (Forgette and Sala [1999]; Rothenberg and Sanders [1999, 2000, 2002]), and when the margin of the vote is small (Poole and Rosenthal [1997]), because these are circumstances when Congress members have the chance to maximize their policy influence.[8]

We identify the key votes using a dummy variable, $keyvotes_{ij}$, which equals one if all of the leaders of Congress member i's party vote in the same way on roll call vote j, and equals zero otherwise. The construction of this variable is challenging because party leaders may change over the course of a single legislature. To make sure that a key vote is defined by looking at the vote choice of the party leaders who were in charge during the day in which the vote was held, we retrived i) the day in which the vote was held and ii) the list of Congress members who were leaders on that specific day.[9] The first component is taken from the dataset "Congressional Votes" of the "Voteview: Congressional Roll-Call Votes Database." The second component is hand-collected. Specifically, the names of

[7]Note that paired abstention, that is an arrangement between two Congress members of opposing parties that allows them to miss occasional votes in the House and nullify the effect of absences on the outcome of recorded votes, did not occurr in the Congresses under analysis. According to the report on "Pairing in Congressional Voting" prepared by the Congressional Research Service (https://fas.org/sgp/crs/misc/98-970.pdf), the last paired abstention occured in the House of Representatives was registered during the 108th Congress. According to literature (see Cohen and Noll [1991] and Forgette and Sala [1999] among others), paired abstention should be discarded from data.

[8]A different behavior is observed among U.S. state legislators, who are found to be favoring reelection concerns over policy influence: i.e. they prefer to skip high-profile votes and take an inoffensive position so as not to alienate the support of their constituency (Brown and Goodliffe [2017]).

[9]We use the official definition of party leaders provided by the Office of Clerk of the U.S. House of Representatives (http://clerk.house.gov/member_info/leadership.aspx). According to this definition, Democrat leaders are: the Speaker of the House (if Democrats are the majority party), the Majority/Minority leader and the Majority/Minority Whip (depending on whether Democrats are the majority or the minority party), the House Assistant Democratic Leader, the Democratic Caucus Chairman, and the Democratic Caucus Vice Chair; while Republican leaders are: the Speaker of the House (if Republicans are the majority party), the Majority/Minority leader and the Majority/Minority Whip (depending on whether Republicans are the majority or the minority party), the Republican Conference Chair, the Republican Conference Vice Chair, and the Republican Policy Committee Chair.

party leaders and the time period in which they served in this role were collected from the official website of the "History, Art & Archives of the U.S. House of Representatives" (https://history.house.gov/People/).[10]

In our data, *Key Votes* represent 74.4% of votes cast by Democrats, and 71.7% of votes cast by Republicans, respectively. The second variable predicted to be associated with low rates of abstentionism is the closeness of a given roll call: the closer a vote is, the greater the chance an additional vote could determine the outcome. Closeness of vote has been measured in different way by the literature on abstention (see among others Cohen and Noll [1991], Poole and Rosenthal [1997], Forgette and Sala [1999], Rothenberg and Sanders [2000], Noury [2004]). We follow the recent approach proposed by Noury [2004] and measure it as $1 - |\frac{\#Yeah_j - \#Nay_j}{\#Yeah_j + \#Nay_j}|$, where $\#Yeah_j$ and $\#Nay_j$ count the number of legislators who respectively voted 'yeah' and 'nay' on roll call vote j. This is a continuos variable that ranges from zero to one. It is equal to zero when there is a unanimous vote (all voting legislators vote either in favor of or against the issue under roll call), and it approaches one when the vote is close and there is almost an even number of voters in favor of and against the issue under roll call. We expect abstention to decrease as vote closeness increases.[11]

In addition to the above mentioned characteristics of the roll call, the literature also indicates a few characterictics of the Congress member typically associated with low levels of abstentionism. The first is individual ideology as measured by the absolute value of the first dimension of the DW ideology score (McCarty et al. [1997]). This variable is used extensively in studying legislative voting. It is readily available in the dataset "Members Ideology" of the "Voteview: Congressional Roll-Call Votes Database." As this variable approaches zero, the legislator is considered a moderate, and when it is close to one, the legislator is considered an extremist. Legislators holding extremist positions are usually less supportive of their party because their ideological preferences are often indifferent between the policy change proposed by a fellow party member in a bill under vote and the status quo (Poole and Rosenthal [1997]). As a consequence, they are more likely to abstain than moderates (Hibbing [1982]). In the literature on abstention behavior (Noury [2004], Poole and Rosenthal [1997], Rothenberg and Sanders [1999, 2000, 2002]), this information is also used to construct another variable, called *Ideology Distance Differential*. For each vote j, it measures the ideological position of the Yeah and Nay alternatives on roll call vote j compared to the ideological position of the Congress member i (Rothenberg and Sanders [2000], Poole

[10] Observe that this information is not contained in existing data sets, such as those provided by the Centre for Legislative Effectiveness (https://thelawmakers.org/). Existing data record whether someone has been a party leader during a legislature, but they do not provide information about the exact time period in which he or she was a party leader, thus making it impossible to observe the vote choice of the party leaders during a given roll call vote.

[11] Although vote closeness is used as a predictor of abstention in the literature, it is clearly an endogenous variable because it is computed on the ex-post legislators' decision to vote or abstain. In a robustness check, we show that our results are qualitatively unchanged when removing this variable from our set of controls. See Section 7.

[2005]). It is measured using the absolute difference between the first dimension of the DW nominate score of Congress member i and the *midpoint estimate* of bill j, which records the distance between the ideological position of the Yeah and Nay alternatives on a bill along the first dimension of the DW nominate score (Poole and Rosenthal [1997]). The *midpoint estimate* of bills is provided in the dataset "Congressional Votes" of the "Voteview: Congressional Roll-Call Votes Database.". There is vast evidence on the US House of Representatives that a Congress member is likely to cast a vote, and therefore absenteeism is low, when his or her ideological position is close to one of the alternative position, and far from the other alternative position: i.e. the value of the *Ideology Distance Differential* is high (Rothenberg and Sanders [1999, 2000, 2002]).[12]

Turning to the variables traditionally associated with the occurence of abstention behavior in roll calls, it is well documented that absenteeism is higher on Monday and Friday because legislators spend extended weekends in their districts (Noury [2004] and Rothenberg and Sanders [1999, 2000, 2002]), and when a legislator misses other votes on a particular day because the legislator may be away from Capitol Hill (Brown and Goodliffe [2017]). The physical distance of a Congress member's district from Washington D.C., and the competing obligations of a legislator are also likely to prevent participation in some votes. In fact, a legislator may be forced to take prolonged leave from Congress when long travel is required to meet his or her own constituency (see among others Poole and Rosenthal [1997], Rothenberg and Sanders [1999, 2002], Brown and Goodliffe[2017]). To account for these factors, we create the following variables. First, we construct a dummy variable corresponding to the so-called *Thursday-Tuesday club* behavior. This takes the value one if vote j occured on a Tuesday, Wednesday or Thursday, and zero otherwise. Second, we create the variable *Abstained more than once that day*, which takes the value one if vote j occured on day t in which Congress member i abstained from more than one vote, and zero otherwise. Next, following the approach by Hart and Munger [1989] and Rothenmberg and Sanders [2002], we create a variable that records the distance in kilometers between a legislator's district centroid and Capitol Hill in Washington, D.C. The maps used to create this variable are taken from the "Digital Boundary Definitions of United States Congressional Districts" project (http://cdmaps.polisci.ucla.edu). Finally, using the "House Committee Assignments Data" we record whether a legislator has a prominent institutional role by creating a dummy variable, *chairmanship*, which tracks those who are a chairman of a committe in a given legislature.[13]

Last but not least, an important determinant of vote participation is the salience of the subject under vote. In fact, the policy area discussed in the roll call vote

[12] A problem with the *Ideology Distance Differential* is that the position of extremists is less precisely estimated. The reason is that this metric is obtained using DW nominate score, which is constrained between -1 and 1. In a robustness check, we show that our results are qualitatively unchanged when removing this variable from our set of controls. See Section 7.

[13] House Committee Assignments Data are obtained from http://web.mit.edu/17.251/www/data_page.html#2.

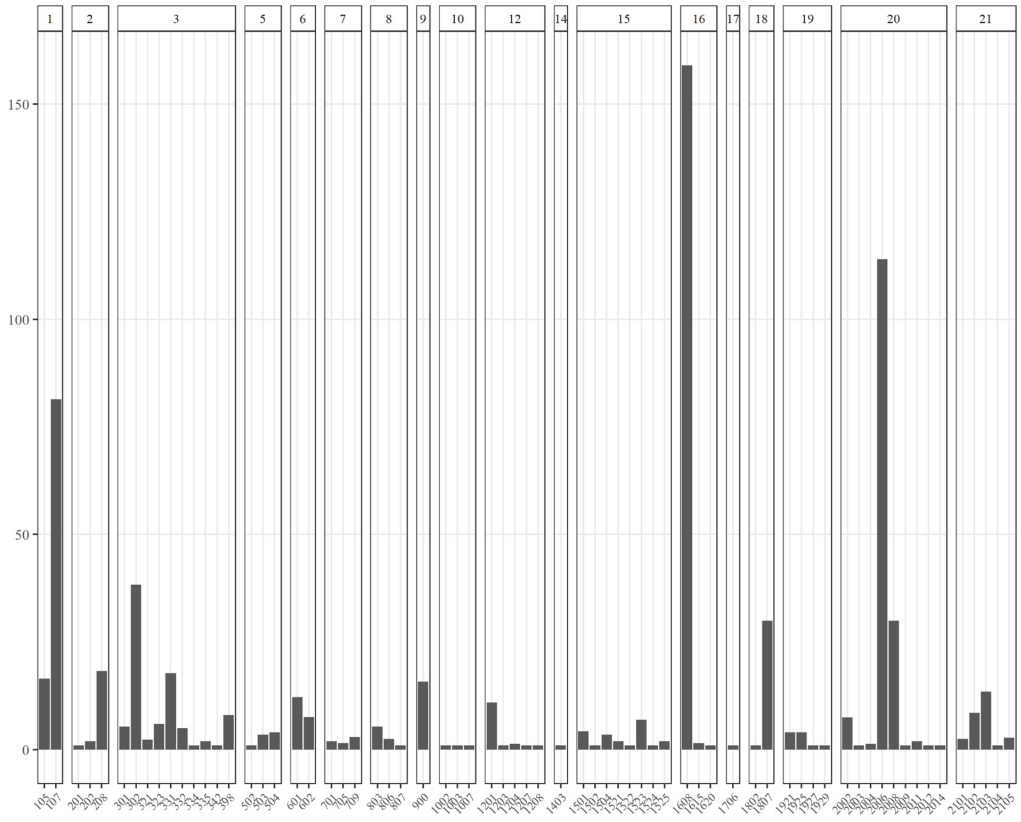
might be more or less relevant in a given legislature, and political groups may not react in the same way to different issues (Noury [2004]). We identify the policy content of a roll call using data retrieved from the Policy Agendas Project (PAP) topic system (www.comparativeagendas.net/us). PAP data provides information about the policy content of all roll calls votes held on bills. Specifically, PAP associates the policy content of each roll call vote to one out of 250 topic subject categories, which are uniquely associated to one out of 20 major policy areas: i.e., Macroeconomics, Civil Rights, Health, Agriculture, Labor, Education, Environment, Energy, Immigration, Transportation, Law and Crime, Social Welfare, Housing, Domestic Commerce, Defense, Technology, Foreign Trade, International Affairs, Government Operations, Public Lands, and Culture. A precise definition of the policy content related to each PAP category is available at https://www.comparativeagendas.net/pages/master-codebook. We also report the first 10 major policy areas with topic subject categories in Appendix, Table A5. We create a dummy variable for each major policy area coded by the PAP topic system. The dummy variable associated with a major policy area takes the value one if the policy content of roll call vote j on day t refers to that policy area, and zero otherwise.

Vote participation is not only shaped by the salience of the policy area of the roll call in the legislature, but also by the relevance of the topic subject for the legislator's policy agenda. Legislators may indeed be indifferent to specific topic subjects, and not interested in investing time to form a position or to participate in the vote on those topic subjects (Forgette and Sala [1999], Scully [1997]). On the contrary, when the topic subject of a proposal is salient to a Congress member, he or she is less likely to abstain. For each Congress member, we identify the specific policy interest on a given roll call in the following way. We retrieve the data provided by the Congressional Bills Project (http://congressionalbills.org), which categorizes the bills sponsored and cosponsored by each Congress member using the same policy topic coding system provided by the PAP data. For each Congress member i, we count the bills where the Congress member i was an original sponsor or an original cosponsor in each policy topic subject (250 categories) and identify his or her most recurrent topic subject category.[14] We assume that Congress member i has a specific interest in roll call vote j if the bill under vote is in his or her most recurrent topic subject category. Figure 1 shows the number of Congress members with a particular policy interest on a specific topic subject, as inferred by their cosponsorship activity. In the figure, the x-axis reports the PAP Code relative to the topic subject of the bills sponsored or cosponsored by Congress members. Topic subjects are

[14]Specifically, we order the interest of a legislator for different topic subjects by ranking first the topic subject category on which he or she has sponsored or cosponsored the highest number of bills. The topic subject category corresponding to the highest ranking is considered the most relevant to the legislator's agenda. When multiple topic subject categories are ranked first, because the legislator sponsored or cosponsored same number of bills for these categories, we consider all of these categories to be relevant to the legislator's agenda.

grouped according to their policy area, which are reported on top of the plot (see https://www.comparativeagendas.net/pages/master-codebook and Table A5 for precise definitions of the policy content of each PAP code).

Figure 1. Congress members by topic subject of interest



Note: The x-axis reports the PAP Code relative to the topic subject of the bills sponsored or cosponsored by Congress members. Topic subjects are grouped according to their policy area, reported on top of the plot. The y-axis shows the average number of Congress members who have a particular interest on a topic subject in Congresses 109th - 113th. The PAP topic subjects for which no Congress member had a specific interest in any considered Congress are not reported. A precise definition of the policy content related to a PAP code is indicated in Table A5.

We find that Congress members have a wide variety of topic subjects relevant to their political agenda. The most frequently discussed issues in bills in the 109th-113th Congresses are: macroeconomic policies related to taxation (PAP code 107), defense policies dealing with military personnel issues (PAP code 1608), and federal appropriation policies to implement commemorative acts (PAP code 2006). Other relevant areas include: health care policies for the regulation of insurances (PAP code 302), foreign trade policies related to tariffs and imports (PAP code 1807), and government property management, construction, and regulation (PAP

code 2008).

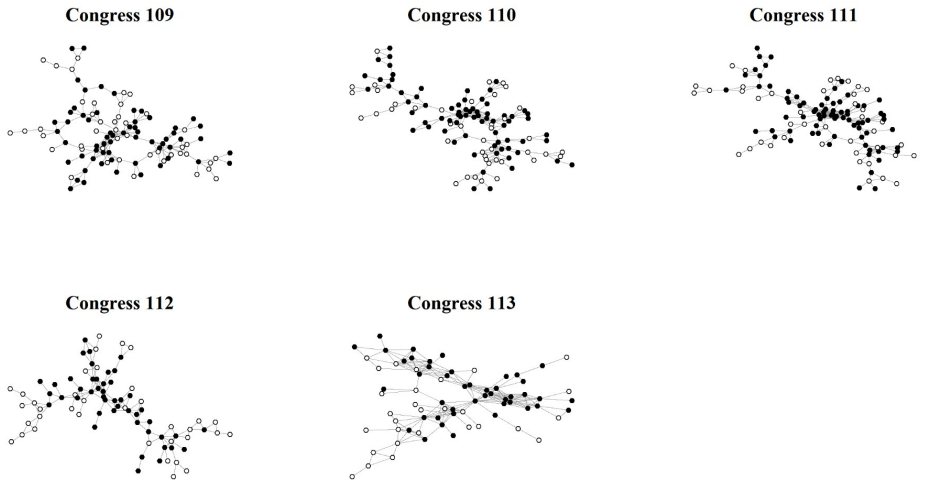
We also consider the role of demographics and party affiliation in shaping vote turnout, which, to the best of our knowledge, has not received much attention in the existing literature (see Volden and Wiseman [2009] for some considerations on this issue). We collect information about each legislators' gender, race, party affiliation, and seniority from the Center for Effective Lawmaking (https://thelawmakers.org/data-download).

Networks in Congress. A growing literature in political science and economics has provided causal evidence that the personal social networks of legislators have a major impact on their legislative activities (see Battaglini and Patacchini [2019] for a review). Following this nascent literature, we assume that a tie between two Congress members exists if they graduated from the same educational institution within four years of each other.[15] This social network is obtained by retriving information on the high schools and higher education institutions attended for both undergraduate and graduate degrees from the Biographical Directory of the United States Congress (http://bioguide.Congress.gov/biosearch/biosearch.asp). A representation of these alumni networks in the considered Congresses is provided in Figure 2, where each dot represents a Congress member, and its color indicates the member's party. The plots clearly show that alumni connections create a vast and dense network of relations between Congress members and bind toghether many Democrats and Republicans.

The extent to which alumni networks span across parties is shown in Figure 3. Here, we calculated the percentage of alumni affiliated with the same party and the percentage of alumni affiliated with a different party. The black bars indicate the average percentage of alumni affiliated with the same party, and the white bars indicate the average percentage of alumni affiliated with a different party in each Congress. The figure shows that, on average, 60% of alumni connections occur between Congress members from the same party, and the remaining 40% link legislators from different parties. Figure 4 investigates the extent to which these alumni networks represent professional networks. For each Congress member, we calculate the percentage of alumni who are cosponsors and the percentage of alumni who are not cosponsors. Cosponsorship networks have been used to measure the collaborative network in Congress (Kirkland and Gross [2014]) because they connect legislators working on the same topic. This data is retrieved from the updated version of the cosponsorship networks used in Fowler [2006a,b] (http://jhfowler.ucsd.edu/cosponsorship.htm). In line with a literature documenting that personal relationships matter in the cosponsorship decision of a legislator (Fowler [2006a], Battaglini and Patacchini [2018]), Figure 4 shows that between 20 and 30% of Congress members have a cosponsorship collabora-

[15] A four-year time window allows for some overlap and post-graduation interactions, because most universities make signicant efforts to connect alumni graduating in nearby cohorts. The relevance of alumni connections in shaping politicians' voting behavior, campaign contributions, and legislative effectiveness has been demonstrated by Cohen and Malloy [2014], Battaglini and Patacchini [2018], and Battaglini et al. [2020], respectively.

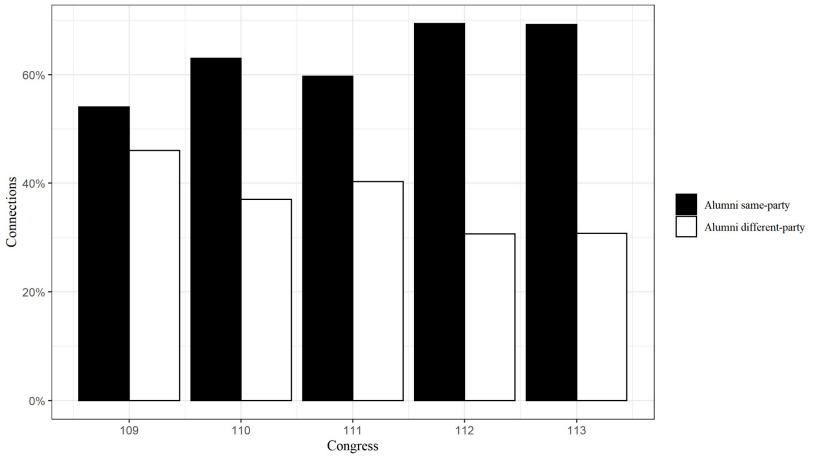
Figure 2. Alumni Network in U.S. Congress by Party Affiliation



Note: Each plot represents the largest component of the alumni network of the legislators elected for the House of Representatives in each Congress. The largest component is the largest set of nodes connected through a path. Each dot represents a Congress member, and its color indicates the party to which a Congress member is affiliated, black nodes corresponds to democrats and white nodes corresponds to republicans. Two Congress members are connected if they graduated from the same school within a 4-years window.

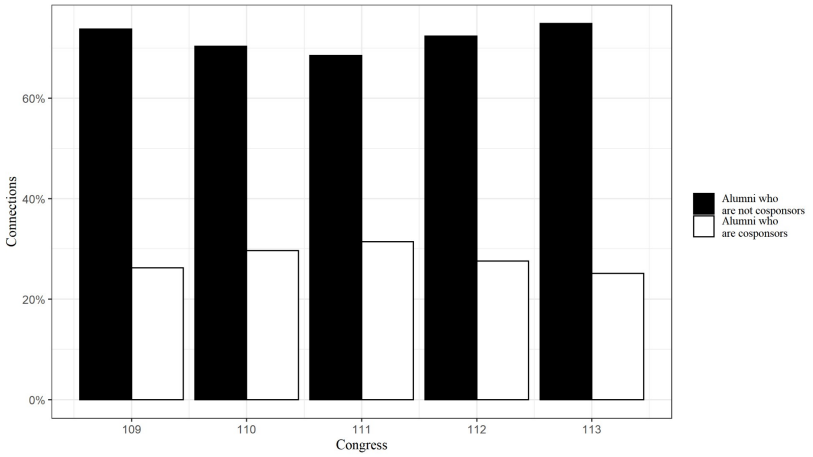
tion with their alumni connections in our sample period. However, the overlap between the alumni networks and the cosponsorship networks is not large, suggesting that alumni networks in Congress collect members with a heterogenous policy agenda. Figure 5 reports the distribution of Congress members by alumni connection in each Congress. About 50% of Congress members in each considered legislature have at least one alumni connection in Congress. Roughly 45% of the connected legislators have two or more social connections. Using the alumni network, we construct the dummy variable $AlumniPeers_{ijt}$, which takes the value one if the majority of legislator's i alumni peers abstained on bill j on day t, and zero otherwise.

Figure 3. Alumni Connections by Party Affiliation



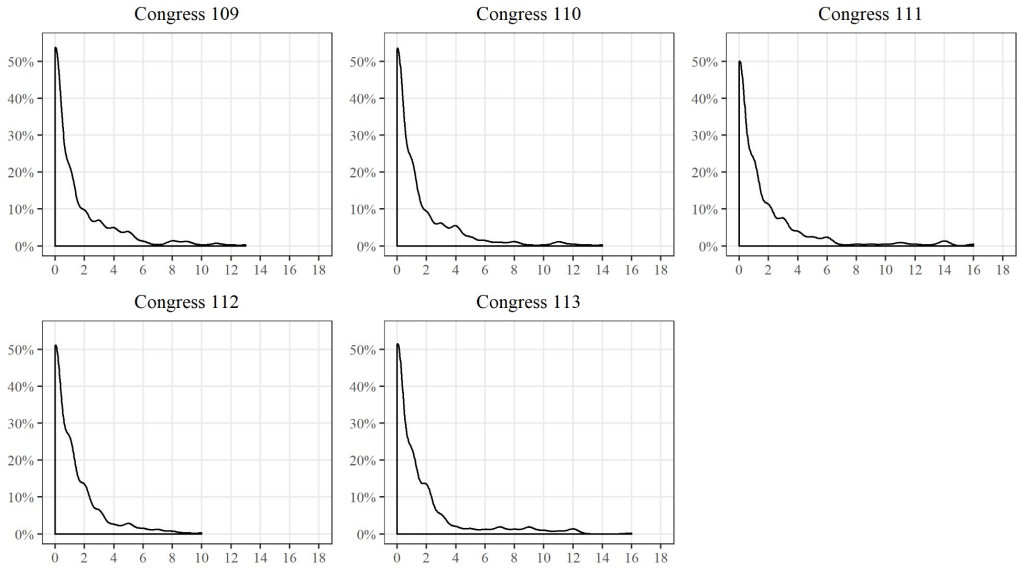
Note: For each Congress member, we calculated the percentage of alumni affiliated to the same party and the percentage of alumni affiliated to a different party. The black bar indicates the average percentage of alumni affiliated to the same party and the white bar the average percentage of alumni affiliated to a different party in each Congress.

Figure 4. Alumni Connections by Co-sponsorship Collaboration



Note: For each Congress member, we calculated the percentage of alumni who are cosponsor and the percentage of alumni who are not cosponsor. The black bar indicates the average percentage of alumni who are not cosponsor and the white bar the average percentage of alumni who are cosponsor in each Congress.

Figure 5. Distribution of Congress members by Alumni Connections



Note: Each plot represents the distribution of Congress members by alumni connections in a given Congress, from the 109th to the 113th. The x-axis shows the number of alumni connections, while the Y-axis indicates the percentage of Congress members with each given number of alumni connections.

III. Motivating Evidence

We start by discussing the frequency of abstention in Congress and presenting evidence that abstention has the potential to influence roll call outcomes in a non-trivial number of votes. Table 1 shows the abstention rate and its importance for the entire universe of votes (column 1), close votes (column 2) and key votes (column 3). On average, Congress members abstain from 4.2% of votes (column 1). Consistent with expectations, this value drops when the vote is close (column 2), or it is a key vote (column 3). In fact, these are the instances when the legislator's vote is most valuable to the party and he or she is likely to be highly pressured to turn out and support co-partisan peers. The second row of the table records the fraction of roll calls where the number of abstainers exceeded the margin of the vote. These are cases where it was possible that abstainers could have changed the outcome of the vote. The table shows that about 4% of all considered roll call votes were decided by a margin that was smaller than the number of abstainers. In line with expectations, this percentage is twice as high for close votes. In contrast, abstention is less relevant for the outcome of key votes.

We report the abstention rate of Congress members from different groups in Table 2. We begin by examining whether abstention behavior differs for legisla-

Table 1

	Total (1)	**Close Votes (vote closeness $\geq$ 0.8)** (2)	**Key Votes** (3)
Average percentage of times a	4.18%	3.22%	3.86%
Congress member abstained (stand. dev.)	(4.28)	(4.11)	(4.16)
Percentage of times the number of abstainers was higher than the margin of vote	3.97%	9.46%	2.44%

tors with different demographic characteristics and party affiliation. We find that the abstention rate of women and ethnic minorities is, on average, at least one percentage point higher than other legislators. We also find that the abstention rate of legislators with more extreme ideologies is higher than that of moderate legislators. This is not surprising because legislators with moderate ideologies usually care about a higher number of bills under vote, while extremists are usually indifferent between the status quo and the change promoted in many bills (Poole and Rosenthal [1997]). When turning to party affiliation, we find no striking differences among Republicans and Democrats. Consistent with the idea that legislators might be forced to miss votes in order to meet with their constituency, we find that legislators who require longer travel in order to reach their electoral district tend to abstain more than their colleagues coming from electoral districts closer to Washington D.C.[16] We also observe that Congress members abstain twice as much on Mondays and Fridays than during midweek days, and that committee chairs tend to abstain slightly more often than other members, even if the difference between the two groups is not statistically significant.

We now examine Congress members exposed to peers who abstain. Roughly 40% of legislators in Congress have at least one peer who abstains in any roll call in the period considered.[17] Figure 6 shows the distribution of Congress members with at least one peer who abstained by percentage of peers who abstain in the different Congresses. The pictures shows that the percentage of connected peers who abstain on a roll call vote is small (10-20%) for most Congress members. However, about 10% of members have the majority of their peers abstain. Importantly, the picture shows substantial variation among Congress members in exposure to peers who abstain. In Figure 7, we plot the distribution of Congress members who abstain by the percentage of peers who abstain in the different

[16] In order to define whether a district is near Washington D.C., we record the distance of each district's centroid from this city. Then, we compute the median distance of the electoral districts from Washington D.C., which is 1,966.374 kms. If a district is located within 1,966.374 kms of Washington D.C., then it is recorded as being near this city, and distant otherwise.

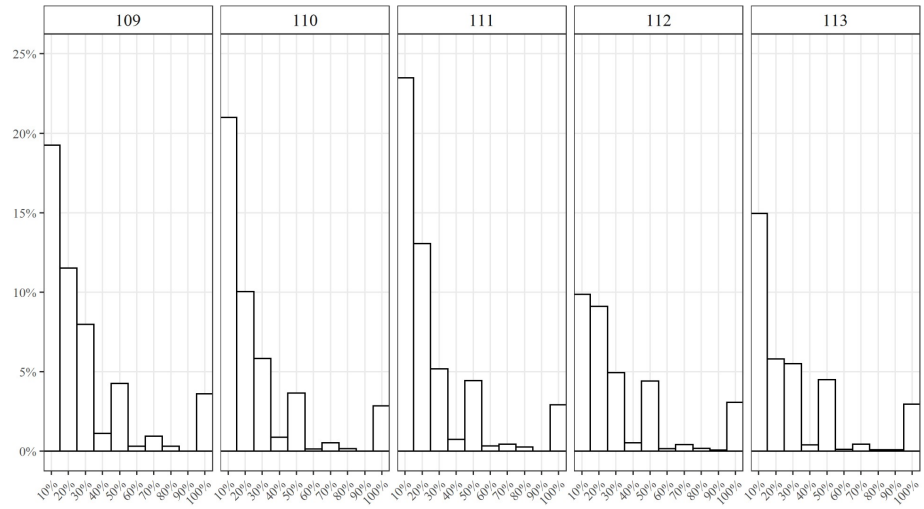
[17] Specifically, the percentage of legislators who have at least one peer who abstained in any roll call vote is: 35.3% in the 109th Congress, 35.8% in the 110th Congress, 41.1% in the 111th Congress, 43.6% in the 112th Congress, and 39.9% in the 113th Congress.

Table 2

Abstention rates by Congress member characteristics

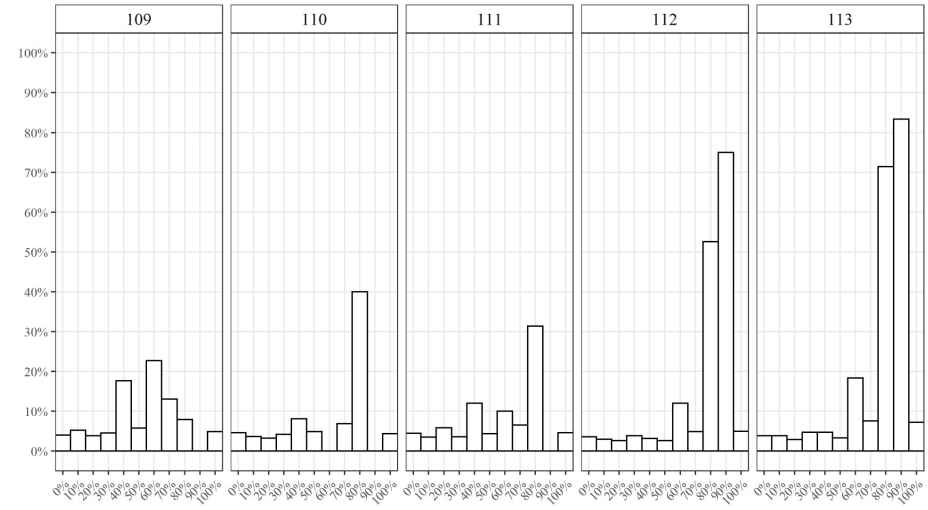
	Perc. of Congress members who abstained (stand. deviation)		**t test [p value]**
	Reference Category (Group = 0)	**Other Category (Group = 1)**	
Gender (1 = Female)	4.00%	5.03%	-1.95*
	(0.04)	(0.06)	[0.05]
Race (1 = No White)	3.93%	5.77%	-4.27***
	(0.04)	(0.04)	[0.00]
Party (1 = Democrat)	4.00%	4.37%	-1.18
	(0.04)	(0.04)	[0.24]
Chairmanship (1 = Yes)	4.16%	4.64%	-0.86
	(0.04)	(0.05)	[0.39]
Electoral district near to Washington D.C. (1 = Yes)	3.76%	4.56%	-2.60**
	(0.04)	(0.05)	[0.01]
DW Ideology (0 = bottom 10%, 1 = top 10%)	3.18%	3.86%	-1.28
	(0.03)	(0.04)	[0.20]
Thursday-Tuesday club (1 = Yes)	6.72%	3.64%	4.10***
	(0.07)	(0.04)	[0.00]

Figure 6. Congress members by Percentage of Alumni Connections Who Abstain



Note: For each roll call vote and each Congress member, we computed the percentage of alumni who abstained. The graphs plot the average percentage of Congress members with at least one alumni peer who abstained in a given vote by percentage of alumni peers who abstained in each Congress. The x-axis reports the percentage of alumni connections of Congress members with at least one alumni peer who abstained in a given roll call, while the y-axis reports the average percentage of Congress members with a given percentage of alumni connections who abstained on a roll call vote. The average percentage of Congress members recorded when no alumni peers abstained is 94.97% for the 109th Congress, 95.66% for the 110th Congress, 94.62% for the 111th Congress, 96.81% for the 112th Congress, 95.95% for the 113th Congress.

Figure 7. Percentage of Congress members Who abstain by Percentage of Alumni Connections Who Abstain



For each roll call vote and each Congress member who abstained, we computed the percentage of alumni who abstained. The graphs plot the average percentage of Congress members who abstained in a given vote by percentage of alumni peers who abstained in each Congress. The x-axis reports the percentage of alumni connections of Congress members who abstained in a given roll call, while the y-axis reports the average percentage of Congress members who abstained with a given percentage of alumni connections who abstained on a roll call vote

Congresses. While abstention decisions are driven by a variety of factors, it is remarkable to see that, especially in the more recent Congresses, abstention rates are higher, on average, when a higher share of peers abstain. In the 112th and 113th Congress, we observe that, on average, more than 50% of legislators abstain when 80% or more of their peers abstain.

IV. Empirical Strategy and Baseline Results

To explore whether alumni connections have an impact a legislator's propensity to abstain, we analyze each Congress member's voting behavior for every roll call vote as well as that of the legislator's alumni peers during the same vote in five different legislatures. Specifically, we are interested in the difference between a legislator's abstention behavior for a given roll call vote if the majority of his or her alumni ties abstain and that legislator's abstention behavior if the majority of the alumni ties do not. We focus our analysis on the effects of the majority of peers because, while there is a positive effect of the share of peers who abstain on own abstention behavior, this effect is non-linear and acquires importance only if the share of peers who abstain is greater than 50%.[18] We document this non-linearity in the last column of Table 3. We estimate the following regression model:

$$(1) \quad Abstain_{ijtc} = \beta_0 + \beta_1 \, AlumniPeers_{ijtc} + \beta_2 \, W_{ijtc} + \beta_3 \, X_{jtc} + \upsilon_i + \zeta_c + \epsilon_{ijtc}$$

where the decision to abstain of legislator i during roll call vote j on day t during Congress c, as measured by the variable $Abstain_{ijtc}$, is a function of the choice of i's majority alumni peers to abstain, represented by the variable $AlumniPeers_{ijtc}$, of legislator characteristics (in the set W_{ijtc}), and of roll call vote characteristics (in the set X_{jtc}). The characteristics of a roll call vote include dummies indicating the policy area discussed in the bill under vote, whether or not the roll call vote is held during midweek days (Tuesday, Wednesday or Thurday), whether it is a key vote, and the closeness of vote. The model includes individual legislator and Congress fixed effects (υ_i and ζ_c, respectively) and a random error term ϵ_{ijc}. The inclusion of individual fixed effects controls for the effects of time-invariant characteristics of legislators possibly correlated with abstention choices, such as the distance from their respective districts, and the competing obligations that they may have because of their role in the party (e.g. party leaders) or in the House (e.g. committee chairs). Observe that it also captures whether the

[18] We do not use data on the exact order of the votes in the roll-call, since real time data on the voting outcome is not even available to the legislators during the roll-call. (On the south wall of the chamber there is an electronic display board, but it displays only a running tally of the vote, not the individual choices.) In our analysis, we assume that decisions concerning abstentions are taken before the beginning of the vote. This is illustrated by the citation from Caro [2013] at the beginning of the paper, making clear how Lyndon B. Johnson would make arrangements with Harry Byrd before votes were called.

Congress member has alumni connections in Congress or not.[19] The remaining time-varying characteristics of the legislator, which are included in the set W_{ijtc}, are the difference between the ideological position of the legislator and the "Yeah Position" and "Nay Position", registered by the variable *Ideology Distance Differential*, and whether the legislator already abstained at least once on the same day in which the vote was held, recorded by the variable *Abstained more than once that day.*

Equation (1) is estimated using a linear probability model, because it outperforms a logit or a conditional logit model when working with longitudinal data where the outcome variable has a success rate lower than 25% (Timoneda [2021]), as in our case.[20] The results are contained in Table 3. In order to ease the comparison of estimated coefficients, we report standardized estimation results.[21]

We start the analysis in column 1 by including in model (1) only the variables that the existing literature indicates as important determinants of abstention in Congress (see Section 3). Consistent with these studies, we find that all of the drivers of abstention detected by previous research matter in shaping the individual abstention behavior. When legislators' indifference for the outcome of the bill under vote is high - as measured by the *Ideology Distance Differential* - they are more likely to abstain. The same pattern holds when politicians have competing obligations. We also find evidence of the *Thursday-Tuesday club* behavior, which suggests that the commitment to meet with constituents often conflicts with legislative activities. In contrasts, legislators are more prone to turnout during key votes and when the margin of a vote decreases, that is when the demand for party unity by the leadership is the strongest. We also find an expected positive and significant sign on the estimated effects of the variable *Abstained more than once that day,* which controls for the possibility that abstention during a given roll call vote is simply driven by the fact that the legislator is missing from Capitol Hill that day. In column 2, we test whether there is an additional effect coming from the alumni connections. The estimated effect is statistically significant and sizable in magnitude given the number of control variables and fixed effects included in the model. We find that having the majority of alumni connections who abstain is associated with a 2 percentage point increase in the probability that a legislator abstains. The effect is about 5% of a standard deviation. To better understand the importance of this effect, observe that it has magnitude equal to roughly 70% of the impact of *Key Vote*, a well-know important driver

[19] We will investigate the robustness of our results to the exclusion of Congress members without alumni connections in Congress in Section 7.

[20] In a robustness check, however, we estimate equation (1) using the conditional logit model by Chamberlain [1980]. The conditional logit model is preferred to a standard logit model because it does not suffer from the incidental parameter problem affecting non-linear models with a large number of fixed effects (Wooldridge [1999], Lancaster [2000]). The qualitative evidence remains unchanged. See Section 7.

[21] We standardize the estimated effects using the formula $\frac{sd(x)}{sd(y)}\beta_x$, where β_x is the estimated effect of variable x, while $sd(x)$ and $sd(y)$ indicate the standard deviation of the variable x and dependent variable y, respectively.

of vote participation, and is of the opposite sign. That is, the magnitude of the effect exerted by the alumni network is such that it could almost counterveil the incentive to turn out stemming from party leadership. This finding supports the idea that politicians work behind the scenes to confound party leadership and prevent a legislative proposal to be become law (Mughan et al. [1997]). In column 3, we test whether the results are driven by the fact that alumni of the same institution may share the same ideology and hence party. To this purpose, we split the variable $AlumniPeers_{ijt}$ into two different dummy variables. The first takes value one if the majority of legislator i's alumni connections that are also affiliated with i's party abstained on vote j, and zero otherwise. The second takes one if the majority of legislator i's alumni connections that are not affiliated with i's party abstained on vote j, and zero otherwise. Perhaps unsurprisingly, the results show that the behavior of friends of the same party is more important than the behavior of friends of different parties in shaping a legislator's own abstention choice. The difference between the two effects is statistically significant (Wald χ^2 test equal to 7.00, p-value equal to 0.0080). However, the estimated effects of both types of friends are statistically significant, indicating that alumni connections are relevant for the choice to abstain regardless of their party affiliation. In columns 4 and 5, we test whether the results are driven by a shared policy agenda among alumni. The policy agenda of a legislator is inferred by looking at his or her cosponsorship activity, and the behavior of the members of his or her state delegation. In column 4 therefore, we split the variable $AlumniPeers_{ijt}$ into two different dummy variables using legislative cosponsorships. The first takes the value one if the majority of legislator i's alumni connections with whom i cosponsored a bill abstained on vote j, and zero otherwise. The second takes the value one if the majority of legislator i's alumni connections who did not cosponsor a bill with i abstained on vote j, and zero otherwise. Interestingly, we find that the abstention behavior of peers is relevant irrespective of whether or not they are cosponsors or no. The estimated effects for the two groups are positive, but not statistically different from each other (Wald χ^2 test equal to 0.37, p-value equal to 0.54). In column 5, we split the variable $AlumniPeers_{ijt}$ into two different dummy variables according to i's state. The first takes the value one if the majority of legislator i's alumni connections who belongs to i's state delegation abstained on vote j, and zero otherwise. The second takes the value one if the majority of legislator i's alumni connections who do not belong to i's state delegation abstained on vote j, and zero otherwise. Also in this case, we find that the estimated effect for the two groups is positive, but not statistically different from each other (Wald χ^2 test equal to 0.031, p-value equal to 0.86). This indicates that alumni connections have an impact on a legislator's propensity to abstain both within and across state delegations. Combined together, the evidence from columns 4 and 5 suggests that our results are not primarily driven by shared interests in law-making.

In column 6, we consider the possibility that our results are due to a specific inclination of the legislator and his or her social connections towards the specific issues contained in the bill under vote (for example because of low interest in the bill's overall content). Because multiple roll call votes are held on the same bill, we augment regression model (1) with bill fixed effects. This allow us to observe the voting behavior of legislators during roll call votes held on the same bill, holding costant the characteristics of the bill. As a result, if the choice to abstain is motivated by a specific inclination of the legislator and of his or her social connections toward the characteristics of the bill under vote, network effects will no longer be a significant predictor of abstention. On the other hand, if network effects motivate the choice to abstain then we would expect them to be a significant driver of abstention even when controlling for the characteristics of the bill under vote. Specifically, model (1) now becomes:

$$(2)\quad Abstain_{ijtb} = \beta_0 + \beta_1\, AlumniPeers_{ijtb} + \beta_2\, W_{ijtb} + \beta_3\, X_{jtb} + \upsilon_i + \zeta_b + \epsilon_{ijtb}$$

where the decision to abstain of legislator i during roll call vote j on day t held on bill b, as measured by the variable $Abstain_{ijtb}$, is a function of the choice of i's majority alumni peers to abstain $AlumniPeers_{ijtb}$, the set of control variables included in regression model 1, the individual fixed effects (υ_i) and the bill fixed effects (ζ_b). The estimation results (Table 3, column 5) show that the evidence remains qualitatively unchanged. The effect of social connections remains positive and statistically significant, although perhaps unsurprisingly it is greatly reduced in magnitude. These results suggests that the characteristics of the bill under vote might explain the behavior of connected legislators in some cases, but that the estimated network effects are not entirely driven by the shared interest of connected legislators for specific bills.

Finally, we investigate the extent to which the network effect in abstention varies with exposure. In our analysis, the influence of peers is modeled in a specific way, which is looking at the behavior of the majority. This choice is motivated by the fact that the influence of peers is non-linear in the share of peers who abstain. In column 7 we investigate how abstention behavior changes with different shares of peers who abstain. We consider quantiles of this share distribution and replace the variable $Abstain_{ijtb}$ in model (2) with four dummy variables corresponding to quartiles of the distribution of abstained peer legislators. The first dummy takes the value one if the percentage of legislator i's alumni connections who abstain is less than or equal to 25%, and zero otherwise. The second takes value one if the percentage legislator i's alumni connections who abstain is more than 25% and less than or equal to 50%, and zero otherwise. The third takes value one if the percentage of legislator i's alumni connections who abstain is more than 50% and less than or equal to 75%, and zero otherwise.

Table 3

	Dependent variable: Congress member i abstained on bill j (1 = Yes, 0 = No)						
	OLS (1)	**OLS (2)**	**OLS (3)**	**OLS (4)**	**OLS (5)**	**OLS (6)**	**OLS (7)**
Alumni Peers (1 = Majority Abstained)		0.0103***				0.0055***	
		(0.0011)				(0.0010)	
Alumni Peers – Same Party (1 = Majority Abstained)			0.0090***				
			(0.0014)				
Alumni Peers – Different Party (1 = Majority Abstained)			0.0041***				
			(0.0007)				
Alumni Peers who are cosponsors (1 = Majority Abstained)				0.0082***			
				(0.0012)			
Alumni Peers who are not cosponsors (1 = Majority Abstained)				0.0042***			
				(0.0010)			
Alumni Peers - Same State (1 = Majority Abstained)					0.0075***		
					(0.0011)		
Alumni Peers - Different State (1 = Majority Abstained)					0.0072***		
					(0.0009)		
Alumni Peers (1 = Less than 25% Abstained)							0.0002
							(0.0009)
Alumni Peers (1 = Between 25% and 50% Abstained)							0.0011
							(0.0008)
Alumni Peers (1 = Between 50% and 75% Abstained)							0.0041***
							(0.0009)
Alumni Peers (1 = More than 75% Abstained)							0.0047***
							(0.0010)
Ideology Distance Differential	-0.0181***	-0.0180***	-0.0180***	-0.0180***	-0.0180***	-0.0045***	-0.0045***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
Key Vote (1 = Yes)	-0.0142***	-0.0141***	-0.0141***	-0.0141***	-0.0141***	-0.0119***	-0.0119***
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0013)	(0.0013)
Vote Closeness	-0.0344***	-0.0341***	-0.0341***	-0.0341***	-0.0341***	-0.0040***	-0.0040***
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0008)	(0.0008)
Abstained more than once that day (1 = Yes)	0.7205***	0.7204***	0.7204***	0.7204***	0.7203***	0.7277***	0.7277***
	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0082)	(0.0082)
Thursday-Tuesday club (1 = Yes)	-0.0258***	-0.0255***	-0.0255***	-0.0255***	-0.0255***	-0.0079***	-0.0078***
	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0018)	(0.0018)
Wald χ^2 test			7.10**	0.36	0.026		11.00***
[p-value]			[0.0078]	[0.5500]	[0.8700]		[0.0009]
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Congress fixed effects	Yes	Yes	Yes	Yes	Yes	No	No
Roll call topic fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bill fixed effect	No	No	No	No	No	Yes	Yes
R^2	0.5364	0.5365	0.5365	0.5365	0.5365	0.5492	0.5492
Num. Obs.	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453

Note: Results for model (1) of the paper are in columns (1) - (4). Results for model (2) are in columns (5) - (6). Standardized OLS estimated coefficients are reported. Standardization of coefficients is obtained using the formula $\frac{sd(x)}{sd(y)}\beta_x$, where β_x is the point estimate associated to control variable x, while $sd\,(x)$ and $sd\,(y)$ indicate the standard deviation or respectively control variable x and dependent variable y. Robust standard errors are reported in parentheses. Robust standard errors are adjusted for clustering at the Congress member-level. A precise definition of control variables can be found in Table A1 in the appendix. The Wald χ^2 test in column (3) evaluates the statistical difference of point estimates between variables *Alumni Peers – Same Party (1 = Majority Abstained)* and *Alumni Peers – Different Party (1 = Majority Abstained)*. The Wald χ^2 test in column (4) evaluates the statistical difference of point estimates between variables *Alumni Peers who are cosponsors (1 = Majority Abstained)* and *Alumni Peers who are not cosponsors (1 = Majority Abstained)*. The Wald χ^2 test in column (5) evaluates the statistical difference of point estimates between variables *Alumni Peers - Same State (1 = Majority Abstained)* and *Alumni Peers - Different State (1 = Majority Abstained)*. The Wald χ^2 test in column (7) evaluates the statistical difference of point estimates between variables *Alumni Peers (1 = Between 50% and 75% Abstained)* and *Alumni Peers (1 = Between 75% and 100% Abstained)*. *, **, *** indicate statistical significance at the 10, 5 and 1 percent level.

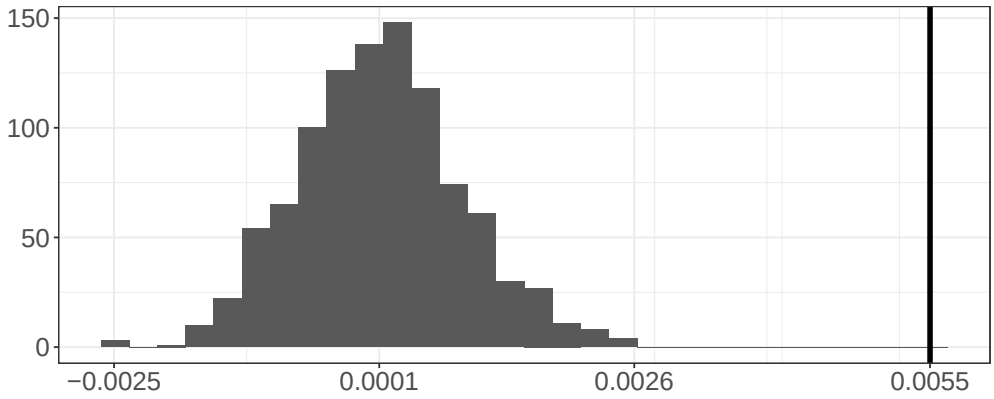
The fourth takes value one if more than 75% of legislator i's alumni connections abstain, and zero otherwise. The estimates show that while the abstention behavior of peers is unrelated to a legislator's own behavior when the share of peers who abstain is lower than 50%, it becomes important when higher shares of peers abstain. The effects are increasing with the shares of peers and statistically different (Wald χ^2 test equal to 11, p-value equal to 0.0009), but very similar in magnitude (2% of a standard deviation vs 2.4% of a standard deviation). This is why in our analysis we pooled together all shares greater than 50%.[22]

IV.I. Placebo regressions

We now discuss the results of a set of placebo regressions, where we replace the actual voting behavior of alumni connections with the voting behavior of a random sample of legislators. If only socially-connected legislators have an impact on individual turnout, then the behavior of randomly selected legislators should not show any effect on the voting behavior of a Congress member. Our placebo test is performed in the following way. For each Congress member i elected during Congress j, we identify those legislators who are less likely to be in contact with i. Those are the legislators elected for the first time during Congress j, not affiliated to i's party, not belonging to i's state delegation, and with no alumni connections. We randomly select among them x legislators, where x is the number of i's alumni connections. Then, we create a dummy variable which takes one when the majority of these randomly selected legislators abstain, and zero otherwise. Finally, we estimate model (2) using this dummy variable in place of the dummy capturing the abstention behavior of alumni connections (i.e. "Alumni Peers (1 = Majority Abstained)"). We run 1000 of these placebo tests. The distribution of the 1000 placebo estimates is reported in Figure (8). The figure shows that the estimated placebo effects are small and centered around zero. Our estimate of the effect of the alumni connections (the black line in the figure) is approximately twice larger than the maximum value of the placebo effects.

[22] All our results hold when clustering standard errors at the state level, rather than at the individual level.

Figure 8. Distribution of placebo regressions estimates



Note: The figure reports the distribution of 1000 placebo estimates of model (2). In each regression, the actual alumni connections of a legislator are replaced with a random sample of legislators. Ticks on the X-axis show minimum, median, and maximum values of the distribution of placebo estimates. The black line indicates the value of the estimated coefficient of the variable "Alumni Peers (1 = Majority Abstained)" reported in Table 3, column 6.

V. Abstention and Conflict

We next consider the situations in which a legislator likely faces conflicting pressures from social connections on one side and party colleagues on the other side. Specifically, we analyze a legislator's abstention behavior when the legislator's party opposes a bill sponsored or cosponsored by the legislator's personal connections. Some scholars have expressed concern that legislative cosponsorships are not very informative because they are a form of "cheap talk" (Kessler and Krehbiel [1996]; Wilsonand and Young [1997]). However, as stressed by Fowler [2006a], the number of bills cosponsored by each legislator is only a tiny fraction of the bills they may have chosen to support, and substantial search costs are invested in deciding which bills to cosponsor. Consequently, it is reasonable to expect that legislators care about their cosponsorship activity and thus may lobby their social connections to vote in favor of the bills they cosponsored. This might be even more prevalent when the bill is directly sponsored by them.

As mentioned in the introduction, we expect that the choice to abstain will be more common when the policy stakes of the legislator are low. According to this theory, we predict that a legislator will be less likely to abstain when his or her potential policy influence is maximized, as is the case when a vote is particularly relevant to the legislator's agenda, or when the outcome of the vote is expected to be close.

We construct a dummy variable taking the value one when the majority of i's party colleagues vote against the bill sponsored or cosponsored by an alumni

connection on roll call vote j held on day t during congress c, and zero otherwise. We estimate the regression model

$$(3)\ \ Abstain_{ijtc} = \beta_0 + \beta_1\, DivergingPeers_{ijtc} + \beta_2\, W_{ijtc} + \beta_3\, X_{jtc} + \upsilon_i + \zeta_c + \epsilon_{ijtc}$$

where $DivergingPeers_{ijtc}$ represents the conflict faced by the legislator, and the other variables are the same as in model (1).

The estimation results are reported in Table 4. The first column shows the results for all roll call votes. In columns 2 and 3, we distinguish between roll call votes on topics that are either relevant or relevant for a legislator's policy agenda, that is between situations where network mechanisms are likely to be more or less important. We expect that a legislator may find it hard to abstain when the topic is related to his or her agenda, whereas if the topic is not relevant to the politician's interests then the supply of votes that can be influenced by peers is high (Cohen and Malloy, 2014). When the cost of abstention is low, the benefit of avoiding a conflict might offset the cost and thus induce the legislator to abstain. We measure the relevance of the vote to a given politician according to the definition of bill topic salience presented in Section 3. According to the expectations, the results show an effect of conflict on a legislator's propensity to abstain in column 1 that is driven by the roll calls where the vote is not relevant to the legislator's agenda (column 3). In line with the theory, this evidence shows that when the policy stakes of the vote are low, the legislator is more likely to be affected by conflict. By abstaining, he or she can mantain both the relationships with the alumni network on one hand, and the party on the other hand.

In columns 4 and 5, we vary the cost of abstention by considering roll calls with a different vote margin. Again, the results are consistent with the idea that personal connections may create conflictual situations that trigger abstention when the costs of doing so are low. In fact, the results show that when the cost is high (i.e., when the vote is close, column 4), conflict does not exert a statistically significant effect on the decision of a legislator to abstain. The effect becomes statistically significant and increasing in magnitude when the margin of vote increases, or in other words, when the cost of abstention decreases.

Table 4

	Dependent variable: Congress member i abstained on bill j (1 = Yes, 0 = No)				
Sample	All roll call votes	Roll call votes relevant to the Congress member	Roll call votes irrelevant to the Congress member	Roll call votes irrelevant to the Congress member: vote closeness ≥ 0.8	Roll call votes irrelevant to the Congress member: vote closeness < 0.8
	OLS (1)	**OLS (2)**	**OLS (3)**	**OLS (4)**	**OLS (5)**
Party voted against the bill sponsored/cosposored by an alumni connection (1 = Yes)	0.0009*	-0.0058	0.0010**	-0.0002	0.0030***
	(0.0005)	(0.0043)	(0.0005)	(0.0008)	(0.0005)
Ideology Distance Differential	-0.0181***	-0.0106**	-0.0182***	-0.0030**	-0.0183***
	(0.0008)	(0.0039)	(0.0008)	(0.0010)	(0.0008)
Key Vote (1 = Yes)	-0.0142***	-0.0176***	-0.0142***	-0.0159***	-0.0141***
	(0.0012)	(0.0043)	(0.0012)	(0.0016)	(0.0012)
Vote Closeness	-0.0344***	-0.0558***	-0.0342***	-0.0070***	-0.0352***
	(0.0012)	(0.0075)	(0.0012)	(0.0009)	(0.0014)
Abstained more than once that day (1 = Yes)	0.7205***	0.7334***	0.7204***	0.6901***	0.7396***
	(0.0084)	(0.0169)	(0.0084)	(0.0103)	(0.0079)
Thursday-Tuesday club (1 = Yes)	-0.0258***	-0.0261***	-0.0258***	-0.0126***	-0.0331***
	(0.0013)	(0.0048)	(0.0013)	(0.0013)	(0.0015)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Congress fixed effects	Yes	Yes	Yes	Yes	Yes
Roll call topic fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.5364	0.5642	0.5362	0.4924	0.5665
Num. Obs.	3,143,453	42,464	3,100,989	1,392,987	1,708,002

Note: Results for model (3) of the paper. Standardized OLS estimated coefficients are reported. Standardization of coefficients is obtained using the formula $\frac{sd(x)}{sd(y)}\beta_x$, where β_x is the point estimate associated to control variable x, while $sd(x)$ and $sd(y)$ indicate the standard deviation or respectively control variable x and dependent variable y. Robust standard errors are reported in parentheses. Robust standard errors are adjusted for clustering at the Congress member-level. A precise definition of control variables can be found in Table A1 in the appendix. *, **, *** indicate statistical significance at the 10, 5 and 1 percent level.

VI. Heterogeneity

In this section we investigate whether the effect of alumni connections is different for legislators or roll call votes with differerent characteristics, and in Congresses with different structures. We estimate the augmented version of model (1):

$$(4) \quad Abstain_{ijtc} = \beta_0 + \beta_1\, AlumniPeers_{ijtc} + \delta_1\, AlumniPeers_{ijtc} * interaction\_variable + \delta_2\, interaction\_variable + \beta_2\, W_{ijtc} + \beta_3\, X_{jtc} + \upsilon_i + \zeta_c + \epsilon_{ijtc}$$

where *interaction variable* captures the following characteristics: the vote is a key vote, the vote is close, the legislator is a woman, belongs to an ethnic minority, is a Democrat, is the chair of a committee, has a marked ideological position, the seniority of the legislator, and the distance of his or her electoral district from Washington D.C.. We expect that party demands are larger and the influence of social connections is smaller for key votes and close votes. We also expect no impact on politicians whose constituency lives far from Washington D.C. because geography should not interfere with network effects. The effects of demographic charateristics, institutional positions, party affiliations, and ideology are a matter of empirical investigation.

The results contained in columns 1 and 2 of Table 5 confirm that the effect exerted by the alumni network is mitigated for key votes and close votes. However, the decrease of the network effect is statistically significant only when considering key votes. Columns 3-5 of Table 5 present the results of the estimation of model 4 when considering the interaction of network effects with the demographics and the party affiliation of the legislator. We find that gender does not significantly interfere with peer effects (column 4), whereas ethnic minorities are more prone to abstain with their connected peers than the majority of their colleagues (column 5). We also find that Democrats are more likely to abstain with their social connections with respect to Republicans (column 5). No significant differences in the effect exerted by the alumni network are observed between committee chairs and other members of the Congress, between politicians with more or less extreme ideology, with a higher or lower seniority in Congress, and those whose electoral district is closer or farther from Washington D.C.

VII. Robustness checks

Our analysis on the effect of personal connections on abstention behavior is performed using information on all Congress members regardless of whether or not they have alumni connections in Congress. This is because our identification strategy is based on the use of individual fixed effects, or in other words, on the comparison of abstention behavior of the *same* Congress member when exposed to a different share of peers who abstain. However, there are some slight differences

Table 5

	Dependent variable: Congress member i abstained on bill j (1 = Yes, 0 = No)								
Interaction variable	Key vote (1 = Yes)	Close vote (1 = Yes)	Gender (1 = Female)	Race (1 = Not White)	Party (1 = Democrat)	Committee Chair (1 = Yes)	DW Ideology	Seniority	Distance from Washington D.C.
	OLS (1)	**OLS** (2)	**OLS** (3)	**OLS** (4)	**OLS** (5)	**OLS** (6)	**OLS** (7)	**OLS** (8)	**OLS** (9)
Alumni Peers '(1 = Majority Abstained)	0.0194***	0.0110***	0.0107***	0.0087***	0.0056***	0.0105***	0.0094**	0.0097***	0.0083***
	(0.0020)	(0.0016)	(0.0013)	(0.0010)	(0.0013)	(0.0012)	(0.0028)	(0.0017)	(0.0018)
Alumni Peers '(1 = Majority Abstained) *	-0.0111***	-0.0009	-0.0009	0.0035**	0.0064***	-0.0009	0.001	0.0007	0.0026
interaction_variable	(0.0017)	(0.0014)	(0.0011)	(0.0017)	(0.0016)	(0.0008)	(0.0029)	(0.0017)	(0.0018)
interaction_variable	-	-	-	-	-	-0.0048*	-	0.0231***	-
						(0.0026)		(0.0063)	
Ideology Distance Differential	-0.0180***	-0.0180***	-0.0180***	-0.0180***	-0.0180***	-0.0180***	-0.0180***	-0.0180***	-0.0180***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
Key Vote '(1 = Yes)	-0.0134***	-0.0141***	-0.0141***	-0.0141***	-0.0141***	-0.0140***	-0.0141***	-0.0141***	-0.0141***
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)
Vote Closeness	-0.0341***	-0.0341***	-0.0341***	-0.0341***	-0.0341***	-0.0341***	-0.0341***	-0.0341***	-0.0341***
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)
Abstained more than once that day '(1 = Yes)	0.7203***	0.7204***	0.7204***	0.7203***	0.7204***	0.7203***	0.7204***	0.7204***	0.7204***
	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)
Thursday-Tuesday club '(1 = Yes)	-0.0255***	-0.0255***	-0.0255***	-0.0255***	-0.0255***	-0.0255***	-0.0255***	-0.0255***	-0.0255***
	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Congress fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Roll call topic fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.5364	0.5364	0.5364	0.5364	0.5364	0.5364	0.5364	0.5365	0.5364
Num. Obs.	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453	3,143,453

Note: Results for model (3) of the paper. Standardized OLS estimated coefficients are reported. Standardization of coefficients is obtained using the $\frac{sd(x)}{sd(y)}\beta_x$, where β_x is the point estimate associated to control variable x, while $sd\,(x)$ and $sd\,(y)$ indicate the standard deviation or respectively control variable x and dependent variable y. Robust standard errors are reported in parentheses. Robust standard errors are adjusted for clustering at the Congress member-level. A precise definition of control variables can be found in Table A1 in the appendix. *, **, *** indicate statistical significance at the 10, 5 and 1 percent level.

between legislators who have social connections, and those that do not. They are presented in Appendix Table A2. In order to be sure that unobserved factors related to those differences do not bias our results, we replicate the analysis presented previously in Table 3 by considering only the sample of Congress members who have at least one connected peer. The results of this exercise are presented in Appendix Table A3. All of the results remain qualitatively unchanged. The point estimates are only slighly larger in magnitude.

We also consider three additional robustness checks on model (1). First, we remove the variable "Ideological Distance Differential" from the model specification. This variable is obtained using the DW nominate score, which is a metric constrained between -1 and 1. As a result, it may suffer from measurement error since it is less precise in registering the ideological distance of extremists (i.e. those close to the values 1 and -1). Second, we exclude the variable "Vote Closeness" from the model specification. The reason is that this variable is endogenous since it is computed based on legislators' decision to vote or to abstain. Third, we use a conditional logit model to check the robustness of our results to the choice of the functional form. The estimates obtained from these exercises are presented in Table A4. In all cases, the results remain qualitatively unchanged.[23]

VIII. Conclusions

This paper investigates the role of social connections on abstention behavior in the U.S. House of Representatives. Our analysis is conducted by observing representatives' participation in the universe of roll call votes held on bills from the 109th through 113th Congress. Specifically, we observe how a legislator's decision to abstain is affected by the behavior of his or her network over different roll call votes, holding the network characteristics constant. We show that the social network of a legislator influences his/her abstention choices, even after controlling for all other well-known predictors of abstention.

Specifically, we find evidence that the propensity to abstain increases when the majority of a legislator's alumni connections choose to abstain. The magnitude of this effect is such that it could counterveil the incentive to vote that increases as the margin of a vote narrows. We further show that a possible pathway for this effect is the presence of a conflictual situation where the demands of friends clash with those of the legislator's party. This is the case when a legislator must choose whether to support a bill sponsored or cosponsored by a social connection but not his or her party. In these situations, a legislator is more prone to abstain, thus avoiding taking sides. We show however, that this behavior changes according to the policy stakes faced by the legislator over the vote's outcome. Specifically, we show that a cross-pressured legislator prefers to abstain over turn out only when

[23]Observe that marginal effects obtained from the linear model (Table 3) and the conditional logit model (Table 4) should not be directly compared, and differences in the magnitude of estimated coefficients may arise (Beck [2020]).

the bill under vote is not relevant to his or her agenda and the margin of vote is large.

Additional insights on the role played by social connections are obtained when looking at their heterogenous role across several dimensions. In particular, we observe that Democrats are more inclined than Republicans to behave in accordance with their alumni peers, and that network mechanisms are less relevant when the vote is a key vote or the vote margin is close.

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Appendix

Table A1: Summary Statistics

	Variable definition	Mean	St. Dev.
Congress member i abstained on bill j (1 = Yes, 0 = No)	Dummy variable. It takes the value of one if Congress member i abstained on roll call vote j, and zero otherwise.	0.04	0.20
Alumni Peers (1 = Majority Abstained)	Dummy variable. It takes the value of one if more than 50% of Congress member i's alumni peers abstained on roll call vote j, and zero otherwise.	0.01	0.10
Alumni Peers (1 = Less than 25% Abstained)	Dummy variable. It takes the value of one if less than 25% of Congress member i's alumni peers abstained on roll call vote j, and zero otherwise.	0.02	0.13
Alumni Peers (1 = Between 25% and 50% Abstained)	Dummy variable. It takes the value of one if between 25% and 50% of Congress member i's alumni peers abstained on roll call vote j, and zero otherwise.	0.01	0.12
Alumni Peers (1 = Between 50% and 75% Abstained)	Dummy variable. It takes the value of one if between 50% and 75% of Congress member i's alumni peers abstained on roll call vote j, and zero otherwise.	0.00	0.02
Alumni Peers (1 = More than 75% Abstained)	Dummy variable. It takes the value of one if more than 75% of Congress member i's alumni peers abstained on roll call vote j, and zero otherwise.	0.01	0.10
Alumni Peers – Same Party (1 = Majority Abstained)	Dummy variable. It takes the value of one if more than 50% of Congress member i's alumni peers affiliated to his/her own party abstained on roll call vote j, and zero otherwise.	0.01	0.09
Alumni Peers – Different Party (1 = Majority Abstained)	Dummy variable. It takes the value of one if more than 50% of Congress member i's alumni peers affiliated to a different party from his/her own abstained on roll call vote j, and zero otherwise.	0.01	0.08
Alumni Peers who are cosponsors (1 = Majority Abstained)	Dummy variable. It takes the value of one if more than 50% of Congress member i's alumni peers who are his/her cosponsors abstained on roll call vote j, and zero otherwise.	0.01	0.09
Alumni Peers who are not cosponsors (1 = Majority Abstained)	Dummy variable. It takes the value of one if more than 50% of Congress member i's alumni peers who are not his/her cosponsors abstained on roll call vote j, and zero otherwise.	0.00	0.06
Alumni Peers - Same State (1 = Majority Abstained)	Dummy variable. It takes the value of one if more than 50% of Congress member i's alumni peers who belong to his/her state delegation abstained on roll call vote j, and zero otherwise.	0.01	0.08
Alumni Peers - Different State (1 = Majority Abstained)	Dummy variable. It takes the value of one if more than 50% of Congress member i's alumni peers who do not belong to his/her state delegation abstained on roll call vote j, and zero otherwise.	0.01	0.08
Party voted against the bill sponsored/cosponsored by an alumni connection (1 = Yes)	Dummy variables. It takes the value of one when roll call vote j is held over a bill sponsored or cosponsored by Congress member i's alumni peer, and the majority of the party to which Congress member i is affiliated voted against roll call vote j, and zero otherwise.	0.01	0.11
Ideology Distance Differential	Relative ideological position of the Yea and Nay alternatives on roll call vote j compared to the ideological position of Congress member i (Rothenberg and Sanders, 2000). It is equal to: $\|MemberPosition - YeaPosition\| - \|MemberPosition - NayPosition\|$. Where "Member position" is equal to the absolute value of the first dimension of the DW nominate score created by McCarty et al. (1997) associated to Congress member i. "Yea Position" is equal to the average value of the first dimension of the DW nominate score associated to the Congress members who voted Yea on roll call vote j. "Nay Position" is equal to the average value of the first dimension of the DW nominate score associated to the Congress members who voted Nay on roll call vote j.	0.49	0.30
Key Vote (1 = Yes)	Dummy variable. It takes the value of one if Congress member i's party leaders voted all in the same way (e.g. they all voted yes) on roll call vote j, and zero otherwise.	0.74	0.44
Vote Closeness	It is the margin of vote observed by Congress member i on roll call vote j. It is equal to $1 - \|\frac{\#Yeah_j - \#Nay_j}{\#Yeah_j + \#Nay_j}\|$, where $\#Yeah_j$ and $\#Nay_j$ are the number of Congress members who voted respectively in favor and against of roll call vote j.	0.74	0.44
Abstained more than once that day (1 = Yes)	Dummy variable. It takes the value of one if Congress member i abstained more than once the day in which roll call vote j was held, and zero otherwise.	0.05	0.22
Thursday'-Tuesday club (1 = Yes)	Dummy variable. It takes the value of one if Congress member i is required to vote on roll call vote j during Thursday, Wednesday, or Tuesday, and zero otherwise	0.82	0.39
Divided Government (1 = Yes)	Dummy variable. It takes the value of one for Congress member i if roll call vote j that were held during Congresses in which the party controlling the executive branch was different from the party controlling one or both houses of the legislative branch (i.e. 110th, 112th, and 113th Congress), and zero otherwise.	0.62	0.49
Gender (1 = Female)	Dummy variable. It takes the value of one when Congress member i on roll call vote j is s a female, and zero otherwise.	0.17	0.37
Race (1 = Not White)	Dummy variable. It takes the value of one when Congress member i on roll call vote j is Latino or Afro'-American, and zero otherwise.	0.15	0.36
Party (1 = Democrat)	Dummy variable. It takes the value of one when Congress member i on roll call vote j is a Democrat, and zero otherwise.	0.51	0.5
Committee Chair (1 = Yes)	Dummy variable. It takes the value of one when Congress member i on roll call vote j is the chair of at least one committee, and zero otherwise.	0.05	0.22
DW ideology	For each roll call vote j, it records the distance to the center in terms of ideology of Congress member i measured using the absolute value of the first dimension of the DW'-nominate score created by McCarty et al. (1997).	0.04	0.44
Seniority	For each roll call vote j, it records the number of consecutive years during which legislator i served in the House of Representatives.	5.79	4.48
Distance from Washington D.C.	For each roll call vote j, it measures the distance in kilometers between Congress member i district's centroid and Washington D.C..	1960.78	1659.21
N. Obs.		3,143,453	3,143,453

Table A2

Sample	Percentage of Congress members with at least one alumni connection	Percentage of Congress members without alumni connections	**t test**
Gender (1 = Female)	16.21%	17.63%	-0.89 [0.3723]
Race (1 = No White)	13.64%	17.26%	-2.36** [0.0184]
Party (1 = Democrat)	43.14%	57.12%	-6.65*** [0.0000]
Chairmanship (1 = Yes)	4.78%	4.96%	-0.19 [0.8477]
High DW (>0.75) (1 = Yes)	0.09%	1.19%	-3.24** [0.0012]

Table A3

	Dependent variable: Congress member *i* abstained on bill *j* (1 = Yes, 0 = No)						
	OLS (1)	**OLS (2)**	**OLS (3)**	**OLS (4)**	**OLS (5)**	**OLS (6)**	**OLS (7)**
Alumni Peers (1 = Majority Abstained)		0.0163***				0.0082***	
		(0.0017)				(0.0015)	
Alumni Peers – Same Party (1 = Majority Abstained)			0.0143***				
			(0.0021)				
Alumni Peers – Different Party (1 = Majority Abstained)			0.0067***				
			(0.0010)				
Alumni Peers who are cosponsors (1 = Majority Abstained)				0.0131***			
				(0.0018)			
Alumni Peers who are not cosponsors (1 = Majority Abstained)				0.0069***			
				(0.0015)			
Alumni Peers - Same State (1 = Majority Abstained)					0.0116***		
					(0.0017)		
Alumni Peers - Different State (1 = Majority Abstained)					0.0109***		
					(0.0014)		
Alumni Peers (1 = Less than 25% Abstained)							0.0002
							(0.0009)
Alumni Peers (1 = Between 25% and 50% Abstained)							0.001
							(0.0011)
Alumni Peers (1 = Between 50% and 75% Abstained)							0.0057***
							(0.0013)
Alumni Peers (1 = More than 75% Abstained)							0.0071***
							(0.0015)
Ideology Distance Differential	-0.0089***	-0.0087***	-0.0087***	-0.0087***	-0.0162***	0.0021*	0.0022*
	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0010)	(0.0012)	(0.0012)
Key Vote (1 = Yes)	-0.0108***	-0.0104***	-0.0104***	-0.0104***	-0.0121***	-0.0098***	-0.0098***
	(0.0016)	(0.0016)	(0.0016)	(0.0016)	(0.0016)	(0.0017)	(0.0017)
Vote Closeness	-0.0267***	-0.0263***	-0.0263***	-0.0263***	-0.0332***	-0.0030***	-0.0030***
	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0016)	(0.0007)	(0.0007)
Abstained more than once that day (1 = Yes)	0.7180***	0.7177***	0.7177***	0.7177***	0.7173***	0.7221***	0.7221***
	(0.0120)	(0.0120)	(0.0120)	(0.0120)	(0.0120)	(0.0117)	(0.0117)
Thursday-Tuesday club (1 = Yes)	-0.0272***	-0.0265***	-0.0264***	-0.0265***	-0.0251***	-0.0099***	-0.0099***
	(0.0019)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0024)	(0.0024)
Wald χ^2 test			8.20**	0.32	0.012		9.50**
[p-value]			[0.0042]	[0.5700]	[0.9900]		[0.0021]
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Congress fixed effects	Yes	Yes	Yes	Yes	Yes	No	No
Roll call topic fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bill fixed effect	No	No	No	No	No	Yes	Yes
R^2	0.5391	0.5393	0.5393	0.5392	0.5395	0.5513	0.5513
Num. Obs.	1,551,961	1,551,961	1,551,961	1,551,961	1,551,961	1,551,961	1,551,961

Note: Results for model (1) of the paper are in columns (1) - (4). Results for model (2) are in columns (5) - (6). Standardized OLS estimated coefficients are reported. Standardization of coefficients is obtained using the formula $\frac{sd(x)}{sd(y)}\beta_x$, where β_x is the point estimate associated to control variable x, while $sd\,(x)$ and $sd\,(y)$ indicate the standard deviation or respectively control variable x and dependent variable y. Robust standard errors are reported in parentheses. Robust standard errors are adjusted for clustering at the Congress member-level. A precise definition of control variables can be found in Table A1 in the appendix. The Wald χ^2 test in column (3) evaluates the statistical difference of point estimates between variables *Alumni Peers – Same Party (1 = Majority Abstained)* and *Alumni Peers – Different Party (1 = Majority Abstained)*. The Wald χ^2 test in column (4) evaluates the statistical difference of point estimates between variables *Alumni Peers who are cosponsors (1 = Majority Abstained)* and *Alumni Peers who are not cosponsors (1 = Majority Abstained)*. The Wald χ^2 test in column (5) evaluates the statistical difference of point estimates between variables *Alumni Peers - Same State (1 = Majority Abstained)* and *Alumni Peers - Different State (1 = Majority Abstained)*. The Wald χ^2 test in column (7) evaluates the statistical difference of point estimates between variables *Alumni Peers (1 = Between 50% and 75% Abstained)* and *Alumni Peers (1 = Between 75% and 100% Abstained)*. *, **, *** indicate statistical significance at the 10, 5 and 1 percent level.

Table A4

	Dependent variable: Congress member i abstained on bill j (1 = Yes, 0 = No)		
	OLS	**OLS**	**Conditional Logit**
	(1)	**(2)**	**(3)**
Alumni Peers (1 = Majority Abstained)	0.0105***	0.0110***	0.1068***
	(0.0011)	(0.0012)	(0.0109)
Ideology Distance Differential	-	-0.0170***	-0.3193***
		(0.0008)	(0.0173)
Key Vote (1 = Yes)	-0.0110***	-0.0148***	-0.2781***
	(0.0012)	(0.0012)	(0.0270)
Vote Closeness	-0.0336***	-	-0.6762***
	(0.0012)		(0.0209)
Abstained more than once that day (1 = Yes)	0.7205***	0.7208***	0.4.8192***
	(0.0084)	(0.0084)	(0.0359)
Thursday-Tuesday club (1 = Yes)	-0.0259***	-0.0277***	-0.3942***
	(0.0013)	(0.0013)	(0.0183)
Individual fixed effects	Yes	Yes	Yes
Congress fixed effects	Yes	Yes	Yes
Roll call topic fixed effects	Yes	Yes	Yes
R^2	0.5363	0.5355	-
Num. Obs.	3,143,453	3,143,453	3,143,453

Note: Results for model (1) of the paper are in columns (1) - (3). Standardized OLS estimated coefficients are reported in columns (1) - (2). Standardized conditional logit estimated coefficients are reported in column (3). Standardization of coefficients is obtained using the formula $\frac{sd(x)}{sd(y)}\beta_x$, where β_x is the point estimate associated to control variable x, while $sd\,(x)$ and $sd\,(y)$ indicate the standard deviation or respectively control variable x and dependent variable y. Robust standard errors are reported in parentheses. Robust standard errors are adjusted for clustering at the Congress member-level. A precise definition of control variables can be found in Table A1 in the appendix. *, **, *** indicate statistical significance at the 10, 5 and 1 percent level.

Table A4 - PAP Categories

Major Policy Area		Topic Subject		
PAP Code	Content	PAP Code	Content	Description
1	Includes issues related to general domestic macroeconomic policy	101	Interest Rates	Includes issues related to inflation, cost of living, prices, and interest rates
		103	Unemployment Rate	Includes issues related to the unemployment rate, impact of unemployment
		104	Monetary Policy	Includes issues related to the monetary policy, central bank, and the treasury
		105	National Budget	Issues related to public debt, budgeting, and efforts to reduce deficits
		107	Tax Code	Includes issues related to tax policy, the impact of taxes, and tax enforcement
		108	Industrial Policy	Includes issues related to manufacturing policy, industrial revitalization and growth
		110	Price Control	Includes issues related to wage or price control, emergency price controls
		199	Other	Includes issues related to other macroeconomics subtopics
2	Includes issues related generally to civil rights and minority rights	201	Minority Discrimination	Includes issues related to minority, ethnic, and racial group discrimination
		202	Gender Discrimination	Includes issues related to sex, gender, and sexual orientation discrimination
		204	Age Discrimination	Includes issues related to age discrimination, including mandatory retirement age policies
		205	Handicap Discrimination	Includes issues related to handicap and disease discrimination
		206	Voting Rights	Includes issues related to voting rights, expanding or contracting the franchise, participation and related issues
		207	Freedom of Speech	Issues related to freedom of speech, religious freedoms, and other types of freedom of expression
		208	Right to Privacy	Includes issues related to privacy rights, including privacy of records, access to government information, and abortion rights
		209	Anti-Government	Includes issues related to anti-government activity groups, such as the communist party and local insurgency groups
		299	Other	Includes issues related to other civil rights subtopics
3	Includes issues related generally to health care, including appropriations for general health care government agencies	301	Health Care Reform	Includes issues related to broad, comprehensive changes in the health care system
		302	Insurance	Includes issues related to health insurance reform, regulation, availability, and cost
		321	Drug Industry	Includes issues related to the regulation and promotion of pharmaceuticals, medical devices, and clinical labs
		322	Medical Facilities	Issues related to facilities construction, regulation and payments, including waitlists and ambulance services
		323	Insurance Providers	Includes issues related to provider and insurer payments and regulation, including other types of benefits or multiple benefits
		324	Medical Liability	Includes issues related to medical liability, malpractice issues, medical fraud and abuse, and unfair practices
		325	Manpower	Issues related to the supply and quantity of labor in the health care industry, training and licensing
		331	Disease Prevention	Issues related to disease prevention, treatment, and health promotion, including specific diseases not covered in other subtopics
		332	Infants and Children	Includes issues related to infants and children, including coverage and quality of care, health promotion, and school health programs
		333	Mental	Includes issues related to mental health care and mental health disease
		334	Long-term Care	Includes issues related to long term care, home health care, the terminally ill, and rehabilitation services

		335	Drug Coverage and Cost	Includes issues related to prescription drug coverage, programs to pay for prescription drugs, and policy to reduce the cost of prescription drugs
		341	Tobacco Abuse	Includes issues related to tobacco abuse, treatment, education, and health effects
		342	Drug and Alcohol Abuse	Includes issues related to alcohol and illegal drug abuse, treatment, education, and health effects
		398	R&D	Includes issues related to health care research and development
		399	Other	Includes issues related to other health care topics
4	Includes issues related to general agriculture policy, including appropriations for general agriculture government agencies	401	Trade	Includes issues related to the regulation and impact of agricultural foreign trade
		402	Subsidies to Farmers	Includes issues related to government subsidies to farmers and ranchers, including agricultural disaster insurance
		403	Food Inspection & Safety	Includes issues related to food inspection and safety, including seafood, and labeling requirements
		404	Marketing & Promotion	Includes issues related to efforts to provide information on agricultural products to consumers and the regulation of agricultural marketing
		405	Animal and Crop Disease	Includes issues related to animal and crop disease, pest control and pesticide regulation, and welfare for domesticated animals
		408	Fisheries & Fishing	Includes issues related to fishing, commercial fishery regulation and conservation
		498	R&D	Includes issues related to agricultural research and development
		499	Other	Includes issues related to other agricultural subtopics
5	Includes issues generally related to labor, employment, and pensions, including appropriations for government agencies regulating labor policy	501	Worker Safety	Includes issues related to worker safety and protection and compensation for work-related injury and disease
		502	Employment Training	Includes issues related to job training for adult workers, workforce development, and efforts to retrain displaced workers
		503	Employee Benefits	Includes issues related to all employee benefits, pensions, and retirement accounts, including government-provided unemployment insurance
		504	Labor Unions	Includes issues related to labor unions, collective bargaining, and employer-employee relations
		505	Fair Labor Standards	Includes issues related to fair labor standards such as the minimum wage and overtime compensation, and labor law
		506	Youth Employment	Includes issues related to youth employment, child labor and job training for youths
		529	Migrant and Seasonal	Includes issues related to migrant, guest and seasonal workers
		599	Other	Issues related to other labor policy
6	Includes issues related to general education policy, including appropriations for government agencies regulating education policy	601	Higher	Includes issues related to higher education, student loans and education finance, and the regulation of colleges and universities
		602	Elementary & Secondary	Includes issues related to elementary and primary schools, school reform, safety in schools, and efforts to generally improve educational standards and outcomes
		603	Underprivileged	Includes issues related to education of underprivileged students, including adult literacy programs, bilingual education needs, and rural education initiatives
		604	Vocational	Includes issues related to vocational education for children and adults and their impact
		606	Special	Includes issues related to special education and education for the physically or mentally handicapped
		607	Excellence	Includes issues related to education excellence, including efforts to increase the quality of specific areas, such as math, science or foreign language skills
		698	R&D	Includes issues related to research and development in education
		699	Other	Includes issues related to other subtopics in education policy
7	Includes issues related to general environmental policy, including	701	Drinking Water	Includes issues related to domestic drinking water safety, supply, pollution, fluoridation, and conservation

	appropriations for government agencies regulating environmental policy	703	Waste Disposal	Includes issues related to the disposal and treatment of wastewater, solid waste and runoff.
		704	Hazardous Waste	Includes issues related to hazardous waste and toxic chemical regulation, treatment, and disposal
		705	Air Pollution	Includes issues related to air pollution, climate change, and noise pollution
		707	Recycling	Includes issues related to recycling, reuse, and resource conservation
		708	Indoor Hazards	Includes issues related to indoor environmental hazards, indoor air contamination '(including on airlines), and indoor hazardous substances such as asbestos
		709	Species & Forest	Includes issues related to species and forest protection, endangered species, control of the domestic illicit trade in wildlife products, and regulation of laboratory or performance animals
		711	Conservation	Includes issues related to land and water conservation
		798	R&D	Includes issues related to research and development in environmental technology, not including alternative energy
		799	Other	Includes issues related to other environmental subtopics
8	Includes issues generally related to energy policy, including appropriations for government agencies regulating energy policy	801	Nuclear	Includes issues related to nuclear energy, safety and security, and disposal of nuclear waste
		802	Electricity	Includes issues related to to general electricity, hydropower, and regulation of electrical utilities
		803	Natural Gas & Oil	Includes issues related to natural gas and oil, drilling, oil spills and flaring, oil and gas prices, shortages and gasoline regulation
		805	Coal	Includes issues related to coal production, use, trade, and regulation, including coal gasification and clean coal technologies
		806	Alternative & Renewable	Includes issues related to alternative and renewable energy, biofuels, hydrogen and geothermal power
		807	Conservation	Includes issues related to energy conservation and energy efficiency, including vehicles, homes, commercial use and government
		898	R&D	Includes issues related to energy research and development
		899	Other	Includes issues related to other energy subtopics
9	Immigration	900	General	Includes issues related to immigration, refugees, and citizenship
10	Includes issues related generally to transportation, including appropriations for government agencies regulating transportation policy	1001	Mass	Includes issues related to mass transportation construction, regulation, safety, and availability
		1002	Highways	Includes issues related to public highway construction, maintenance, and safety
		1003	Air Travel	Includes issues related to air travel, regulation and safety of aviation, airports, air traffic control, pilot training, and aviation technology
		1005	Railroad Travel	Includes issues related to railroads, rail travel, rail freight, and the development and deployment of new rail technologies
		1007	Maritime	Includes issues related to maritime transportation, including martime freight and shipping, safety and security, and inland waterways and channels
		1010	Infrastructure	Includes issues related to infrastructure and public works, including employment intiatives
		1098	R&D	Includes issues related to transportation research and development
		1099	Other	Includes issues related to other transportation subtopics