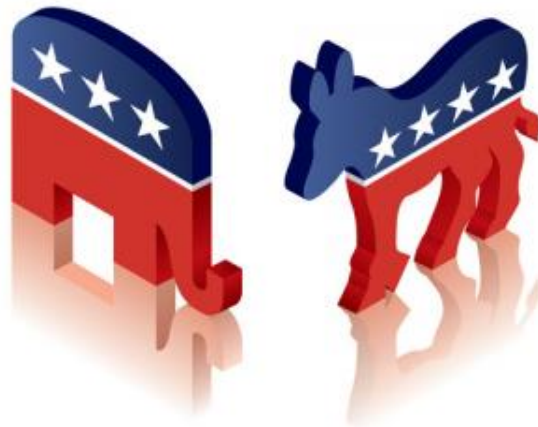


A Theoretical Approach on how Lobbying Sustains Polarisation in the United States

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Abstract

For the past three decades polarisation in the United States has followed an entirely increasing trend. The factors that support this tendency and the largely overlooked role of special interest groups in sustaining this trend are examined. A straightforward and theoretical model suggests that in the extreme case of complete polarisation there is a large jump to where centrist lobbies will no longer have an advantage when it comes to influencing politicians. This finding implies that the informative function of being lobbied in a bi-partisan fashion disappears and as a result all active lobbies including those holding more extreme views have an equal opportunity to influence policy.

Contents

1	Introduction	2
2	Literature review	4
2.1	Polarisation in the United States	4
2.2	Lobbying	13
2.3	Contest Success Functions	20
3	The Model	22
3.1	No Overlap	25
3.2	Overlap	29
4	Discussion	36
4.1	Analysis	36
4.2	Linear Costs	37
4.3	Bias	37
4.4	Multiple Lobbies	40
4.5	Probability party decides	41
5	Conclusion	42
	References	44

1 Introduction

The United States is one of the most advanced democracies. However, its modern institutions do not match its developing country like inequality that has persisted for decades. An educated population that votes in a developed democracy is expected to reverse such a trend by voting for policies that increase equality, but instead of a turnaround the disparity appears to be growing. An explanation for the lack of such voting behaviour should be provided at least in part by American politics. The growth path of polarisation on cultural, religious, social, and economic issues follows the same increasing trend as inequality over the past three decades (Layman et al., 2006). The political debate is less consensual and political gridlock appears to have become a permanent state. Most of the literature attempts at finding explanations based upon the developments around policymakers and voters, but less attention is placed upon the role of special interest groups. The activities of the latter appear to be based upon a few persisting preconceptions that will be analysed in the following section.

In 2011, approximately \$6.16 million was spent per lawmaker and for every of the 535 lawmakers there were 24 registered lobbyists, which gives an idea of the scope of lobbying and its prominence in American politics (Opensecret, 2012). This large industry is regulated through the Lobbying Disclosure Act (LDA), which obligates lobbyists to register and disclose information on their activities to the Senate Office of Public Records (SOPR). Both lobbying firms and organisations that engage in activities that can be described as lobbying are forced to register. These lobbying activities are defined as contacts with policymakers including research work in order to support these officials (in-house lobbying). Spending more than 20% of working hours lobbying is enough to earn the status of lobbyist. The quarterly information disclosed consists of the topics that they lobby on including an extensive report including the revenue

made by lobbying firms, and the monetary investments made by the in-house lobbyists (Blanes i Vidal et al., 2010; Baumgartner et al., 2009).

Reasons for why this polarisation persists and does not appear to reverse are offered on the side of voter and policymaker behaviour. The explanations focus less on the third important agents in the political process, which are the special interest groups who participate in lobbying activities. Layman et al. (2006, pp. 96-99) provides an important connection between polarisation and one-issue party activists, which is more of a grassroots perspective and deals with voter behaviour. Therefore, the central question is *“How does informative lobbying contribute to the persisting trend of polarisation in the United States?”*. The focus is on informative lobbying since financial contributions as a lobbying activity are in part overstated and as such the effects of meetings and providing information that constitute an important aspect of lobbying are less emphasised even though this type of contact is essential. This is illustrated by the growing amount of lobbyists present per lawmaker. In order to answer the central question, the subquestions that are addressed are the following *“How can the continued polarisation be explained and what are the consequences for policymaking?”*, *“What are the views on lobbying and how can the influence lobbies exert be described?”*, *“What is the relationship between lobbying and polarisation?”*. A simple theoretical model is constructed in order to support the answers found and to provide an explanation for how the mechanism might sustain polarisation.

The expectation is that such a large industry of lobbying must have an undeniable effect on sustaining the polarising trend apart from just monetary contributions. The results confirm that in a state of complete polarisation, lobbying will be equally profitable for all lobbies that fall within the scope of preferences of the party being lobbied. In addition, the probability of winning

the lobbying competition is also equal for all active lobbies causing the median views of the centrist lobbies to have to compete without an advantage with lobby preferences on the periphery. Less polarisation does give an advantage to centrist lobbies who will now increase their chances of winning the lobbying competition through lobbying in a bi-partisan fashion. In addition, partisan lobbies are indifferent between the state of polarisation since their payoffs remain the same in both cases. Therefore, there is a lack of incentive to change to less polarisation for non-centrist lobbies.

The literature review that follows will cover the growing polarisation in the United States and the consequences of its persistence. In addition an overview is given of the influence lobbying has and its relationship with polarisation. The model is then introduced after providing some background on contest success functions. This thesis is then concluded with an analysis and conclusion.

2 Literature review

2.1 Polarisation in the United States

The objective of this part is to explain the polarising trend observed in the United States. It is important to make a distinction between the polarisation observed in the political process and how polarised American citizens are. In addition, for this trend to persist there are certain properties of the American society that need to be highlighted. What caused polarisation in the United States is an interesting study, but a whole study on its own and therefore falls beyond the scope of this paper. The causes will be treated as exogenous and the focus will be on what sustains and possibly exacerbates partisanship and what the consequences are for public policy.

The focus is solely on the United States due to having one of the highest

degrees of polarisation compared to a sample of other developed countries in a study on OECD data (Alt and Lassen, 2006, p. 535). In addition, the two party system allows for straightforward modelling of the ideological spectrum, which is illustrated in the next section.

2.1.1 The Polarising Trend

The presence of polarisation can be confined to anecdotal evidence seeing actual polarisation can differ over a broad array of issues. Fiorina and Abrams (2008) provides the common definition, which states that polarisation is the presence of opposite views and ideas at the same time. In the literature political preferences that show a bimodal distribution of observations are categorised as polarising. The authors acknowledge the difficulty of specifying a definitive beginning and ending and therefore the treatment of polarisation is mostly discussed in terms of a trend. Layman et al. (2006) asserts that traditional ideas on party polarisation centre around differences of opinion on one topic of conflict. Polarisation of the past decades has extended to include differences of the two parties on racial, cultural, economic, social, and foreign policy matters.

Measuring polarisation is not an obvious task. McCarty et al. (2006) presents with figure 1 the result of their own constructed variable NOMINATE, which measures who votes with whom and how often based upon all the roll call votes since 1947. This makes it possible to compare policymakers over time giving an accurate measure of their position on the ideological spectrum. Polarisation is then the difference between the Republican and Democratic mean scores. Figure 1 shows an undeniable trend of partisanship that has taken place over the past three decades and appears to be increasing even further. From this graph the link is made with the growing inequality in the United States, which is discussed later and provides more insight.

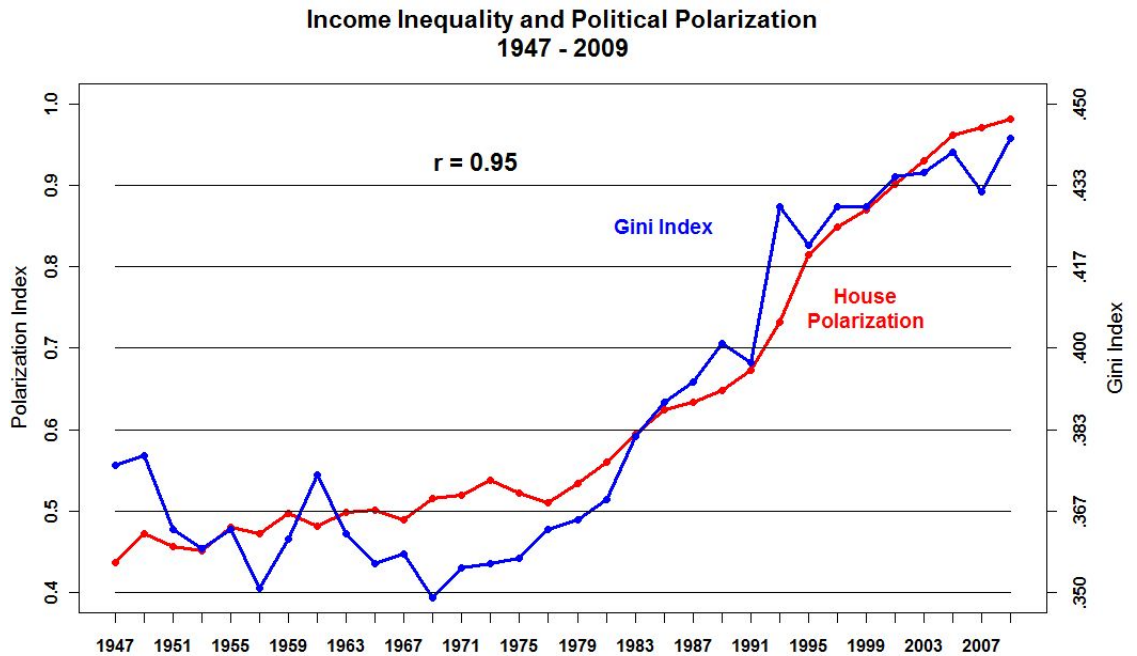


Figure 1: Income inequality according to the Gini index and House polarisation (McCarty et al., 2006, p. 6).

More evidence of the extreme polarisation is shown in figure 2, where the distributions on the ideological spectrum are shown over three distinct periods of Congress. The first observation is that over time views have become less dispersed in both parties, which implies that members do not deviate as much from the party centre. Secondly, the majority view has moved out to the right for the Republicans and to the left for the Democrats. In line with the model assumptions there is no overlap of consequence left between the two parties. Moreover, it can be concluded that the party centre, not necessarily the leadership is in the middle. Another basic assumption of the model.

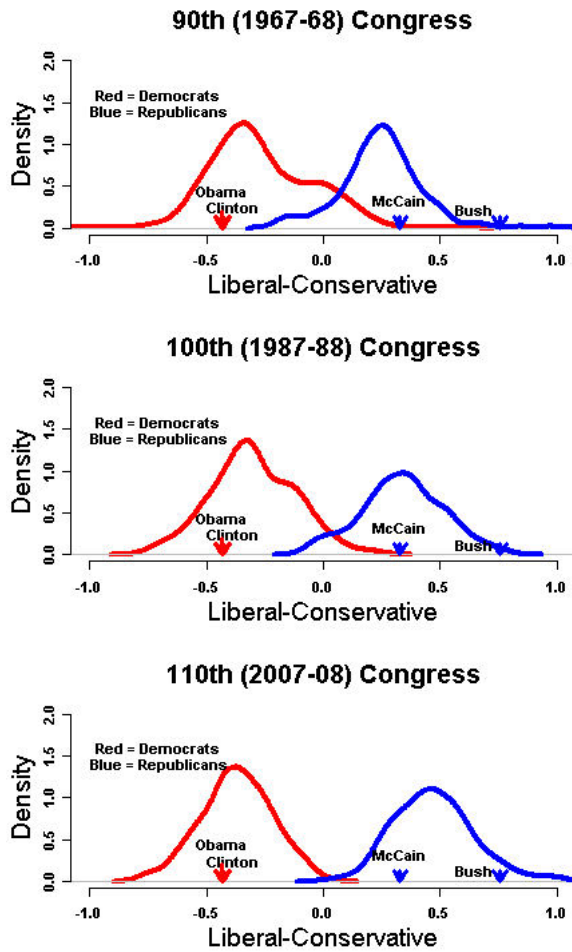


Figure 2: Ideological distributions of the Democratic and Republican parties in Congress (Voteview, 2011).

2.1.2 Persistence of Polarisation

Some of the explanations for why the partisan trend persists from the side of voters and policymakers will now be discussed. First, in light of the interconnectedness with inequality the expectation is that voters push for more redistributive policies and thus move towards moderation. McCarty et al. (2006) identifies increased low income immigration as one of the main contributors to a

lack of moderation. A large increase in the amount of non citizens in the United States over the past decades is at fault. According to the authors, in 2000 the percentage had risen to 7.8% from 2.6% in 1972. The current absolute estimate for 2011 is 11,5 million unauthorised immigrants, which in 2000 was estimated to be 8,5 million (Hoefer et al., 2011). These predominantly poor non citizens are not allowed to vote and combined with the state of the median voter who has not experienced a decrease in his living standards, the incentives to push for redistributive policies are not present. Thus the poor have experienced a decrease in their ability to exert political influence and implement measures that are expected in an increasingly unequal society. In addition, decreased redistribution has caused a further transfer of economic resources from the poor to the rich and has thus increased the political influence of the wealthy even further. Hence, the average tax base that can be imposed on the rich decreased and voters cannot expropriate them in order to control rent-seeking incentives that decrease growth (Rodriguez, 1999). Furthermore, Hetherington (2008) stresses that the majority of voters are ill-informed causing them to vote against their own interests. A lack of realisation persists of how polarisation has decreased the manner in which interests of voters are represented and as a result limits their choices.

The increase of the amount of poor non citizens is not the only reason that inequality and polarisation have been persistent, the wealthy have played an important part in sustaining the trend. The interrelatedness between the elite and politics has grown and due to this increased wealth Republicans have been able to move more to the right. The Democrats have been prevented from moving further to the left due to contribution dependency (McCarty et al., 2006). Also the requirements for politicians in order to be successful have changed. Causing funding needs to rise for costly television campaigns and other expensive spon-

sorship activities. Therefore, Democrats have been forced to remain appealing for wealthy contributors and voters. McCarty et al. (2006, pp. 160-161) does not find a causal link between increased spending and polarisation based upon a lack of increased contributions made to extreme candidates and no movement to the extremes by recipients in order to please their donors. The authors do identify a rise in the amount of individual contributors up to more than a half of all electoral contributions also due to changes in regulations. These individuals have a tendency to give more to extreme policymakers. Due to inequality a group of wealthy appears to have the resources to influence political outcomes since politicians rely on these donations. Polarisation has increased campaign spending since winning the election has greater consequences and therefore ideological contributors have an increased willingness to pay. The authors admit that measuring the effect of contributions is difficult, but not adhering to the preferences of the donor might cause contributions to be halted.

Another explanation offered for the continuing trend of polarisation is based upon the characteristics of the constituencies of members of Congress. Layman et al. (2006) asserts that “conditional party government” occurs when constituencies of different members of Congress become more homogeneous within the party, but divergent between the parties. According to the authors such a tendency can be observed in the United States. Members are then more willing to follow party leaders, which will allow these leaders to compel more moderate members to also follow the party line and as such increase polarisation.

2.1.3 Public Polarisation

Due to party polarisation it might be expected that public polarisation has followed a similar trend. The findings are ambiguous, but there seems to be a consensus in the literature that the American public is much less polarised than their politics would suggest. McCarty et al. (2006, p. 78) analyses the Demo-

cratic and Republican distribution of preference and finds that when there is polarisation, the median voter does not decide policy. This important notion is supported by the modelling results in the next part. Hetherington (2008) adds that actual voter preferences do not show a bimodal distribution and that party polarisation is mostly explained by the elite as discussed earlier. Their movements have also spurred greater participation among the masses although these have remained relatively moderate. In order to study voter preferences social and cultural characteristics, fundamental values, political positions, voting behaviour, candidate evaluations, and the places of residence are studied. Fiorina and Abrams (2008) concludes based upon these constructs that popular polarisation does not follow the trend of figure 1. The literature is inconclusive on the effect of political polarisation on mass polarisation. Despite the mention of increased participation and identification before, views are upheld that a decrease has taken place. In addition, lower confidence in government is also named as caused by party polarisation.

The decreased participation of the moderate majority has empowered the party ideologues since the election of party leaders is done through caucuses and voting. Moreover, as party activists are usually supporting one major issue they tend to be non compromising and in order to obtain financial contributions and approval from the activists the politician seeking election will need to support more extreme views. Therefore, this grassroots influence on less active voters causes party ideologues to be a dynamic element that contributes to polarisation (Layman et al., 2006, pp. 97-101).

2.1.4 The Consequences for Policy

Partisanship is expected to hamper the political process since reaching a compromise is complicated by non compromising ideology. Jones (2001) finds that gridlock is caused by party polarisation in combination with seat division and

not just by a divided government. The latter has been the case for the past three decades. The author includes seat division due to organisation of government, which needs a supermajority to break gridlock. In the Senate it is possible to prevent final action by a minority through filibustering, which is the right to extend debate causing delays. In addition, Congress can reverse a Presidential veto through a two third majority. Thus the institutional organisation allows the minority to exert a lot of power, which raises the risk of continued gridlock due to partisanship.

The negative effects of a state of gridlock are also intuitive. McCarty et al. (2006) identifies a few issues for policy due to party polarisation. One of the most important consequences is the decline in creation and passing of crucial legislation. Gridlock will ensure that public policy will fail to adjust to current events and therefore the role for the legislature will become less important. An example of this is the pressing matter of raising the debt ceiling, which needs to be revised constantly instead of policy being implemented that would allow for more automatic adjustments. Also the example of social policy is presented where the parties cannot agree on indexation for the minimum wage. Therefore, the constant need for new legislation has led to minimum wage decreases that surpass the shifts in economic cycles deemed necessary seeing social policy is in place to protect citizens against the risks of a market system. In addition, it is beneficial for the policymaker to cause the other party to appear more extreme and blame it for gridlock in public and as such compromising is made impossible due to sweeping statements. Also political appointments are regularly delayed as no agreement can be reached on appointments, leaving agencies without proper leadership for prolonged periods.

Apart from these negative consequences some beneficial effects can be identified as well. Layman et al. (2006, pp. 101-103) stresses that due to this polarisa-

tion citizens can differentiate easier between parties and policies. Also negative election campaigns appear to provide more information regarding policies than positive ones, which implies that the increasingly negative discourse between the parties is also beneficial. Finally, the author points out that voter participation and party identification has increased considerably during the most polarised elections.

Despite these positive consequences, a reversal of the trend should be preferred in order for legislative output to increase and keep up with current events. McCarty et al. (2006, p. 200) recognises that moderation is a slow process and that current polarisation will prevent institutions from reforming. Therefore, an exogenous shock is needed to cause a realignment and the examples of a political shift brought about by the abolition of slavery and the new deal are mentioned. Such a shift is currently necessary according to the authors who assert that a further push to the right by Republicans on economic issues might alienate the more social members of the party. Hetherington (2008) confirms this need for an exogenous shock and maintains that one important issue could be sufficient to increase the part of the public that is informed. The terrorist attacks of 9/11, the financial crisis of 2007/2008, health care reform and the Bush tax cuts have proven insufficient to cause such a realignment.

Continued polarisation is a phenomenon of the past decades, which does not appear to be reversing. Although the American public appears to be more moderate there are some persisting factors that prevent bi-partisanship. Such factors include poverty among non voting citizens, the increased homogeneity of constituencies, and the importance of financial contributions for politicians. Policy has been halted and even reversed on many different issues due to the power of the minority to sustain gridlock.

2.2 Lobbying

After analysing the polarising trend in the United States, it is important to examine the relationship between polarisation and lobbying. The aim here is not to provide arguments to prove a causal effect, but to establish how lobbying and partisan politics are mutual reinforcing. Lobbying is a complicated activity with uncertainty surrounding its effects due to the interactions with institutions that decide if access is granted, public opinion, and competing lobbies (Lowery, 2007). In order to provide more insight the views on lobbying, the influence exerted and the relationship with the polarising trend are discussed.

2.2.1 Special Interest Views

The prevalent view on why special interest groups participate in the political process is based upon their desire to change policy. Lowery (2007, pp. 31-32) identifies two general ideas that are associated with lobbying. First, individuals who have similar interests will organise in reaction to policy movements that are in conflict with their own interests. Such a definition first introduced by Truman and Dahl views the activity of lobbying as beneficial to a democracy since lobbies will provide information on a broad spectrum of public interest issues and mobilisation is not only available to a few. Grossman and Helpman (2002, p. 104) confirms this information process and provides a narrow definition of lobbying as being an encounter between the policymaker and the representative of the interest group in which the representative will try to convince the policymaker that their interests and those of the general public are aligned. This information sharing is beneficial for both parties since the lobbyist gains from a more informed policy decision and in case of opposing lobbies the legislator gets the opportunity to check the credibility of the information. Becker (1983) concludes that these opposing lobbies are beneficial and that the

competition between them leads to pareto efficient policies that benefit the advocates. Lobbies will also be better informed due to the incentives to gather a lot of information and it is readily available for them through their members and activities, which lowers their cost of gathering data compared to the costs the policymaker would face. This informative task is valuable since issues tend to be specialised to such an extent that without lobbying agents some arguments would not be heard and the subject would not receive an in-depth treatment. In addition, Rosenthal (1993) argues that lobbyists help the American political system to function better by making public interest heard.

Second, a less positive theory arose proposed by Olson of collective action, which stresses that the incentives for individuals to mobilise is lacking due to free riding and therefore only small groups who have much to gain would lobby. This then results in only a limited distribution of interests informing the elected officials, which is more of a harmful state for a democracy since interests of the majority would not be lobbied for. Also according to this point of view, lobbying is a waste of resources and the policy choices that are lobbied for will tend to be inefficient solutions (Tullock, 1980).

Both views have merit, but fail to describe the observed process completely. Lowery (2007) asserts that conclusive empirical evidence is lacking in both cases. He argues that in reality collective action is not as severe as Olson proposed and that the large array of different interests being lobbied for supports this claim. Baumgartner et al. (2009) confirms the diversity of issues that are lobbied and finds that the largest group of lobbying actors are citizen groups, which implies that mobilisation is not as constricted as collective action problems would suggest.

It is important to note that most of the interactions the lobbyist has with the policymaker are subtle and free of corruption, coercion, and conflict. Lowery

(2007, p. 36) provides a view of the influence of lobbies being free of pressure or purchase that will be upheld throughout this paper. In meetings between a policymaker and a special interest group, the latter will gain access in order to present information and is labeled as casework done by the policymaker for his constituency. Grossman and Helpman (2002, pp. 247-248) describes this interaction as individual gatherings between lobbyist and policymaker where the former present their position and possibly their willingness to make donations. In addition, Baumgartner et al. (2009) shows that 40% of the advocates in their sample of almost 100 issues lobbied are government officials. This finding changes the notion of neutral policymakers being targeted. Especially government officials in key positions like the committee chairs and political leaders were found to be actively lobbying. This finding adds to the importance of the interrelatedness of lobbying and polarisation. The cooperation of policymakers with those that share the same positions supports the view of a mutual reinforcing effect.

2.2.2 Influence

Based upon the prevalent views mentioned in the previous part, an implicit assumption arises that the influence exerted by lobbying is readily observed. Lowery (2007) maintains that the influence on the final decision on policy and the lobbying process that precedes it are quite complex due to the strategic interaction with other special interest groups, gaining access to important actors, and government procedures. Grossman and Helpman (2002) ascertains that the most important factor that the lobby needs to take into account when deciding where to spend its time and resources is the institutional setting. If party discipline is low, just lobbying a pivotal policymaker does not suffice and the legislative process needs to be taken into account. Therefore, in this case of extreme polarisation it is to be expected that lobbyists will spend their time

lobbying one side or one policymaker. Since polarisation suggests higher party discipline.

Popular opinion assumes that the wealthy influence policy most and that the primary goal of lobbyists is to change public policy. Baumgartner et al. (2009) analyses a large sample of issues lobbied and find contradicting evidence on these basic assumptions of lobbying. They do not discover that the wealthy are more powerful and win most lobbying contests. The authors explain that the wealthy through their ability to exert more influence and mobilise should have already won in previous policy rounds. Their interests should then be maintaining the status quo and thus lobbying becomes a process of preserving existing policy. Existing policy is already the outcome of previous rounds of lobbying and political negotiations, which reflects the partisanship at the centre of this thesis. The data confirms this through the study of budgetary changes, which shows that lack of change pursued by lobbyists is the most common occurrence. Therefore, lobbies mostly attempt to preserve the status quo and prevent change.

These assertions are in contrast with past lobbying theories and public opinion. The large lobbying contests where large interests are involved receive most attention, but these are not representative for the majority of issues that are lobbied. Few of the issues lobbied receive public attention and allow lobbyists to work without public visibility (Baumgartner et al., 2009). Lowery (2007) supports this finding and asserts that interest groups are most effective when their work does not receive much attention. In addition, it might be that some issues are not actively lobbied since the status quo is not threatened and the policymakers have been given enough incentives to represent their interests. In case of opposing party leaders it is highly unlikely that change will occur. Despite the advantages of keeping lobbying activity outside of public discourse, highly

visible lobbying contests remain due to the large stakes involved. When policy does alter, which rarely happens, changes are more likely to be substantial and this serves as an incentive to participate (Baumgartner et al., 2009). In addition, Lowery (2007) adds that success for lobbies goes beyond changing policy or maintaining the status quo, it is also of importance to keep their interests on the agenda in order to survive.

The stakeholder that sets the agenda sheds light on where the influence comes from. Baumgartner et al. (2009) finds that policy making is a bottom up process where new policy proposals mostly come from the advocates. As mentioned before the largest active group are the citizen groups who are identified by all other lobbies as a dominant force mainly because of their public legitimacy. Next, the business interests and trade associations are active, these lobbies have more resources, but that does not necessarily imply that they are outmatched. Citizen groups will often form coalitions together or with lobbies that share their interests in order to increase influence.

2.2.3 Lobbying and Polarisation

There is a mutual reinforcing effect of lobbying and polarisation that has not been discussed yet. McCarty et al. (2006) finds that interest groups follow the same polarisation path as that of the parties, being either Democrats or Republicans. Here, four key factors are presented that support the view that expand on how lobbying sustains this polarisation.

First, government officials constituting almost half of the lobbying advocates explains a large part of the partisanship observed. This implies that polarisation is strengthened since neutral parties in the lobbying competition are scarce and those in pivotal positions appear to be biased (Baumgartner et al., 2009). Blanes i Vidal et al. (2010) analyses revenue data from lobbyists in order to quantify the revolving door phenomenon. They find that when a senator leaves,

there is an immediate and sometimes persisting 24% drop in revenues, which implies that the importance of a connection between either familiar lobbyists or former colleagues of the senator is significant. This connection provides further evidence that gaining influence goes further than providing funds. Koger and Victor (2009) discusses how between 1995-2006 the Republican majority influenced hiring decisions by lobbies by making their preference for party-affiliated lobbyists known, called the K Street project. The advantages for the Republican party have been great and include an acceptance of short term loss for common benefit by these lobbyists, being able to trust those lobbying with certain information, counting on support for retaining the majority and winning the presidential election, and sharing the same values.

Second, there is a lack of negative lobbying where lobbies will seek access at the opposing side. This is also the case for contributions made by lobbies, the share of contributions to the opposing side hardly ever reaches a 50-50 divide. In electoral campaigns there is an incentive to donate more to the party that has a greater probability of winning and lobbies focus on their allies and ignore the conflicting side and those that are neutral (Grossman and Helpman, 2002; Hojnacki and Kimball, 1998; McCarty et al., 2006). McCarty et al. (2006) finds in its study of the hundred largest individual contributors in 2002, only five of them split their contributions more evenly than 85-15%. Furthermore, a study of electoral contributions of the 2005-2006 electoral campaign also shows a bimodal distribution with hardly any sharing of donations between the parties. The analysis of Political Action Committees (PACs) who distribute donations to more than one candidate collected from different contributors, shows that legislators in power, committee chairs, party leaders, and the majority party are favoured when it comes to these types of contributions (Koger and Victor, 2009). Baumgartner et al. (2009) asserts that the study of PAC contributions is

the last stage in the lobbying process, their empirical study includes an earlier analysis of the process, which also concludes that similar organisations are loyal to their side and do not try to convince those that oppose.

Third, as mentioned before legislative output has decreased due to for instance gridlock. In accordance with this, Baumgartner et al. (2009) observes that over the course of almost a decade of studying the lobbying activities in Washington, the status of only half of the issues in their sample had changed and that policies are predominantly stable. This is due to the competition to maintain the status quo and is also attributed to the immense task lobbies face to gain attention. Amidst many different interests, seeking attention is identified as the biggest challenge a lobby faces. In addition, this fight to preserve the status quo implies that a bias is already present in policies.

Finally, the prevalence of citizen groups would imply a broad array of interest are represented. Baumgartner et al. (2009) shows that the major concerns of the public do not match those of the citizen groups and other special interest groups in general. This might be due to the fact that citizens with views on the periphery have more incentive to participate in the political process (McCarty et al., 2006). The major issues lobbied are health care, the environment, business, finance, and commerce. When advocates were asked to identify the major actors on their side a bimodal distribution arose, which further confirms the relationship between polarisation and lobbying discussed (Baumgartner et al., 2009).

From these four characteristics, it can be concluded that the relationship between lobbying and partisanship is strong. The clustering of advocates on the same side has the benefit of coalition forming to increase clout, but increases the risk of only listening to reinforcing arguments. The following part will look at the manner in which competition between lobbies can be studied.

2.3 Contest Success Functions

In order to theorise on how lobbying activities sustain polarisation, contest success functions (CSFs) are used to analyse the probability of winning and the expected payoffs when parties are competing. The origins of contest success functions lie in rent-seeking activities, which are fundamentally competitive in nature. Corchón (2007) identifies the most common of these non-cooperative games that are analysed including fighting in wars, litigation, lobbying, patent races, sports and awarding contracts. Grossman and Helpman (2002) models informative lobbying through a cheap game analysis, which looks at the signals the lobbyists give and the intricacies of credibility for the policymaker.

The unifying characteristic of CSFs is that every contestant makes an unrecoverable investment before the outcome is determined, which might consist of gifts, money, information sharing, networking and other activities, which are called effort e . Since for instance knowledge is too specialised and in case of lobbying relationships are personal, it is not possible to transfer the investments made, therefore the lobby has sunk costs before the prize is awarded. Lobbies will keep on investing until adding one additional unit of effort will be more costly than the expected utility increase (Tullock, 1980, p. 115). Consequently, participating in the contest comes at a cost, which is expressed in the cost function and the payoff will be the expected utility from taking part in the contest. Different forms of CSFs exist, here the most used specification is discussed (Tullock, 1980)

$$p_i(e_i, e_{-i}) = \frac{e_i^\mu}{\sum_{j=1}^n e_j^\mu} \text{ if } \sum_{j=1}^n e_j > 0 \quad (1)$$

$$p(e_i, e_{-i}) = \frac{1}{n} \text{ if } \sum_{j=1}^n e_j = 0$$

The CSF measures the impact of e in which the fraction measures the relative impact in case of risk-neutral lobbies. The exponent μ influences each contestant equally and can be explained as the noise of the game. As μ decreases and approaches 0, the contest becomes more noisy and will resemble a random lottery where the resources invested will no longer determine the outcome (Jia et al., 2011, p. 9). The opposite case $\mu \rightarrow \infty$ converges towards an all-pay auction where exerting more effort than the opponents will lead to success with probability 1 and is also called a perfectly discriminating contest (Jia, 2008, pp. 129-130). The all-pay auction specification is used here where $\mu = 1$. Hirshleifer (1995, p. 32) calls μ the decisiveness factor, which could represent the empowerment of the minority in American politics or the state of gridlock caused by polarisation. These factors decrease the effect of investments made in the contest and increase the noise.

In general, (1) is assumed to have a few general and desirable properties of which an overview is provided in table 1.

(i)	$p(e_i)$ is twice continuously differentiable in \mathfrak{R}_{++}
(ii)	$p(e_i)$ is concave
(iii)	$p(e_i) > 0$
(iv)	$p_i(0) = 0, \lim_{e_i \rightarrow \infty} p(e_i) = \infty$
(v)	$e_i p'_i(e_i) / p_i(e_i)$ is bounded for all $e_i \in \mathfrak{R}_+$

Table 1: General properties of CSFs (Corchón, 2007, p. 5).

The second property aids in proving there is a Nash equilibrium. Since the first derivative is positive, it can be concluded that an increased effort will also increase the benefit derived from the effort put forth. By putting boundaries on μ , the properties of the results will change accordingly. When $0 < \mu \leq 1$ is not violated, the contest behaves according to the general properties of a CSF.

Exerting no effort is viewed as opting out of the contest, which means accepting a loss of influence. Either way such an outcome would not be an equilibrium

for either contestant since any increase in effort will lead to winning the prize (Nti, 1999). Corchón (2000) shows that the contest function is discontinuous at $(0, 0)$, which implies that a small amount of rent-seeking is completely different compared to a situation where there is no rent-seeking or lobbying taking place. The author concludes that if the valuations are equal then contestants should prefer the situation of not participating as opposed to making investments to sustain the probability of obtaining the policy change. Aidt (1997) explains that lobbies participate despite this fact in order to avoid the tax that losing will impose on them. Furthermore, not participating might signal to the policymaker that the state of the world is different than the special interest group would have the policymaker to believe causing unwanted action from the policymaker (Grossman and Helpman, 2002, p. 148).

A few important variations of the basic model have been studied including different cost structures and different valuations by the contestant. In addition, Aidt (1997) analyses entry decisions when the number of lobbies participating are not exogenously determined. Here it is found that only lobbies that have the possibility of winning will take part since they will take into account the benefits versus the costs.

Based on the ideas developed about polarisation and lobbying, the next section introduces a straightforward model that makes use of CSFs in order to show how polarisation has been sustained through these activities.

3 The Model

Polarisation in this model is measured by the amount of overlap σ present with respect to the views of the left and right party. The size of σ is exogenously determined and it is assumed that the preferences of the party majority or decision makers are located in the middle $k_p = 0.5$ on a line of possible positions

$k_p \in [0, 1]$. Kam et al. (2010) confirms this assertion for the case of the British parliament where the members of the cabinet are chosen based upon whether their preferences are close to the party will, which is centred in the middle. Figure 2 also shows how party leaders are not necessarily in the middle, but the majority clearly is. The role of the policymaker in this model is passive and it is assumed that he will respond to the lobby who exerts the most effort to gain access and attention, seeing this will cause the policymaker to be persuaded. The lobbying competition might involve one policymaker or a cluster of decision makers.

The location of the competing lobbies are then situated on a line with the most ideological lobbies at the greatest distance from the party centre, the lobbies with preferences outside the parameters of this line will be inactive and as such not illustrated in the analyses that follow. A single line is used to illustrate the policy preferences of the left party and another line represents those of the right party. In accordance with the findings in the previous part, lobbies will not seek to gain access from the other side. Knowing which side advocates are on implies the presence of perfect and complete information. A lobby will lobby more than one party if its location is such that it is close to the preference of both parties, which depends on the amount of overlap present between both party views.

Interest groups have to make two decisions of which only their choice of how much resources they spend will be modelled. Where to position themselves on the line might also be strategic up to the point that their beneficiaries and members will allow such deviations. In accordance with the previous mention of the tendency to gather with like-minded advocates, this Hotelling version of modelling the lobby and party location is chosen. The resulting probability of influence then for the lobby is limited to its ability to influence the party for

which its preferences fall within the scope of those of the party

The amount of effort e includes time spent on a matter, how many representatives will work on a specific issue, and the amount of information it will gather and disperse. This effort decision is made simultaneously by the competing lobbies and effort is exerted in order to gain access to be able to influence policy, which is equal to winning the lobbying contest. Each lobby values winning the contest equally at $V_i = V_j = \dots = V_n$, where the prize might be maintaining the status quo or a policy change. It should be evident that rational lobbies will have $e \leq V$. The structure of the game is an all-pay auction where the interest group will work up to the point where the legislator becomes indifferent between his own preferred outcome and that proposed by the lobby. Baumgartner et al. (2009) finds that the side that is better mobilised will win the lobbying competition and as such confirms the all-pay auction model. Note that this implies that offering a bit more information or time to convince the policymaker will ensure the lobby of winning the policy prize (Grossman and Helpman, 2002, p. 236).

The costs $c(e)$ associated with lobbying are assumed to be linear in order to avoid unnecessary complexity and the consequences of this simplifying assumption are treated in the discussion. The costs include paying policy experts, lawyers, collecting information, and entertaining the policymaker. These entertainment costs might be set by the policymaker who could insist on a contribution being made before allowing for access. The willingness of the special interest group to pay increases its credibility (Grossman and Helpman, 2002).

Lobbies that are not located at $k_p = 0.5$ have a bias b_i that will influence their effort decision. This disadvantage is quantified as the absolute distance between the lobby and the party centre. The inclusion of a bias might reduce rent-seeking since it imposes heavier burdens for some (Tullock, 1980).

3.1 No Overlap

In order to understand the interplay between polarisation and lobbying, three different situations are analysed of differing overlap σ . The first case where $\sigma \leq 0$, is the most straightforward one and shows polarisation at its extreme. Figure 3 illustrates this case, which is comparable to the bottom panel of figure 2 where the preferences of the 110th Congress are depicted. The distributions show how the preferences of both parties are completely disjoint.

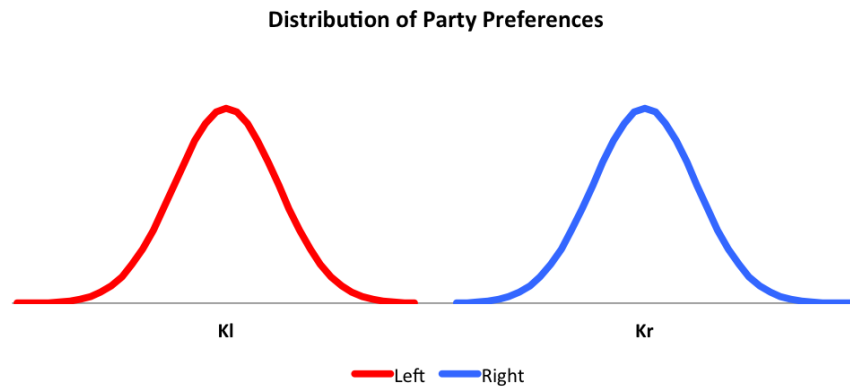


Figure 3: Distribution of preferences of the two parties when $\sigma \leq 0$.

The party preference is in the middle as discussed before at $k_p = 0.5$ and since there is no overlap both lobbying competitions will occur separately. The spectrum of possible positions on the left or on the right are depicted on the horizontal line. This is shown in figure 4.

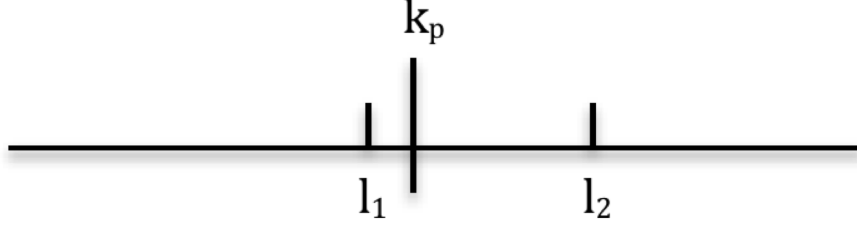


Figure 4: Complete polarisation at $\sigma \leq 0$ where the preferences of the lobbies are such that the left and right party will be lobbied simultaneously.

The bias faced by lobby l_i is $b_i = |k_p - l_i|$. There are two lobbies who are active since their preferences fall within the scope of preferences of the respective party at $b_{p,i} \leq \frac{V}{4} - \frac{V}{8} = \frac{V}{8}$. This constraint establishes an effort level of $e_{p,i} \geq 0$, which the following analysis will demonstrate and ensures positive payoffs in equilibrium.

From figure 4 it follows that l_1 is close to the party preferences and l_2 has a position closer to the periphery. The following analysis clarifies the simultaneous move game played by the lobbies. The probability of exerting influence is expressed as follows

$$p_{p,1}(e_{p,1}, e_{p,2}) = \frac{e_{p,1} - b_{p,1}}{e_{p,1} - b_{p,1} + e_{p,2} - b_{p,2}} \quad (2)$$

$$p_{p,2}(e_{p,1}, e_{p,2}) = \frac{e_{p,2} - b_{p,2}}{e_{p,1} - b_{p,1} + e_{p,2} - b_{p,2}} \quad (3)$$

It is assumed that the probability the lobby is lobbying the party that sets policy is $p_{decide,i} = \frac{1}{2}$. Then the expected payoffs for the lobbies become

$$\Pi_{p,1}(e_{p,1}, e_{p,2}) = \frac{1}{2} \frac{e_{p,1} - b_{p,1}}{e_{p,1} - b_{p,1} + e_{p,2} - b_{p,2}} V - e_{p,1} \quad (4)$$

$$\Pi_{p,2}(e_{p,1}, e_{p,2}) = \frac{1}{2} \frac{e_{p,2} - b_{p,2}}{e_{p,1} - b_{p,1} + e_{p,2} - b_{p,2}} V - e_{p,2} \quad (5)$$

The lobbies maximise payoff functions (4) and (5)

$$FOC_{e_{p,1}} = \frac{\delta \Pi_{p,1}}{\delta e_{p,1}} = \frac{1}{2} \frac{e_{p,1} - b_{p,1}}{(e_{p,1} - b_{p,1} + e_{p,2} - b_{p,2})^2} V - 1 = 0 \quad (6)$$

$$FOC_{e_{p,2}} = \frac{\delta \Pi_{p,2}}{\delta e_{p,2}} = \frac{1}{2} \frac{e_{p,2} - b_{p,2}}{(e_{p,1} - b_{p,1} + e_{p,2} - b_{p,2})^2} V - 1 = 0 \quad (7)$$

In a Nash equilibrium the following best responses apply, which maximise payoffs given the effort exerted by the competing lobby

$$B_{p,1}(e_{p,2}) = \frac{1}{2} \sqrt{2V(e_{p,2} - b_{p,2})} - e_{p,2} + b_{p,1} + b_{p,2}$$

$$B_{p,2}(e_{p,1}) = \frac{1}{2} \sqrt{2V(e_{p,1} - b_{p,1})} - e_{p,1} + b_{p,1} + b_{p,2}$$

The equilibrium effort that is then exerted is

$$e_{p,1}^* = e_{p,2}^* = \frac{1}{8} V + b_{p,i} \quad (8)$$

It can be concluded that in equilibrium both lobbies will exert effort of at least $e_{p,i}^* = \frac{1}{8}$ of the total value of the prize V and will compensate for their bias $b_{p,i}$ completely in order to offset the effects of distance to the party centre. Thus being further away from the centre, but within the party preference spectrum will translate in higher costs.

The probability of winning the policy prize is equal to the product of the probability of exerting influence $p_{p,i}(e_{p,i}^*, e_{p,j}^*) = \frac{1}{2}$ and the probability that the party lobbied decides policy $p_{decide} = \frac{1}{2}$, which is equal to $p_{win_{p,i}} = \frac{1}{4}$. Total

expenditures made by the competing lobbies will not exceed total value of the prize V when $V \leq 4(e_{p,i} - \sum_{i=1}^2 b_{p,i})$.

3.1.1 Equilibrium payoffs when $\sigma \leq 0$

The payoffs of the lobbies are shown in figure 5.

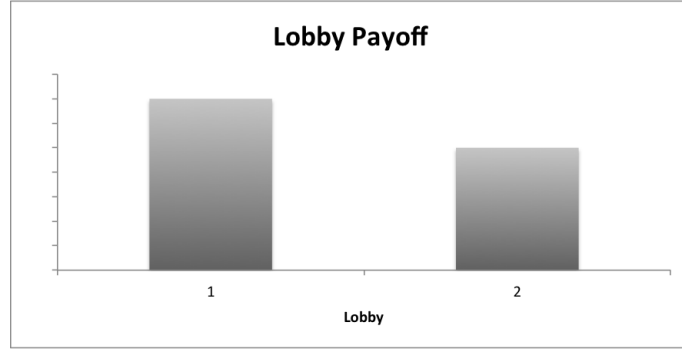


Figure 5: The payoff for the active lobbies in case of $\sigma \leq 0$ and $V = 10$.

The lobby close to k_p , which in this case is l_1 will face less costs due to a smaller bias, which results in higher payoffs. The expected payoff for any active lobby is equal to

$$\pi_i^* = \frac{V}{4} - \frac{V}{8} - b_i \quad (9)$$

The equilibrium payoff is only positive when $b_{p,i} \leq \frac{V}{8}$ is satisfied, which confirms the above mentioned constraint placed on $b_{p,i}$. In this case of extreme polarisation, the lobbying game on both sides is equal. In addition, it is assumed that in case a lobby does not influence policy its payoff is equal to 0.

Proposition 1

In an equilibrium of no overlap $\sigma \leq 0$, where n lobbies are active the constraint $b_{p,i} \leq \frac{n-1}{2n^2}V$ is satisfied. The lobby will have positive payoffs since $\pi_{p,i}^* = \frac{V}{2n} - \frac{V}{2n^2} - b_{p,i} > 0$. The probability of winning the lobbying competition is the product of the probability of exerting influence and of lobbying the party who decides policy at $p_{win,i} = \frac{1}{n}$.

3.2 Overlap

When polarisation is not at its extreme, the policy preferences of the two different parties overlap. This situation is illustrated in figure 6, where $\sigma = 0.25$.

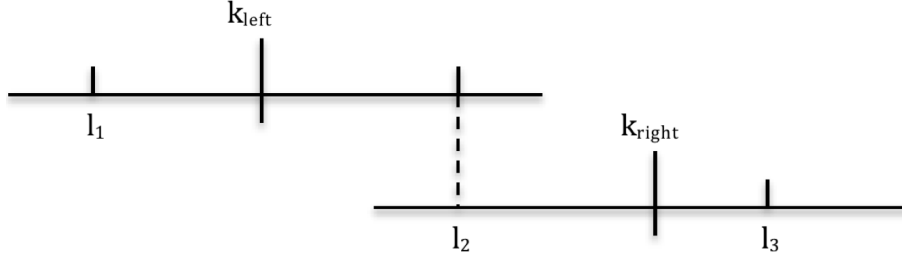


Figure 6: Polarisation at $\sigma = 0.25$ where the preferences of the lobbies are such that l_2 will lobby both left and right.

Due to overlap, both lobbying games will no longer occur separately. Therefore, the lobby whose views correspond to the median voter is no longer located at the periphery, but has now shifted to the centre of overlap. The following analysis shows how this causes the probability of winning for lobbies located outside the overlap to decrease.

From figure 6 it can be concluded that lobby l_2 falls within the range where its preferences allow it to lobby on the left and on the right. This is now the centrist lobby l_c since its location is at the overlap of both party preferences. The bias faced by the centrist lobby is $b_c = |k_p - l_c|$ and the sum of its bias on

both sides has to satisfy the following constraint $b_{l,c} + b_{r,c} \leq \frac{V}{2} - \frac{V}{4}$ in order for the centrist lobby l_c to receive positive payoffs.

The preferred position of the non-centrist lobbies is such that they lobby either the left or the right party. In order for payoffs to be positive, the bias has to satisfy the constraint $b_{p,i} \leq \frac{V}{4} - \frac{V}{8}$. The lobbies that fall within the preference range of either the left or the right party are respectively l_1 and l_3 . The following analysis solves the equilibrium for all three lobbies. First the probabilities of exerting influence are specified

$$p_{p,i} = p_{p,1}(e_{p,1}, e_{p,2}) = p_{p,3}(e_{p,2}, e_{p,3}) = \frac{e_{p,i} - b_{p,i}}{e_{p,i} - b_{p,i} + e_{p,2} - b_{p,2}} \quad (10)$$

$$p_{p,2}(e_{p,1}, e_{p,2}, e_{p,3}) = \frac{e_{l,2} - b_{l,2}}{e_{l,1} - b_{l,1} + e_{l,2} - b_{l,2}} + \frac{e_{r,2} - b_{r,2}}{e_{r,2} - b_{r,2} + e_{r,3} - b_{r,3}} \quad (11)$$

The following system of payoffs will need to be maximised

$$\Pi_{l,1}(e_{l,1}, e_{l,2}) = \frac{1}{2} \frac{e_{l,1} - b_{l,1}}{e_{l,1} - b_{l,1} + e_{l,2} - b_{l,2}} V - e_{l,1} \quad (12)$$

$$\Pi_{p,2}(e_{p,1}, e_{p,2}, e_{p,3}) = \frac{1}{2} \frac{e_{l,2} - b_{l,2}}{e_{l,1} - b_{l,1} + e_{l,2} - b_{l,2}} V - e_{l,2} + \frac{1}{2} \frac{e_{r,2} - b_{r,2}}{e_{r,2} - b_{r,2} + e_{r,3} - b_{r,3}} V - e_{r,2} \quad (13)$$

$$\Pi_{r,3}(e_{r,2}, e_{r,3}) = \frac{1}{2} \frac{e_{r,3} - b_{r,3}}{e_{r,2} - b_{r,2} + e_{r,3} - b_{r,3}} V - e_{r,3} \quad (14)$$

The profit maximising equations are specified as follows

$$FOC_{e_{l,1}} = \frac{\delta \Pi_{l,1}}{\delta e_{l,1}} = \frac{1}{2} \frac{e_{l,1} - b_{l,1}}{(e_{l,1} - b_{l,1} + e_{l,2} - b_{l,2})^2} V - 1 = 0 \quad (15)$$

$$FOC_{e_{l,2}} = \frac{\delta \Pi_{l,2}}{\delta e_{l,2}} = \frac{1}{2} \frac{e_{l,2} - b_{l,2}}{(e_{l,1} - b_{l,1} + e_{l,2} - b_{l,2})^2} V - 1 = 0 \quad (16)$$

$$FOC_{e_{r,2}} = \frac{\delta \Pi_{r,2}}{\delta e_{r,2}} = \frac{1}{2} \frac{e_{r,2} - b_{r,2}}{(e_{r,2} - b_{r,2} + e_{r,3} - b_{r,3})^2} V - 1 = 0 \quad (17)$$

$$FOC_{e_{r,3}} = \frac{\delta \Pi_{r,3}}{\delta e_{r,3}} = \frac{1}{2} \frac{e_{r,3} - b_{r,3}}{(e_{r,2} - b_{r,2} + e_{r,3} - b_{r,3})^2} V - 1 = 0 \quad (18)$$

The constraint placed on the centrist lobby is $e_{l,2} = e_{r,2}$ who will maximise its payoff on the left and right side. The partisan lobbies, l_1 or l_3 will maximise (15) and (18) given the effort exerted by the centrist lobby, l_2 . In equilibrium the following are their best responses

$$B_{p,i}(e_{p,2}) = \frac{1}{2} \sqrt{2V(e_{p,2} - b_{p,2})} - e_{p,2} + b_{p,2} + b_{p,i}$$

$$B_{p,2}(e_{p,i}) = \frac{1}{2} \sqrt{2V(e_{p,i} - b_{p,i})} - e_{p,i} + b_{p,i} + b_{p,2}$$

The equilibrium effort that is then exerted is

$$e_{p,i}^* = e_{p,1}^* = e_{p,3}^* = \frac{1}{8}V + b_{p,i} \quad (19)$$

$$e_2^* = e_{l,2}^* + e_{r,2}^* = \frac{1}{8}V + b_{l,2} + \frac{1}{8}V + b_{r,2} = \frac{1}{4}V + b_{l,c} + b_{r,c} \quad (20)$$

The centrist lobby will double its efforts in equilibrium to $\frac{1}{4}$ of the total value V and compensate completely its biases on both sides. The probability of winning the policy prize for lobby l_2 is equal to $p_{win_{p,2}} = p_{win_{l,2}} + p_{win_{r,2}} = \frac{1}{4} + \frac{1}{4} = \frac{1}{2}$. The probability of winning for the partisan lobby is $p_{win_{p,i}} = \frac{1}{4}$. Total expenditure of lobbying by all active groups in this case is equal

to $\sum_{i=1}^4 b_{p,i} + \frac{1}{8}V$.

3.2.1 Equilibrium payoffs when $\sigma > 0$

The ensuing payoffs from some overlap $\sigma = 0.25$ and the presence of the centrist lobby l_2 are illustrated in figure 7.

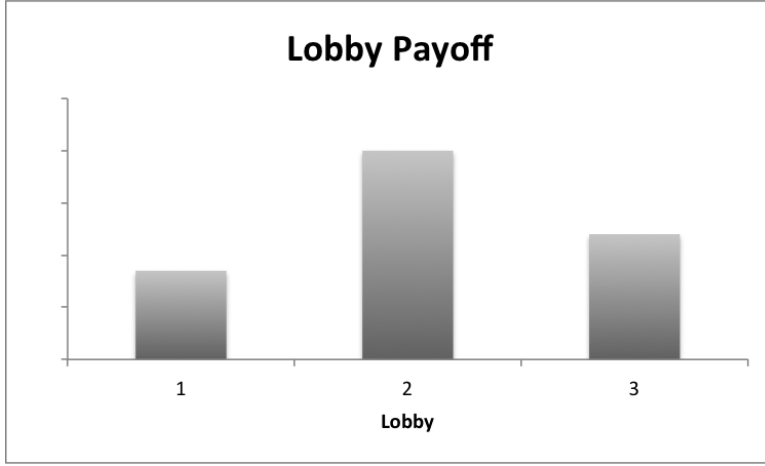


Figure 7: The payoff for the active lobbies in case of $\sigma = 0.25$ and $V = 10$.

The expected payoff for the centrist lobby l_2 is equal to

$$\pi_2^* = \frac{V}{2} - \frac{V}{4} - b_l - b_r \quad (21)$$

The expected payoffs for the partisan lobbies l_1 and l_3 is equal to

$$\pi_i^* = \frac{V}{4} - \frac{V}{8} - b_i \quad (22)$$

The advantaged position of the centrist lobby l_2 causes $\pi_2^* > \pi_i^*$. In addition, the constraints imposed above to ensure positive payoffs are confirmed here.

Despite the doubling of costs, the centrist lobby l_2 is better off lobbying both parties. Not only do the odds of winning the lobbying competition increase, but

also the resulting payoffs are higher than that off the partisan lobbies. Therefore, when polarisation decreases it is better to be located where the preferences of both parties overlap. Partisan lobbies are indifferent between $\sigma \leq 0$ or $\sigma > 0$.

Proposition 2

In an equilibrium of some overlap $0 < \sigma \leq 1$, centrist lobbies will lobby both parties. The constraint the centrist lobby has to satisfy is equal to $\sum_{i=1}^2 b_{p,i} \leq \frac{1}{n^2} V$ to ensure $\pi_{p,c}^* > 0$. The winning probability of $p_{win,c} = \frac{1}{n}$ follows, where n are the active lobbies on the respective side p . The centrist lobby will have positive payoffs of

$$\pi_{p,c}^* = \frac{V}{n} - \frac{(n-1)V}{n^2} - \sum_{c=1}^2 b_{p,c}.$$

The non-centrist lobby will become active if it satisfies the constraint $b_{p,i} \leq \frac{n-1}{2n^2} V$, which leads to a probability of winning the lobbying contest of $p_{win,i} = \frac{1}{2n}$. The partisan lobby will then have positive payoffs of $\pi_{p,i}^* = \frac{V}{2n} - \frac{V}{2n^2} - b_{p,i}$.

3.2.2 Complete overlap $\sigma = 1$

The third case that is analysed is when preferences converge to the point where there is complete overlap as illustrated in figure 8. At $\sigma = 1$ both parties have converged to one set of preferences. The two party system is replaced by a one party system since preferences are completely aligned. Being located in perfect alignment is a dominated strategy for the parties since they are now capturing the majority of voters. Moving out to the extremes would mean losing popular support for their views.

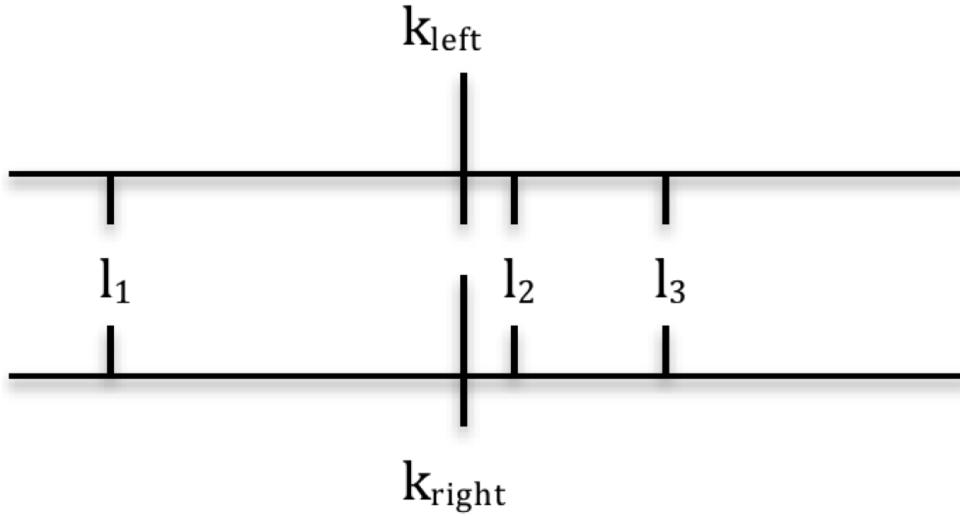


Figure 8: Complete overlap of preferences of the two parties at $\sigma = 0$

The results of competition are illustrated in figure 9.

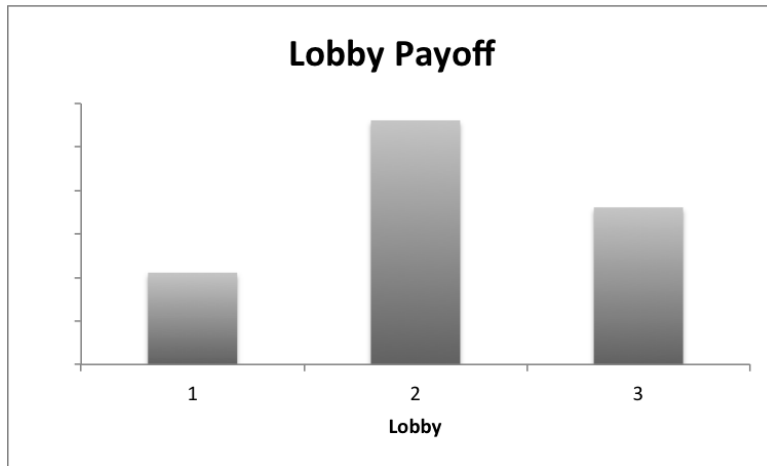


Figure 9: The payoff for the active lobbies in case of $\sigma = 1$, $V = 10$, and the following biases: $b_1 = 0.4, b_2 = 0.05, b_3 = 0.25$. The closest lobby l_2 to k_p has the lowest costs, which causes l_2 to have the highest payoffs.

The competition is no longer between two lobbies on both sides, but increases to a lobbying competition of $n = 3$. In order for the lobby to obtain positive

payoffs its bias must satisfy $b_i \leq \frac{V}{3} - \frac{2V}{9}$. The probability of exerting influence is expressed as follows

$$p_i(e_1, e_2, e_3) = \frac{e_i - b_i}{\sum_{j=1}^3 (e_j - b_j)} \quad (23)$$

The system of payoffs that needs to be maximised is

$$\Pi_1(e_1, e_2, e_3) = \frac{e_1 - b_1}{\sum_{i=1}^3 (e_i - b_i)} V - e_1 \quad (24)$$

$$\Pi_2(e_1, e_2, e_3) = \frac{e_2 - b_2}{\sum_{i=1}^3 (e_i - b_i)} V - e_2 \quad (25)$$

$$\Pi_3(e_1, e_2, e_3) = \frac{e_3 - b_3}{\sum_{i=1}^3 (e_i - b_i)} V - e_3 \quad (26)$$

The profit maximising equations are specified as follows

$$FOC_{e_i} = \frac{\delta \Pi_i}{\delta e_i} = \frac{e_i - b_i}{\left(\sum_{j=1}^3 (e_j - b_j)\right)^2} V - 1 = 0 \quad (27)$$

The equilibrium effort then becomes

$$e_i^* = e_1^* = e_2^* = e_3^* = \frac{2}{9}V + b_i \quad (28)$$

This leads to $p_{win_i} = \frac{1}{3}$, therefore $\pi_i^* = \frac{V}{3} - \frac{2V}{9} - b_i > 0$, which is in line with the constraint for the bias specified above. The probability of winning for the median lobby is greater than when there is no overlap, but smaller than the case where it is in the centre of the overlap of two parties. In addition, the complete range of preferences being lobbied has decreased. This implies that having two parties with overlapping views will lead to a society where the lobbies views being lobbied are broader and the median view has an advantage.

4 Discussion

In this part the findings and specification of the model will be examined further. Some basic assumptions of the model including linear costs, the formulation of the bias, the amount of lobbies will be discussed, and the probability the party decides.

4.1 Analysis

The case of $\sigma = 0$ is closest to the United States and in this model moderate parties lose their advantage and find themselves with the same probabilities of winning the policy prize as the more extreme parties. Polarisation is thus sustained due to levelling the playing field for all lobbies. Since non-centrist lobbies are indifferent between their payoffs in overlap or no overlap, they will prefer the situation where there are no centrist lobbies.

For society this implies that in case of no overlap, all ideas proposed by lobbies will be listened to with equal probability. Whereas in overlap centrist lobbies who are located near the median voter view have an advantage. In terms of welfare implications, lobbying when the median voter is heard comes at a greater cost to the lobbies as effort and costs increase. The costs might be offset by the benefits of having a centrist discourse.

The distribution of preferences and how the issues are viewed on the line have not been made explicit in the previous section. Layman et al. (2006) concludes its analysis by stating that all studies on partisanship find a liberal - conservative divide, which includes racial, cultural, economic, and social welfare issues. This implies that the distribution recognises the multidimensionality of policy space and can concern one policy issue or an array of preferences.

4.2 Linear Costs

The first aspect of the results that needs to be addressed is the linear cost assumption since this is not a realistic premise. For simplifying reasons and the unchanging direction of the results when modified, the marginal costs are kept constant.

Since effort in this model consists of activities that include the gathering of information and time spent on an issue, it can be argued that costs should not rise in a linear fashion. There is an initial large investment needed to become an expert on an issue, then the effort exerted to gather more information decreases and as such marginal costs of exerting effort should be decreasing as more information is gathered and more time is invested. Depending on the issue, timing, and state of affairs more effort could be necessary. This implies that regardless of overlap, all lobbies should have convex costs of the form $c(e) = I + e^\alpha$, where the large initial investment is $I > 0$ and $\alpha > 1$.

It is also possible to justify only non-linear costs for the centrist lobbies since lobbying both parties might have a cost advantage. Costs should be structured in such a way that the results of higher payoffs are strengthened.

4.3 Bias

This part describes the choice for an additive bias instead of a multiplicative bias. The latter bias is expressed as $e_i \cdot b_i$ with $0 \leq b_i \leq 1$. A smaller absolute value for the bias corresponds to a lobby positioned further away from the party centre. The probability of exerting influence is then expressed as follows

$$p_{p,1}(e_{p,1}, e_{p,2}) = \frac{e_{p,1} \cdot b_{p,1}}{e_{p,1} \cdot b_{p,1} + e_{p,2} \cdot b_{p,2}} \quad (29)$$

$$p_{p,2}(e_{p,1}, e_{p,2}) = \frac{e_{p,2} \cdot b_{p,2}}{e_{p,1} \cdot b_{p,1} + e_{p,2} \cdot b_{p,2}} \quad (30)$$

Then the expected payoffs for the lobbies become

$$\Pi_{p,1}(e_{p,1}, e_{p,2}) = \frac{e_{p,1} \cdot b_{p,1}}{e_{p,1} \cdot b_{p,1} + e_{p,2} \cdot b_{p,2}} V - e_{p,1} \quad (31)$$

$$\Pi_{p,2}(e_{p,1}, e_{p,2}) = \frac{e_{p,2} \cdot b_{p,2}}{e_{p,1} \cdot b_{p,1} + e_{p,2} \cdot b_{p,2}} V - e_{p,2} \quad (32)$$

The lobbies maximise payoff functions (33) and (34)

$$FOC_{e_{p,1}} = \frac{\delta \Pi_{p,1}}{\delta e_{p,1}} = \frac{b_{p,1}(e_{p,2} \cdot b_{p,2})}{(e_{p,1} \cdot b_{p,1} + e_{p,2} \cdot b_{p,2})^2} V - 1 = 0 \quad (33)$$

$$FOC_{e_{p,2}} = \frac{\delta \Pi_{p,2}}{\delta e_{p,2}} = \frac{b_{p,2}(e_{p,1} \cdot b_{p,1})}{(e_{p,1} \cdot b_{p,1} + e_{p,2} \cdot b_{p,2})^2} V - 1 = 0 \quad (34)$$

The equilibrium effort that is then exerted is

$$e_{p,1}^* = e_{p,2}^* = \frac{b_{p,1} \cdot b_{p,2}}{(b_{p,1} + b_{p,2})^2} V \quad (35)$$

For clarity purposes table 2 compares the two lobby case to the three lobby case. In addition, $p_{decide,i} = 1$ for all lobbying parties, which implies that when lobbying they will always be heard and will be located on the right side.

#Lobbies	$p_{p,i}$	$\Pi_{p,i}$	$e_{p,i}^*, e_{p,j}^*$
2	$\frac{b_{p,i} \cdot e_{p,i}}{b_{p,i} \cdot e_{p,i} + b_{p,j} \cdot e_{p,j}}$	$\frac{b_{p,i} \cdot e_{p,i}}{b_{p,i} \cdot e_{p,i} + b_{p,j} \cdot e_{p,j}} V - e_{p,i}$	$\frac{b_{p,i} \cdot b_{p,j}}{(b_{p,i} + b_{p,j})^2} V, \frac{b_{p,i} \cdot b_{p,j}}{(b_{p,i} + b_{p,j})^2} V$
3	$\frac{b_{p,i} \cdot e_{p,i}}{\sum_{i=1}^3 (b_{p,i} \cdot e_{p,i})}$	$\frac{b_{p,i} \cdot e_{p,i}}{\sum_{i=1}^3 (b_{p,i} \cdot e_{p,i})} V - e_{p,i}$	$\frac{b_{p,2} \cdot b_{p,3}}{(b_{p,1} \cdot b_{p,2} + b_{p,1} \cdot b_{p,3} + b_{p,2} \cdot b_{p,3})^2} V,$ $\frac{b_{p,1} \cdot b_{p,3}}{(b_{p,1} \cdot b_{p,2} + b_{p,1} \cdot b_{p,3} + b_{p,2} \cdot b_{p,3})^2} V,$ $\frac{b_{p,1} \cdot b_{p,2}}{(b_{p,1} \cdot b_{p,2} + b_{p,1} \cdot b_{p,3} + b_{p,2} \cdot b_{p,3})^2} V$

Table 2: The formulation of the multiplicative bias in the two lobby and three lobby case.

Contrary to expectation, in the two lobby case the equilibrium effort is the same for both lobbies regardless of whether one lobby is more disadvantaged than the other. Both lobbies in the multiplicative case exert less effort the further away they are from the periphery. A possible explanation for this could be that the situation is less complex. In the case of a lobby on the periphery and one near the party centre they are able to estimate their chances of winning the policy prize much better and will minimise effort more efficiently. Having an equal equilibrium effort regardless of the bias changes when $n > 2$. In figure 10, this is illustrated.

The upper right graph shows the deviation of the multiplicative bias in the two lobby case, an increasing bias leads to less effort exerted by both lobbies, whereas in all other cases l_1 will exert more effort to compensate for its bias. Due to this disparity the more reliable additive specification is chosen. Although the multiplicative bias has an interesting and probable interrelatedness of the equilibrium effort with the bias of the other lobbies.

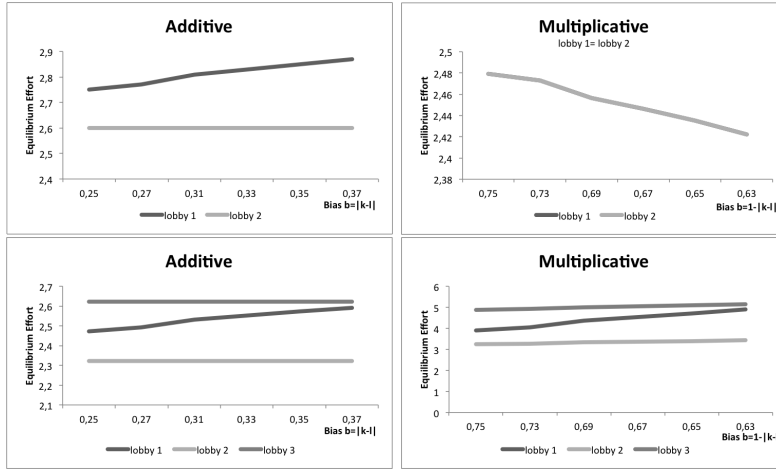


Figure 10: The above panel of graphs shows the change in equilibrium effort for l_1 as bias increases and the equilibrium effort of the other participating lobbies at $V = 10$. The upper graphs depict the 2 lobby case where b_2 is at $|k - l_2| = 0.1$. The lower two graphs show the 3 lobby case with b_3 at $|k - l_3| = 0.4$.

4.4 Multiple Lobbies

The main findings of the model are illustrated through two lobbies competing for influence on each side. The outcomes are consistent in the n -lobby case where the equilibrium effort is expressed as follows

$$e_{p,i}^* = \frac{n-1}{2n^2}V + b_{p,i} \quad (36)$$

Thus as more lobbies are competing the share of value of winning the prize that is invested in the competition decreases exponentially as it tends to zero. The resulting equilibrium effort distributions are illustrated in figure 11.

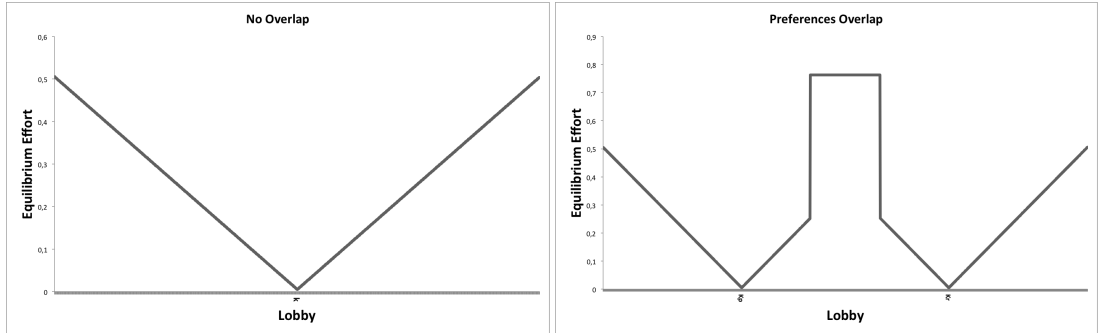


Figure 11: The distribution of 1000 lobbies competing on each side. The equilibrium efforts per active lobby are depicted in the left graph when $\sigma \leq 0$ and in the right graph where $\sigma = 0.25$ at $V = 10$.

The equilibrium effort decreases linearly as the bias of the lobby becomes smaller. When there is no overlap the distribution is V-shaped for the left and right competition. The right graph shows the disruption of the V-shape where there is overlap and equilibrium effort is two times as great for the centrist lobbies.

4.5 Probability party decides

The assumption $p_{decide,i} = \frac{1}{2}$ can be questioned, therefore figure 12 illustrates the distribution of $p_{decide,i}$ for differing probabilities. The lobby with the highest expectation of lobbying the party that will hold executive office and decide policy will exert the most effort. When expectations are the same, both lobbies will exert the same amount of effort. The equilibrium effort reaches a maximum at $p_{decide,i} = \frac{7}{10}$. The decrease for larger $p_{decide,i}$ is caused by an increased certainty, which requires less effort.

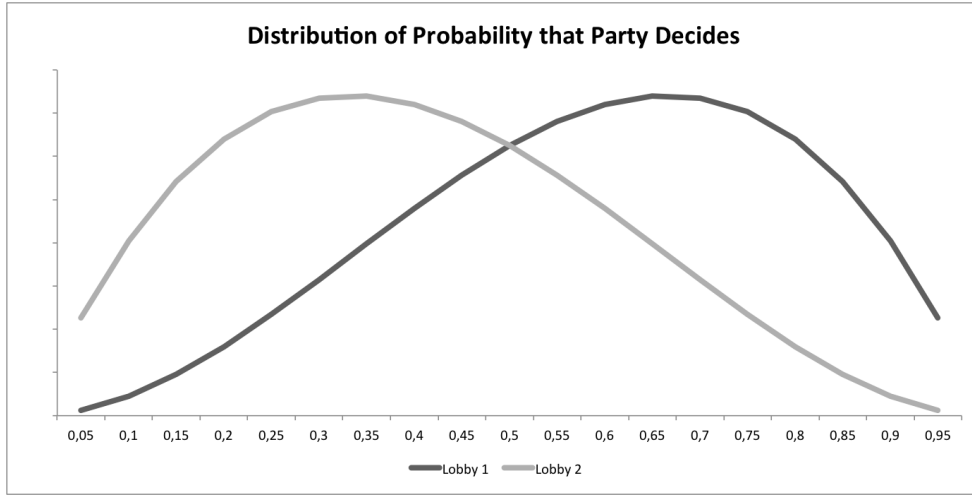


Figure 12: The equilibrium effort of the 2 lobbies is depicted for an increasing $p_{decide,i}$ for lobby 1 on the x-axis.

In the case of $\sigma > 0$, centrist lobbies are assumed to have $e_{l,c} = e_{l,r}$. Arbitrage opportunities arise for such a lobby if this constraint is no longer imposed. Based upon information from both sides it could be argued that a centrist lobby might change its expectation of $p_{decide,i}$. The results are shown in figure 12. This then leads to less effort exerted on the side with the lowest $p_{decide,i}$. In addition, this might also have implications for the bias the lobby faces. Strategic positioning might occur sooner with such a lobby. Also an information advantage might arise, which could justify Stackelberg competition with the centrist lobby as the first mover.

5 Conclusion

This paper has set forth to demonstrate how lobbying that includes the gathering of information and meeting with policymakers is sustaining polarisation in American politics. The findings of the model presented, define the constraints wherein it is profitable to lobby. When there is complete polarisation, lobbies on

the periphery have an incentive to maintain the status quo. This is due to the advantage centrist lobbies have of winning the lobbying competition when there is overlap. The state of some bi-partisanship gives the moderate views in society an advantage in influencing policy and partisan lobbies receive a treatment reflecting their location on the periphery.

The extreme level of polarisation that has manifested itself in the United States can be attributed to a relatively large percentage of unauthorised citizens who cannot vote for policies that will encourage equality. The trend is upheld by the role of financial contributions that empower the rich as well as homogenising constituencies within parties that foster party discipline. The lack of bi-partisanship halts policymaking and causes gridlock to persist. Important issues are therefore left unresolved.

Different views on lobbying are upheld including the positive effects of bi-partisan information provision to policymakers and the cost efficient solution it provides. In addition, there are also rent- seeking implications involved with these activities. Measuring the influence of lobbies is a complicated matter, but the involvement of lobbyists in politics is extensive as the amount of lobbyists per lawmaker and investments made per lawmaker, illustrate.

The model presented makes use of CSFs that measure the effect of effort exerted in the lobbying competition. When there is extreme polarisation, all lobbies that fall within the party preferences will lobby only one side. The probability of winning is divided equally over the lobbies participating. Some overlap makes a big difference since centrist lobbies will double their probability of winning the lobbying competition. The increased costs incurred and efforts made by centrist lobbies might be offset by the benefit for society of these moderate views having the upper hand.

The results of the model show how there is an incentive for lobbies to sustain

the polarisation. As mentioned before only an exogenous shock will reverse the trend of polarisation and has to also influence lobbying, which is in line with the findings. Further research should examine the non-linear cost structures. Also empirical research could be done to quantify the incentives lobbies have to support the status quo.

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