Voting for Money, Whips for Free

Andreea Ioana Alecu

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Department of Political Science
Faculty of Social Sciences
University of Oslo
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Andreea Ioana Alecu

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Abstract

Polarization in the European Parliament has mainly been attributed to the ideological dimension. The economic implications of bills have been only studied in relation to the Council. However, after the ratification of the Lisbon treaty such questions have become paramount for the Parliament. The aim of this thesis is to investigate whether legislative unity is lower for bills that would affect the budget in a way that, if passed, would change the status quo allocation of resources. I propose that the impact of such *budgetary implications* is dependent on the initial level of polarization within the European Parliament. In the absence of other polarizing factors, such as defections or splits within the party of the rapporteur, budgetary implications are likely to decrease legislative unity. Nonetheless, the negative effect of budgetary implications on legislative unity is mitigated by defections on behalf of the party of the rapporteur.

In order to evaluate these propositions empirically I have collected data on final votes in the 7^{th} European Parliament. In contrast to datasets that the previous literature has relied on, this dataset contains information on the budgetary implications of the bills. Estimating a series of tobit regression models, I show that budgetary implications affect the level of cohesion in the European Parliament, but this effect is conditional upon the level of initial polarization as captured by defection from the party of the rapporteur. This finding is relatively robust, thus shedding new light on voting patterns in the European Parliament. Yet, some shortcomings remain, namely the differentiation at a theoretical level between partisan and national interests, the small magnitude of the coefficients and a potential endogenity problem. These caveats notwithstanding, it can be concluded that the behaviour of legislators is affected by economic concerns, even if to a certain extent such concerns are masked by ideological variables. It is likely that there is lower legislative unity when bills aim to alter the existing budgetary status quo. Yet, conversely, when both defection by the party of the rapporteur and budgetary implications are observed this effect is alleviated.

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This thesis is dedicated to the most important person in my life, my father.

I am solely responsible for any errors and omissions in this thesis.

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Chapter 1

Introduction

After the ratification of the Lisbon treaty the European Parliament has become a vital player in the European Union. Understanding the factors that lie behind the legislator's voting decisions has become highly important in this context. In this thesis I choose to focus on the economic determinants of voting. In many respects, the European Parliament resembles national legislatures. Much like national parliaments it is composed of legislators representing different constituencies. In parliamentary democracies one observes a high overall level of cohesion and overall agreement (Diermeier and Feddersen 1998, Hix, Noury and Roland 2005, Persson and Tabellini 2005, Shugart 1998). Hence, in many respects the European Parliament resembles national parliaments: it is composed of legislators with divergent preferences, who represent different constituencies and who are able to forge and maintain a high level of agreement in the plenary.

Despite the weak electoral connection between Members of the European Parliament (hereon, MEPs) and national constituencies (Hix and Høyland 2011, Carey 2007), legislators have strong incentives to satisfy the desires of their national constituencies. As proposed by Fenno (1978) legislators have three main goals: re-election, power while in office, and good policy.

The resemblance of the European Parliament (hereon, EP) to its national counterparts has been supported by studies of the voting behaviour (McElroy and Benoit 2007; 2012, Hix, Raunio and Scully 1999, Hix 2002, Hix and Noury 2009). The conclusion converged upon by both quantitative and qualitative research is that the main determinant of conflict has been the left-right ideological dimension, and national interests mainly play a role in high-profile salient cases (McElroy and Benoit 2007; 2012, Hix, Raunio and Scully 1999, Hix 2002, Hix and Noury 2009). Yet, is ideology everything?

The intergovernmentalist approach highlights the interests of member states in the bargaining process (Moravcsik 1998). Recent studies focused on the Council have shown the importance of the economic determinants of voting. Zimmer, Schneider and Dobbins (2005), and Mattila (2009) were among the first to focus solely on redistributive interests in the Council. Recently, Bailer, Mattila and Schneider (2010) have shown that the

interactions in the Council are influenced by economic factors, such as re-distributive outcomes. Peltzman (1984) shows that ideological variables are likely to mask economic ones, and that constituent interests affect the behaviour of legislators. For the European Parliament the economic aspects of voting have however, not received much attention in the existing literature. This is puzzling, as there is a large level of agreement in recent scholarship that the Europan Parliament has become more similar to national parliaments. This motivates the following research question: *Do budgetary implications impact cohesiveness in the European Parliament?*.

1.1 Money makes the EU go round?

The findings of this thesis suggest that budgetary implications have an impact on the overall legislative cohesion. The effects of budgetary implications have proven relatively robust across model specifications. In the absence of other polarizing factors, budgetary implications decrease legislative unity. When accounting for party positions, the results suggest that legislators prefer to abstain or not to vote, instead of directly defecting. However, in cases where there are other polarizing factors, for example defection by the party of one of the rapporteurs, legislative cohesion is likely to increase, despite budgetary implications. In other words, a high level of polarization in the European Parliament before the final vote mitigates the effects of budgetary implications.

These findings hold across various model specifications, even if the effect of budgetary implications is somewhat weaker when including dummies for party positions. In these cases it becomes important to account for legislators that choose to abstain or not to vote. It seems that ideology remains an important determinant of voting within the European Parliament, even when controlling for economic interests. This is expected, as Peltzman (1984) shows that ideological variables mask economic interests. One finding that remains robust in all the models estimated in this thesis is that legislative unity is likely to be higher in cases where the bill has both budgetary implications and where the party of the rapporteur also defected. There is little doubt that European Party Groups are strategic actors, thus they are likely to have strong incentives to use party pressure in order to establish and maintain a cohesive behaviour in the plenary. Controlling for policy areas or in other words, accommodating the model to the hierarchical structure of the data, does not change the substantial relationship.

Nevertheless, caution is advised when interpreting the results, as the magnitude of the coefficients is small. Furthermore, as defection is observed at the same time as legislative unity, even if chronologically it is known before, instruments should have been employed, in order to remedy this potential problem. Unfortunately, as discussed in section 5.1 such an approach was not possible given the weak correlation between the instruments and the variable to be instrumented.

1.2 Structure

In the second chapter I will present a short overview of the literature on the European Parliament and develop the theoretical framework and testable hypothesis. The third chapter presents the data collection process and discusses several methodological choices made, such as operationalization and the choice of model. The findings are presented in the fourth chapter; the chapter is concluded by a discussion of model fit. In the robustness chapter several other model specifications are presented and the shortcomings of the empirical approach are discussed. The main conclusions are summarized in the Conclusions chapter.

Chapter 2

Theoretical framework

In this chapter I develop the theoretical framework and derive a set of testable hypotheses. The core argument is that the budgetary implications of bills have an implication for the level of cohesion, yet these implications are contingent upon the presence of other polarizing factors before the final vote. The mere presence of budgetary implications is likely to reduce legislative unity. Nonetheless, Party Groups are likely to increase the level of pressure on legislators when,for example the party of the rapporteur is split or is going to defect on that set legislators. In these cases the effects of budgetary implications are alleviated.

2.1 European Integration and national interests

The European Parliament is part of a complex network of institutions. When looking at the main theoretical approaches that aim to explain the formation and perpetuation of the European Union, such as neofunctionalism (Aspinwall and Schneider 2000), intergovernmentalism, or neointergovernmentalism (Moravcsik 1998) there is some ground to expect that monetary gains, or concerns will affect the payoff and implicitly the behaviour of legislators. For example, Moravcsik's neo-intergovernmentalist approach highlights the importance of member state's interests in the bargaining process (Moravcsik 1998).

At a first glance this appears to apply less to the European Parliament given it's weak connection to the electorate (Carey 2007) and the rarity of national party defections (Nordkvelle 2012). Nonetheless, the loyalty of MEPs is split, on the one hand they are accountable to their national parties, which insure re-election, while on the other to their European Party groups. It has been shown that national interests also play a role, especially in high profile cases (Hix, Noury and Roland 2006, Hix and Noury 2009), therefore it can be argued that legislators are also interested in what their constituencies will gain or loose after a legislation is implemented. This is further discussed in Section 2.2. Fenno (1978) proposes that legislators will aim to satisfy the desires of their constituency in order to insure their other goals. Even if Fenno's (1978) theory was proposed for the US

Congress there are limited reasons to doubt its applicability to the European Parliament, as discussed in Section 2.3. One implication is that legislators are more willing to reject proposals that are detrimental to their national constituencies. This is further discussed in Section 2.3.

Furthermore, the importance of economic gains is given some attention in the neo-insitutionalist approach (Schneider and Cederman 1994, Hug and König 2002). In simple terms, the neo-insitutionalist approach highlights that intergovernmental negotiations are a matter of who wins and who looses. This can be extrapolated to legislative politics as well. (Bailer 2004), and Selck and Steunenberg (2004) highlight this. Bailer (2004) focuses on the Council of Ministers and investigates how factors such as votes, economic strength, position on policy area and agenda setting lead to success in bargaining situations. Her findings highlight that exogenous factors, such as resources of power and number of votes do not always bring about bargaining success, while patient negotiations seem to be more important Bailer (2004). Her focus does not lie on the intrinsic characteristic of the bills, but on the characteristics of those who vote. By focusing on the intrinsic characteristics of a bill, namely its budgetary implications, this thesis hopes to make a minor contribution to the existing literature.

The aim of this thesis is to investigate how legislative unity is affected by the structural characteristics of a bill controlled for other exogenous factors such as party of rapporteur and her seniority. Arguably, a natural starting point for the theoretical framework of this thesis are several contributions contributions addressing the factors that impact the behaviour of legislators (Hillman 1989, Peltzman 1984, Grossman and Helpman 1996, Stigler 1971). Peltzman (1984), for example, shows empirically that in many cases economic interests are masked by ideological variables. Peltzman (1984) mainly focused on congressional voting, furthermore, given the similarities between the congressional voting and the European Parliament it might be argued that his main finding can be translated to the setting of the European Parliament. In the US Congress it has been shown that economic interests are important determinants of the voting behaviour (Magee, Brock and Young 1989).

Extrapolating theoretical expectations has some inherent advantages, first it allows one to get more substantial insight in one area. Secondly, it has a methodological advantage, it allows one to make a contribution to the existing literature by employing at least part of a design "designed for some purpose in one literature could be applied in another literature to solve an existing but apparently unrelated problem" (King, Keohane and Verba 1994: 17). Given that similar approaches have been employed in the Council (Bailer, Mattila and Schneider 2010, Aksoy 2010, Kandogan 2000, Carrubba 1997) it might be more interesting to investigate how re-distributive legislation with budgetary implication affects legislative unity. Before proceeding to developing this framework, I will draw upon several literatures aimed at explaining legislative cohesion and the behaviour

of legislators in the plenary.

2.2 Understanding the European Parliament today

The European Parliament has become an important decision maker within the European Union. Its powers have been further increased by the adoption and ratification of the Lisbon treaty. It can be argued that the European Parliament is almost as powerful as the Council in all policy areas. The changes in the rules of procedure did not only strengthen the main political groups (Kreppel 2002), but also aimed at making the EP a stronger actor in relation to the other institutions (Hix and Høyland 2013: 3), while at the same time it gained budgetary power. In this context it becomes even more important to understand the dynamics of the European Parliament.

During the current session there were 1201 individual cases voted upon and 1093 of these cases were passed, while only 103 bills failed. This is a small indication that the European Parliament has become more cohesive.[1] Hix, Noury and Roland (2005) show that there is increased cohesion within the European Parliament, despite that the European Party Groups (EPGs) and the national ones have become more ideologically diverse. The level of cohesion within the institution is well documented. It has been shown numerous times that the main dimension of conflict in the European Parliament is the ideological one (Hix 2004, Hix, Noury and Roland 2005; 2006, Hix and Høyland 2013).

Legislators are conceptualized as agents of two principals, as they have to respond to both the demands of the European Party Groups and to those of the national parties (Hix 2002). Transnational party groups are formed based on policy interests (Kreppel and Tsebelis 1999, McElroy and Benoit 2012). An individual level of explanation for the existence of transnational parties is given by Hix and Noury (2009). They posit that division of labour combined with sharing of information are the main reasons why MEPs with similar preferences choose to organize themselves in European Party Groups (Hix, Noury and Roland 2007).

Following the rational presented above it is implicit that almost all national parties have strong incentives to join EPGs. A similar approach is also presented by Hix and Høyland (2011: Chapter 3). National parties on their own have almost no chances of securing office or their policy goals unless they join European Party Groups (Hix and Høyland 2011: 54). For example in 2010 there were only 3.1% of the legislators that were Non-affiliated (McElroy and Benoit 2012: 154). Thus, it can be argued that individual national parties have little, or no influence on their own within the European Parliament. Yet, this does not imply that national parties are unable to influence their representatives.

One potential implications is that the effects of national and transnational parties

[1] This paper focuses only on final votes. The final date of the coding is 2013-03-14.

are different on legislators, as they can have different leverage (Lindberg, Rasmussen and Warntjen 2008: 1109). Conventionally, legislators in the European Parliament have been conceptualized as agents of two principals. It has been shown that MEPs are to respond to the demands of the national parties, which insure their re-election, while at the same time they try to accommodate the preferences of the European Party Groups (Hix 2002; 2004). Unlike national parties, transnational ones do not have the incentive to establish strong brand names and maintain these (Lindberg, Rasmussen and Warntjen 2008: 1113).

Transnational party groups have strong incentives to form a centralized leadership which monitors the compliance of legislators and sanctions them accordingly (Lindberg, Rasmussen and Warntjen 2008: 1113), much like national parties. Furthermore, there is a consensus in the field that national interest are mainly present high-profile cases (Hix and Noury 2009).

Recently, it has been shown that European legislators are mainly influenced by their European Party Groups (Mühlböck 2012). Following the recommendations set out by Lindberg, Rasmussen and Warntjen (2008), Mühlböck (2012: 7) finds that there is a culture of consensus between the institutions and that transnational groups play a strong role. She highlights that in a very large majority of the cases national parties do not play a role, as they cannot afford to care (Mühlböck 2012). A weakness of the study is that it is solely based on the final stage of the decision making. Therefore, it cannot be concluded that national parties do not have an influence during the decision making process, for example at the committee stage. Yet, it can be argued that as they cannot afford to care about final votes, it is doubtful that they have the resources needed to invest in the decision making process.

McElroy and Benoit (2012: 152) argue that the European level party system is relatively fluid, as national parties switch their European level affiliation, while at the same time some several transnational parties cease to exist, while others are established (McElroy and Benoit 2012). For example when focusing on the party groups elected in the European Parliament in 2009, one notices that two new political groups were formed[2] after the dissolution of the Union for a Europe of the Nations (UEN) group, which was formed in 1994, but was not reassembled after 2009 (McElroy and Benoit 2012: 153-154). At the same time, the composition of the European Parliament in terms of national groups has also changed. Seventy national parties gained seats in the European Parliament, while 50 national groups that were represented in the 6^{th} legislature failed to secure representation in the current term (McElroy and Benoit 2012: 153-154).

To a certain extent this makes the picture even more complex. There is a mutually dependent relationship between national parties and European Party Groups. This implies that agreement has to be reached between the national and transnational organizations in order to insure a recursive and long-lasting collaboration. There is strong evidence

[2]Europe of Freedom and Democracy group, and European Conservatives and Reformists group

that the main transnational groups have become strong and cohesive, if not collusive, over time (Hix, Noury and Roland 2007, Raunio 1997, McElroy and Benoit 2012). Given these opposing forces at work, it is necessary to establish a high level of cohesion in the plenary. Parties need to act in a cohesive manner in order to maximize their influence in the legislative decision making process (Cox and McCubbins 2007). It can be argued that to a certain extent national parties have become less important in the European Parliament.

At the same time, the internal structure of the parties has developed to a great extent in the latter years. One such important development is the assignation of members to committees. Jacobs, Corbett and Shackleton (1990: 348) propose that the position of the EP is both formed and negotiated at the committee level. Yordanova (2009) argues that the committees face a large degree of both internal and external pressure. This provides a possible explanation for the observed level of cohesion. Shifting negotiations to the committee level provides an opportunity to reach a grand coalition before the plenary.

2.2.1 Negotiations at the committee level

There are several reasons why it is desirable to shift negotiations at the committee level. First, the committees have their own resource structure and the members are specialized in their respective area. This is highly advantageous for the parties as they will gain more inside knowledge. A side effect of this is that the position the EP will be strengthened during the negotiation process with the Council and Commission, as the EP will have an informational advantage (Raunio 1997, Mamadouh and Raunio 2003). Furthermore, Neuhold (2001) proposes that committees also serve as a means of a developing a majority in the EP on an issue-by-issue basis. Yordanova (2009: 254) adds that the "committee system also provides an arena for developing strong cohesive position among party groups".

In a context where it seems that a large part of the focus European Party Groups lies upon maintaining and enforcing discipline (Carrubba, Gabel, Murrah, Clough, Montgomery and Schambach 2006, Carrubba 1997, Carrubba, Gabel and Hug 2008, Hug 2003) it remains slightly puzzling why strong parties would shift a part of their decision making capabilities to individual legislators. Arguably, at least in part the answer to this question is a matter of scarcity of resources. It is doubtful that the transnational parties have enough resources to follow the entire decision making process in the legislative. Transnational parties are formed based on policy preferences. Therefore, it is safe to assume that the members of the party will have similar preferences to the central leadership. This is seen by looking at the high rates of voting cohesion in the current European Parliament. The cohesion rates are displayed in the Figure 2.1. We see that the only group with a cohesion rate below 50% is EFD, while all the other groups have a cohesion of over 80%.

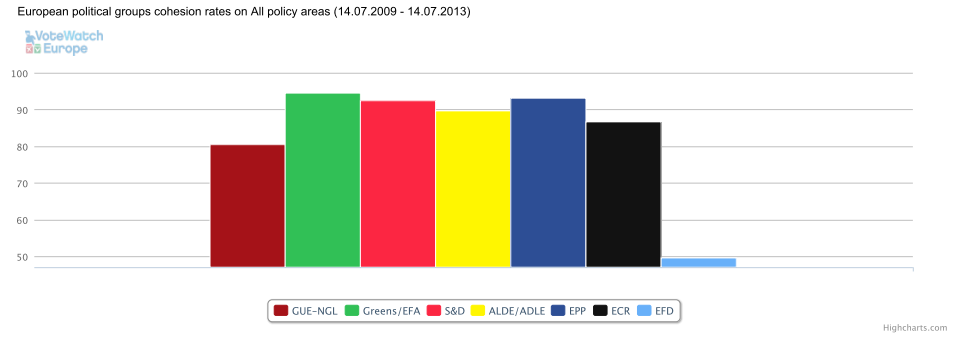


Figure 2.1: Aggregate voting cohesion per European Party Group. Source: votewatch.eu

In order for such cohesion rates to be attained and maintained, a intermediary step between the reviewing the proposal from the Commission and plenary voting is needed. The Committee stage provides this intermediary step. I argue that parties prefer to invest resources in a beneficial committee assignment on their behalf, in order to insure a cohesive position of the party in the plenary. This argument is in line with Raunio (1997) and Neuhold (2001). European Party Groups assign members to the committees in a way in which they can maximize their gains. For the purpose of this thesis the way in which members are assigned to committee is not important. Several authors such as Yordanova (2009), Bowler and Farrell (1995), McElroy (2006; 2008) and Whitaker (2005; 2001) have explored the factors that lead to committee assignments. However, the aspect of relevance is that transnational party groups incur a certain costs when appointing members to committees and that EPGs have an incentive to assign members to committees.

Cox and McCubbins (1993) provided evidence for the US Congress that parties are able to enforce discipline through the institutions of legislative in itself. Hix, Noury and Roland (2007) argue that there are similar mechanisms that influence the behaviour of parties in the European Parliament. Theoretical models of party discipline are relatively common in the literature (Carrubba et al. 2006, Carrubba 1997, Carrubba, Gabel and Hug 2008, Hug 2003).[3] If parties did not care about committee assignment they will suffer considerably higher costs and increased uncertainty at the plenary level. Therefore, there are few reasons to believe that higher costs and a high level of uncertainty in coalition formation is desired by the rational EPG leadership. These costs could be seen as political transaction costs.

The transaction costs at the plenary level are composed of the two same elements as discussed by Furubotn and Richter (1997: 47-48). Their content is different since we are referring to political parties and not national states, yet the rationale remains unaltered. First, there are the costs of setting up and maintaining the political organization of the system. These costs encompass the formal negotiations, the ability of the party to impose its own view and the costs of withstanding external pressure. The external

[3]Although some contributions contents the party's disciplining power, for example Mühlböck (2012)

pressure can either come from national states, other European level institutions or from interest groups. Secondly, there are the costs of running a polity (Furubotn and Richter 1997: 47-48). Here, we aim to capture both the costs linked to internal organization (such as committee or rapporteurship appointment), the costs of maintaining and imposing a cohesive polity line and the costs associated with monitoring and enforcing the agreed policy line.

European Party groups have to balance out these two types of costs. It is widely accepted that transnational parties in the European Union have few resources. Therefore, in order to maximize their influence in the legislative arena parties have to carefully choose their battles, in other words, carefully assess their costs versus their benefits. The costs of internal organization and monitoring and enforcing behaviour come at two levels. First at the macro-level of inter-institutional bargaining and secondly when parties address their internal organization.

One highly efficient way of reducing the costs, while at the same time increasing the efficiency of legislative negotiations is to shift the inter-institutional organizational costs, to the intra-party level. If transnational parties were not to shift the core of the negotiations to the committee level they would suffer the same costs twice. Therefore, it is rational for parties to shift negotiations at the committee level as it maximizes their utility while at the same time it minimizes the costs. Firstly, when they appoint members to the committees and yet again when they would incur the same costs at the plenary level. Therefore, by shifting the real bulk of debate and negotiations at the committee level parties can more effectively allocate their resources.

Albeit strong theoretical reasons to expect committees to be the optimal solution to the negotiation problem in the context of MEPs with split loyalty, committees are not always the best way to represent the view of the entire European Parliament. In the words of the former vice-president of Party of European Socialists as quoted by (McElroy 2006: 13):

> Committees are definitely and regrettably not representative of the Parliament in plenary, they are not microcosms; this results in legislative distortion. The environmentally minded from all groups are on the Environment committee, giving it a distinctly green outlook; likewise there are too many farmers on Agriculture. The result of this specialization and lack of representativeness is that policy is not reflective of the majority view of the Parliament and we frequently have to spend hours in Parliament voting to correct the committee report and proposed legislation. (Personal interview)

consequently, even if committees are for many motives optimal for insuring a cohesive position in the plenary the also present some drawbacks, as illustrated above.

In conclusion, it seems that successful negotiations in the committee stage lie at the heart of insuring a cohesive position in the plenary. Consequently , it can be proposed that

in cases where these negotiations fail, or are burdened with disagreements, that European Party groups, unable to rely on their alliance partner, will use the party pressure in order to insure that at least their MEPs will act in a cohesive manner and not defect from the party line. This is further explored in Section 2.3. Nonetheless, even if negotiations at the committee level are likely to impact the level of agreement within the European Parliament, there are also other factors that affect the legislator's behaviour in the plenary. This is further discussed in the next section.

2.2.2 Voting in the European Parliament

Carey (2007) proposes that legislative unity is mainly driven by the following three factors: similar preferences, discipline and agenda control. At the same time, it can be argued that within party cohesion is mainly driven by the division-of-labour (Carey 2007) and the costs of collecting information (Hix and Noury 2009).

The literature aiming at explaining the existing cleavages and party cohesion in the European Parliament has been on the ideological dimension (Hix, Noury and Roland 2007, Hix and Noury 2009, McElroy and Benoit 2012; 2007). Many of these studies aimed at investigating the dimensionality of the policy space. Some studies have used the available roll call data and employed spatial models and thereafter regressed the dimensions of conflict (Hix and Noury 2009, Hix, Noury and Roland 2005, Hix and Høyland 2013). Despite its inherent advantages, this approach has received some criticism (e.g. Mühlböck and Yordanova 2012). Others have looked at ideological party positioning by employing expert surveys (McElroy and Benoit 2012; 2007).

These studies show that there is overall one dominating dimension of voting in the European Parliament, namely the traditional left and right, while at the same time some variation in voting explained by another pro- / anti-integration dimension (Hix, Noury and Roland 2007). One of the weaknesses of spatial models of legislative voting (Poole 2005) is given by the lack of control variables in the analysis - the algorithms aim to maximize the correct number of classifications given the specifications of the model.[4] Secondly, the content of the dimensions needs to be inferred post-hoc (Hix, Noury and Roland 2006: 495). Even, with these minor caveats the results have proven to be very robust (Hix and Høyland 2013). This finding is also supported by studies employing a different method - namely expert coding. The series of paper by McElroy and Benoit (2007; 2012) also reach a similar conclusion. McElroy and Benoit (2012) show that European Party Groups occupy the entire left-right political spectrum. Furthermore, they add that national parties are relatively cohesive in terms of their placement as well. This leads one to expect that most of the variations in legislative unity are explained by ideological factors.

Arguably, a high level of cohesion has been a scope in itself. For example, Hix and

[4]This is further discussed by (Poole 2005)

Noury (2009) show that the high level of cohesion that is observed in the European Parliament implies, at least to a certain extent, that the EP has started to resemble national parliaments. Furthermore, the extensive literature on the European Parliament has also given us increased understanding the balance of power between institutions, especially when it comes to the need for cohesion as a way for the traditionally relatively weak and new European Parliament to impose itself.

When it comes to explaining the Parliament's interaction with the Council and Commission one of the main focuses of the research has been on procedural differences (Crombez 1996; 1997; 2000, Tsebelis 1994, Tsebelis and Garrett 2000). This approach has offered important insights on how the European Parliament functions. It has explained the relative power of EPGs and has aided research aimed at understanding the dimensionality of this institution. Nonetheless, in the post-Lisbon setting, co-decision II became the ordinary legislative procedure. This implies that the power of the European Parliament has increased considerably. Another implication for the theoretical advances in the field is that procedural aspects have become so sparse, that analyzing them in the present setting is unlikely to provide us with new insights.

Before proceeding to a discussion of other potential factors affecting voting I will draw upon some of the main finding from the literature focusing on ideology. Given the increased powers of the EP, and despite the high level of agreement, defections are rare, yet they still occur. Hix, Noury and Roland (2006) use nominate scaling methods as a proxy for ideology, in order to estimate the number of dimensions that exist in the European Parliament. They find that the main dimension of politics in the European Parliament is the traditional left and right dimension (Hix, Noury and Roland 2006). The evidence of the existence of a second dimension is relatively weak and has declined in importance over time (Hix, Noury and Roland 2006: 507). Hix and Noury (2009) conducted a similar study after the 2004 round of expansion, when ten new member states were added and reached similar conclusions.

The findings from Hix and Noury (2009) largely support those from Hix, Noury and Roland (2006). How can the EP be conceptualized? The European Parliament is much like any normal legislature and is to be conceptualized in a low dimensional policy space. The levels of party cohesion remained relatively stable when compared to those from the Fifth European Parliament and ideological distance remained the most important predictor of voting behaviour, even if nationality played a role in the case of the controversial Services Directive (Hix and Noury 2009). This provides strong evidence that the most important dimension of ideology is the left and right ideological battle, as highlighted by (Hix and Høyland 2013).

The study conducted by Hix and Noury (2009) shows that the voting behaviour of MEPs was not affected by the size-effect created by the pure increase in the number of legislators, nor by a composition effect, created by the socio-economic differences between

the old and new members. Overall, new MEPs from the 10 new members states behaved slightly different from the remainder, however these differences are more visible in the case of highly salient directives Hix and Noury (2009).

There is one puzzle that still needs to be addressed: are there only ideological differences that drive defections? Is the observed level of cohesion an artifact of strong party leadership that mastered rapporteur appointment and that have shifted negotiations to the committee level in order to insure cohesiveness in the plenary? The European Parliament is a heterogeneous organization with a hierarchical structure. Therefore, the nature of the cases there is bound to spark a higher polarization in some cases compared to others. Especially in situations, where it is against the legislator's own interests to present a unified front that will accept a proposal that will be either against her ideological position, or the desires of her constituency.

This thesis sets out to provide one possible explanation for cases where there is increased polarization at the EP level and an alternative mechanisms for why individual defections occur in some cases. Aside procedural differences other structural characteristics of the bills discussed have been largely ignored by the literature in the case of the European Parliament. New research (Bailer, Mattila and Schneider 2010) on the Council highlights the importance of economic factors with regards to the level of polarization or cohesion. More specifically, I am to investigate whether bills with budgetary implications alter the level of cohesion within the European Parliament given the existing preconditions. In the next section I will use theory developed for the Council and derive several testable predictions.

2.3 Cohesion for free?

Overall, research on the legislative bodies of the European Union has ignored the structural and re-distributive implications of legislation. If Lasswell (1950) famous dictum "politics is who gets what, when, where and how" is still of interest, it can be argued that there is a re-distributive interests affect the conflict dimension in the European Parliament. To the best of my knowledge there are no studies investigating how budgetary implications affect legislative cohesion in the European Parliament. This stands in stark contrast to how such approaches have been recently employed on the Council (Bailer, Mattila and Schneider 2010, Aksoy 2010, Kandogan 2000, Carrubba 1997). Given the increase in importance and power of the European Parliament, extrapolation of this approach to EP may give us new insights in the dimensions of conflict that govern this complex institution.

The aim of this thesis is to investigate how legislative unity is affected by the structural characteristics of a bill controlled for other exogenous factors such as party of rapporteur and his/her seniority. From a substantial point of view the most relevant case for such

an analysis is the 7th European Parliament. The current EP is constituted after the ratification of the Lisbon treaty, which increased the power of the Parliament, secondly the co-decision became the ordinary legislative procedure and the EP gained for the first time some budgetary power (Hix and Høyland 2011). These factors are likely to better highlight the theoretical mechanisms proposed below.

Arguably, a natural starting point for the theoretical framework of this thesis are the contributions of Hillman (1989), Peltzman (1984), Grossman and Helpman (1996) and Stigler (1971). Peltzman (1984), for example, shows empirically that in many cases economic interests are masked by ideological variables. The article is solely focused on congressional voting, nevertheless, given the similarities between the congressional voting and the European Parliament it might be argued that his main finding can be translated to the setting of the European Parliament. The US Congress literature seems to agree that economic interests are important determinants of the voting behaviour (Magee, Brock and Young 1989).

A more general theoretical framework is proposed by Grossman and Helpman (1996) who investigate how special interest groups affect the platforms of the respective candidates. They show that parties are willing, at least to a certain extent to give into the demands of the special interest groups (Grossman and Helpman 1996). They further show that parties aim at maximizing the sum of aggregate benefits between informed votes and those of the special interest groups. Even if, the theoretical approach is relatively far away from looking at the individual reasons for defections, it gives a hint that economic gains actually matter in the legislator's, and to some extent party's preferences. In the context of the European Union, Bailer, Mattila and Schneider (2010) argue that interest groups are also influential in the distribution of the European Union budget. This highlights that defections based on economic concerns are not necessarily linked to national interests. There are many possible explanations for why legislators are more willing to act in a less cohesive manner on bills that have budgetary implications than otherwise. Nonetheless, given the limited scope of this thesis the main aim is to establish whether such interests are actually a polarizing factor within the European Parliament, especially in relationship with national states.

The above gives some evidence that at least from a theoretical standpoint the economic implications of legislative proposals are important for the legislator's incentive to support or not support a bill. We are forced to depart slightly from the framework used in the case of the Congress, or settings where governments or national states are represented. The European Parliament encompasses individual members from every member state. Therefore, theoretically we can differentiate between two motivations for caring about budgetary implications: national gains to their own constituency and gains to supporters of the European Party group.

In the case of the Council it has been shown that the redistributive dimension has

gained more importance (Zimmer, Schneider and Dobbins 2005). Another interesting mechanism that came forth in the case of the Council was that losers were not likely to remain quiet (Zimmer, Schneider and Dobbins 2005). While the link between Council members and their constituencies is clear, this link is, however, more blurred in the case of the European Parliament. Drawing on the literature of democratic deficit (Føllesdal and Hix 2006, Crombez 2003, Majone 1998), one notices that the weak connection between the electorate and the European Parliament is frequently mentioned. Why should such mechanism apply to the EP when the link between electorate and MEPs is frail and at the same time legislators are organized in transnational party groups?

One answer to this question comes from the literature on the US Congress. Fenno (1978) aims at answering how legislators are influenced in their decisions by their home constituencies. He proposes that legislators have three main goals, re-election, maximization of power while in service, and good public policy Fenno (1978). These goals are very similar to how MEPs have been conceptualized so far. Despite the frail electoral connection, there are strong reasons to believe that legislators, also within the European Parliament, care about their national constituencies, as they are the ones that insure re-election. Fenno's (1987) argument that legislators will employ a "home style", while they cultivate trust in their respective constituencies. Given the similarities between the European Parliament and national parliament, more general legislative theory is also supportive of this argument. For example Weingast, Shepsle and Johnsen (1981) argue that districts are highly important in the allocation of political pie, especially in regards to economic benefits and taxation. Therefore, as long as re-election within the European Parliament, or a the continuation of a political career is a goal for legislators they will have strong incentives to account for the interests of their "home constituencies".

Granted that legislators are interested in constituency interests, it is only natural that they will aim at insuring that benefits will be distributed towards the constituency, while at the same time will try to avoid that detrimental economic measures will affect these. These "sources of bias" in legislation are further discussed by Weingast, Shepsle and Johnsen (1981) and to a certain extent by Shepsle (1979). Yet, in certain cases legislators might be willing to accept short-term costs for their constituency in favour or long term benefits, or for other reasons, such as maximizing individual utility be willing to internalize these costs. While in other cases, given that the EP is trans-national these costs might be so spread that the losses will be difficult to identify. Furthermore, there is a high degree of cohesion within the European Parliament and there are relatively few defections (Hix and Høyland 2011; 2013, Nordkvelle 2012). The juxtaposition of these factors with a normative desire of good policy implies that whether a bill has not a budgetary implication is in general irrelevant for its passage.

Another reason for why this might be the case is simply the multitude of factors affecting the legislator's voting decision at the moment of the vote. Budgetary implications

are not the only reason legislators vote the way they do. They are merely a factor that is likely to affect their decision one way or the other. It can be argued that the failure or rejection of a bill is dependent on the aggregate interest legislators have for such a bill, not on whether it alters the legislative status quo. If group X desires bill Y, and she is able to get support from groups A, B, C, those groups will per definition support that bill regardless of the costs. If groups A, B, and C would have not desired that bill they would have not agreed to support it in the first place. Therefore the first testable implications is:

Hypothesis 1. *Budgetary implications do not affect the probability of a bill being passed or failed.*

One example of a case with budgetary implication which was desired by a considerable number of legislators and parties is "Mechanism for monitoring and reporting greenhouse gas emissions and other information relevant to climate change"[5]. Most of the costs of this legislation were initially covered by the existing framework within the European Union (European Commission 2011*b*), hence new budget lines were not requested. In this case 93% of the legislators voted for the proposal and the winning coalitions was formed by all parties with the exception of EFD. Another similar legislation is "Accounting rules and action plans on greenhouse gas emissions and removals resulting from activities related to land use"[6]. Consequently, when legislators endorse the costs of a legislation, and the type of case does not have a strong ideological dimension, the effect of budgetary implications will be minimal.

Even if legislation is not likely to impact the failure or passage of a bill, it is likely to affect legislative unity. It can be argued that in cases of legislation which either will affect specific national countries, or regions, or that will affect a specific sector legislative unity is likely to be reduced. One example of the latter is the "Common fisheries policy"[7], where only 502 legislators voted for while 137 voted against. This polarization is likely to be visible also in the case of resolutions, that in time will potentially affect either the budget of the European Union, or of individual member states, such as: "Decision on the opening of, and mandate for, inter-institutional negotiations on common organisation of the markets in agricultural products (Single CMO Regulation)". It can be distinguished between two mechanisms that affect the legislator's decision, on the one side national party pressure, while on the other and perhaps most importantly the desire to represent the national constituency's needs. These mere examples seem supportive of the arguments presented above, nonetheless, empirical tests of this are employed in Section 4.4.

Even if budgetary implications are unlikely to determine the chances of passage or failure of bill, they are more likely to increase legislative polarization, therefore have a

[5]case number: A7-0191/2012
[6]case number: A7-0317/2012
[7]case number: A7-0008/2013

negative impact on legislative unity. If it is assumed that losers are willing to use their voice, in other words vote against a proposal that has detrimental budgetary implications for their constituency, party or that supports something they are ideologically against, it is better to look at overall legislative unity.

Hix and Høyland (2013) show that an overwhelming majority the winning coalition has been formed by five or more parties. This framework does not imply that legislation with budgetary implications will be passed with fewer parties, even if that might be the case, but it implies that individual defections and polarization are more likely. Hence, under the assumption that the discontent will show their position, it is expected that overall legislative unity will be lower.

As discussed in the previous sections the European Parliament has large incentives to present an unified front in order maximize its influence in the legislative process. Some studies have shown that defections from the party line are rare, yet it is interesting to look at which factors might motivate defections when studying aggregate legislative unity. Factors such as pressure from European Party Groups, or national parties might exercise varying pressure upon legislators. Given the diverse factors that affect the legislator's own voting decision factors such as membership in one or another European Party Group, or even the pressure of a national group become less important. Local constituencies are smaller than both national parties which usually represent the country and European Party Groups. Of course, group pressure might have a different impact on different legislators, nevertheless, from a theoretical perspective this is not that relevant. As defections will most likely take place when the interests of the constituency of the legislators are at risk, as in these cases the legislator will be most interested in those that actually vote for him (Fenno 1978).

Theoretically, it can be distinguished between two types of legislation, those bills that are desired by a large majority of the legislators and do not spark conflict and those cases where there is an a high level of internal polarization. The polarization can either be on the necessity of the measures encompassed by the bill, the way in which it alters the status-quo or the fact that it alters the existing consensus. In practice quantifying this distinction is virtually impossible, as it is hard to trace the paternity of a bill. Additionally, the level of polarization is dynamic. For example, a bill which starts as relatively uncontroversial, for example ACTA, becomes controversial while it is drafted and debated. At the other side of the spectrum, one can find bills which start out as controversial, yet when the bill is parsed through the complex decision making mechanisms within the European Union the bill ends up being relatively uncontroversial by the time of the final vote.

Clarke and Primo (2007: 734-744) argue that theoretical models are to be conceptualized as "maps" and that even if all aspects cannot be tested they are still to retain these are they aid one in understanding the phenomenon. A dynamic measure of polarization

within the European Parliament is very hard to attain and construct. Therefore, I choose to employ a proxy for this. In this framework the most most important level of polarization is the one a bill has right before its final vote. Consequently, the proxy employed in this thesis to capture this latent concept is defection by the party of one of the rapporteurs. As discussed in Section 2.2.1, committee level negotiations are paramount for legislative unity. Thus, in cases where there is a split within the party of the rapporteur, or the party defects, the other parties are likely to use their available party pressure in order to constrain the behaviour of legislators in the plenary.

Granted that the bulk of negotiations is shifted at the committee level, it can be argued that in cases where bills have budgetary implications, it will be harder to get all legislators to agree, and hence we will observe lower legislative unity. Additionally, when budgetary implications are the only polarizing factors, and committee level negotiations were successful, legislative unity will be lower in the plenary. In those cases the alliances are already formed at the committee level and European Party Group have few incentives to increase pressure on individual legislators. Therefore, the legislator that feels that the proposal is detrimental for his home constituency will defect without incurring the risk of losing the trust of his respective EPG, hence to a large extent he will continue to maximize all of his three goals.

Hypothesis 2. *Bills with budgetary implications are more likely to decease the overall parliamentary cohesion in the absence of other polarizing factors.*

Despite the high level of agreement within the European Parliament there might be cases where negotiations at the committee level may stall, or be only partly successful. For example, it has been shown that in general high-profile, salient cases tend to be dominated by more mechanisms than normal bills (Hix, Noury and Roland 2005; 2007, Hix and Høyland 2013). Alternatively, it can be argued that, regardless of the profile of the case, negotiations at the committee level which are burdened with a large level of disagreement. Such cases can be identified by mapping splits of the defection of the party of one of the rapporteurs.

In such cases, party groups, will notice such defections. Party groups are strategic actors that aim at getting their most desired policy through. In situations where they know defection from another group is likely they are likely to increase pressure on legislators in order to further their goal. Under the relatively not problematic assumption that party groups will increase internal pressure on legislators when there is an unstable coalition let us investigate how this would potentially affect the behaviour of legislators.

As long as legislators have three main goals that they aim to maximize, namely reelection (e), power while in office (p), and good policy (g), they are bound to respond to party pressure. Nonetheless, the response will be different for each legislator, depending on her utility function. In this application the most interesting situation is when there is a case which has a budgetary implication, and there is a split in the party of the rapporteur.

As discussed above, if budgetary implications are detrimental for the home constituency of the legislator she is most likely to defect in order to protect her home constituency, as in there are few consequences. In other words, it is conceptualized that in the absence of additional polarizing factors, e and p will remain constant, while e will decrease if the legislator does not respect the desires of the home constituency.

Nonetheless, in the situation at hand, with increased party pressure, both e and p are likely to be affected. Thus, legislators are faced with a dilemma, where they have to choose between reduced e and reduced p. Yet, there is a weak connection between the electorate and legislators (Hix and Høyland 2011, Scarrow 1997) , while, as discussed above party groups have very strong incentives to monitor the behaviour of legislators. Given this, I propose that legislators are more likely to follow the line of the European Party Group, and not defect from the party line. This is likely to lead to increased legislative unity when compared to cases where budgetary implications are present on their own.

If European Party Groups will increase legislative pressure the legislators will experience higher costs if they choose to defect from the party line. One potential reason is that European Party Groups might sanction frequent defectors, for example by granting them less speaking time, or less favorable committee assignment. If such a sanction would be in place the legislator's second goal, of power maximization, would be potentially threatened. Nonetheless, it remains unclear, which goal legislators value higher. Perhaps, the answer to this question is highly dependent on the case analyzed and on the preferences of the legislator at that point in time. For example, in cases where the national party is preparing nominations for the next term, it might be the case that the legislator would prefer to employ his/her home style and defect from the party line, despite sanctions, in order to maximize the chances of re-election. This leads to a final testable implication:

Hypothesis 3. *For cases with budgetary implications, and splits or defections on behalf of the party of the rapporteur, legislative cohesion is likely to be higher.*

One such example is "Fishing opportunities and financial contribution provided for in the EC-Denmark/Greenland Fisheries Partnership Agreement"[8]. In this case there were clear national interests at stake, for example those of Denmark. Nonetheless, the European Party Group Greens/EFA opposed this legislation, 574 legislators voted for this legislative proposal. As discussed by the intergovernmentalist approach, national interests can be important for legislators. (Moravcsik 1993: 482) proposes that interstate negations are dependent on national state preference formation. European Party Groups as strategic actors, will surely take this in their calculations and therefore increase pressure in cases where such mechanisms are present. As anticipated above, in cases which have both budgetary implications, and when the committee stage negotiations encountered troubled waters European Party Groups are likely to put more pressure on legislators.

[8]case number: A7-0358/2012

In the cases where there is a split between the party of the rapporteur, the impact of budgetary implication may be of the opposite direction. This follows from the fact that splits in the party group of the rapporteur are more easily detectable and may thus induce EPGs to employ the available "whips" to discipline their MEPs. Furthermore, the costs of defections for the legislators will in these cases be significantly higher as defection may hamper the other goals that legislators have. Hence, the collocation of polarizing factors is most likely to increase legislative unity. This is tested in Section 4.5.

2.4 Summary

By drawing upon several literatures this thesis proposes a new framework for assessing cohesion in the European Parliament. In this chapter I have first reviewed the literature assessing legislative behaviour in the European Parliament. So far, the literature (Hix 2002, Hix, Noury and Roland 2007, Hix and Noury 2009, McElroy and Benoit 2012) has focused on the ideological determinants of voting in the European Parliament or on procedural differences (Crombez 1997; 2000). Nonetheless, after the ratification of the Lisbon treaty the powers of the European Parliament have increased considerably, especially as now the Parliament has budgetary power (Hix and Høyland 2011). By extrapolating recent findings in the Council (Bailer, Mattila and Schneider 2010) and employing classical theoretical arguments developed originally for the US Congress (Fenno 1978, Cox and McCubbins 2007) I propose that the budgetary implications affect the behaviour of legislators in final votes.

As legislators are mainly responsive to the demands of the European Party Groups (Mühlböck 2012), their behaviour is not only determined by the way in which they value the concerns of their constituencies – versus their own gains while in term – but also by party pressure as well. In order to capture this, I have argued that the initial level of agreement before final votes, which can be seen by splits in the party of the rapporteur is likely to affect their payoffs. I have further proposed that legislators aiming at avoiding sanctions will respect the desires of their party group in situations where they add increased pressure and are more likely to defect in cases where party groups do not mobilize. Consequently, the negative effect of budgetary implications is mitigated by increased party pressure. The next chapter presents the data and research design employed in order to test theoretical propositions.

Chapter 3

Data and Research Design

In the first part of this chapter, I will describe the data collection process and present and overview of the variables included in the dataset. Thereafter, I present several issues linked to coding before proceeding to discussion of coding one of the substantially important variables. The discussion changes course to the operationalizations of the dependent variable and the choice of model and is completed with a test of the linearity assumption.

3.1 Data collection

The focus on this thesis lies on the 7^{th} European Parliament and it aims to investigate the effect of budgetary implications of legislation on legislative unity. As the literature has only marginally focused on how budgetary implications affect legislative cohesiveness in the European Parliament, there is no available data on the budgetary implications of bills. In order to be able to test the theoretical propositions quantitatively I have collected data on the bills passed in the 7^{th} European Parliament from the first sitting on 01.07.2009 to 14.03.2013. The adoption, and ratification of the Lisbon treaty increased the powers of the EP. Firstly, the Parliament is now on equal footing with the Council, as co-decision became the ordinary legislative procedure. Secondly, the Parliament has gained increased budgetary power. Therefore, the European Parliament has now become a stronger decision maker within the EU. Given the scope of this thesis it is the most relevant to study the hypothesized relationship in the context of the 7^{th} European Parliament.

As this is a novel dataset and the collection of this data is one small contribution made to literature, it may be useful to go through the process of data collection and inherent coding issues and decisions made while making the dataset in this section. The main advantage of this dataset is that it consists of the entire population of cases available, has very limited number of missing observations and spans over a relatively significant part

of the current term.[1] The dataset records several characteristics of interests in the frame of this thesis, which are presented in Table 3.1 on page 28, the coding of the variables in presented in section 3.2. The units of analysis are final votes.

King, Keohane and Verba (1994: 23-25) set out five main guidelines for data collection in qualitative research. Given their generality they are highly relevant in this setting as well. The data collection process has been carried out in accordance with the guidelines of King, Keohane and Verba (1994: 23-25).

I have collected the information on a set of variables deemed to be important for the entire population of cases from the 7th European Parliament. This implies that issues of sample selection and sample bias become redundant as long as the aim is to make inferences about the current sitting of the European Parliament. At the same time, this satisfies the second criterion set out by King, Keohane and Verba (1994: 24).

Ideally, similar data should have been collected for the previous sittings of the European Parliament. In that case one could have made more general inferences about how budgetary implications affect legislative unity in situations where the parliament has limited decision making power over the budget, compared to when it is one of the actors that decides the budget. Given the relatively limited scope of this thesis I argue that the population of cases voted upon in the European Parliament during the current sitting (last date coded: 14.03.2013) will suffice for the purpose at hand. It has to be emphasized that this is a first to test how budgetary implications affect legislative unity, which may be extended by further research. The main scope of the analysis is to investigate whether budgetary implications have an impact on legislative unity.

The next two guidelines are linked to validity and reliability. Validity refers to measuring the actual concept that we aimed to measure, namely that we capture the latent concept (King, Keohane and Verba 1994: 25). Simply because of the nature of the variables, for example the result of a vote is either a pass or a fail, or if 200 voted for, there are only 200 votes for. Of course one can question the indices used as dependent variables, however, that is not a problem of data collection, but one of operationalization of latent concept. Hence, such issues are discussed in section 3.3. As budgetary implications are variable of substantial interest in this thesis, a further discussion of issues of validity and reliability it taken in regard to the way budgetary implication was operationalized and coded in practice.

Reliability encompasses that one is to employ the same procedure for every case coded (King, Keohane and Verba 1994: 25). In order to insure the reliability of the dataset, I have randomly chosen 25 cases and re-coded them. The results were the same. Even if the method used to code each case was consistent, there is an inherent danger of typos, such as writing 29 instead of 20. This danger is larger for the numeric variables. The 30

[1]The main source of missing is logical missing. The overwhelming majority of the 253 missing observations on the number of terms, presented in table 4.1 on page 43, are logical missing as those cases did not have rapporteurs

most influential observations presented in section 4.7.1 are not coding errors.

I have performed several tests to check for coding errors. The errors were identified and corrected before the analysis of the data was started. The first test was to check if the numbers of legislators that voted, did not vote and were absent corresponded to the total number of MEPs. The number of MEPs fluctuated slightly during the set period, a $\pm$ 10 boundary was used on legislators. Secondly, I have aggregated abstentions per day and double checked the cases where such errors were present. Even if these tests are not perfect, they should at least to a certain extent increase the reliability of the data.

One of the main goals was to maintain the dataset replicable. This is also the last criterion set out by King, Keohane and Verba (1994: 26). The data is collected from various publicly available sources. Each source is both an open source, and to the extent of my knowledge is regularly updated, facilitating both the replication of the dataset, as well as tests of coding. The case number, and the number of terms served by a rapporteur are taken from `http://www.europarl.europa.eu/portal/en`, while the names of the rapporteurs and their respective parties are retried from `http://parltrack.euwiki.org/`. Budgetary implications are coded from both of the above, while depending on the availability of the documents from the official website of the Commission and European Parliament. The remaining variables are coded based on the information available on `http://www.votewatch.eu/`.

3.2 Data gathering process and coding

The dataset represents an effort to code all the resolutions and bills voted upon in the current term of the European Parliament which lies at the heart of the analysis. In developing the framework I have explicitly focused on two aspects, the budgetary implication and the way in which legislators voted. While there are several sources of acquiring the bills voted upon in the current term[2], the dataset collects information with other indicators that in some cases are available from other sources, such as the number of votes, rate of absenteeism, or the rapporteur for each case in order to facilitate empirical investigation. The ID-indicators of the data set are the case number (i.e. A7-0010/2009) and the date of the vote are coded, alongside with the full name of the bill, these will also enable merging with other datasets. A full overview of the variables is presented in Table 3.1 on page 28.

The actual coding was done in a case-by-case manner. If the same case has been voted upon twice, for example a first reading and then the document returned for a second reading both cases are coded, on different dates. As long as two votes are taken upon the same bill they will share the same case number. In cases where a split vote was

[2]For example votewatch.eu .

Table 3.1: Overview of dataset

Variable:	**Type of variable (possible values):**	**Description and source:**
Case number	Character - example: A7-0001/2009	Source: europarl.europa.eu
Name of document	Character - example: Agreement EC/ Mongolia on certain aspects of air services - Legislative resolution : Single vote - consultation	The full name of the document, information about type of legislation and vote, procedure source: votewatch.eu
Result of vote	Categorical, 0 for rejected proposals, 1 for approved ones - example: 1	Passage or failure of a bill on the respective vote, source: votewatch.eu
Policy Area	Character - example: Transport & tourism	Information about the policy area. Can be used as a proxy for the lead committee. source: votewatch.eu
Yes votes	Continuous, number of MEPs that voted yes - example: 456	source: votewatch.eu
No votes	Continuous, number of MEPs that voted no - example: 21	source: votewatch.eu
Abstain votes	Continuous, number of MEPs that voted no - example: 2	source - votewatch.eu
Didn't vote	Continuous, number of MEPs that did not vote - example 218	Records the number of MEPs that were present, but did not vote. source: votewatch.eu
Absent	Continuous, number of MEPs that were absent from the session - example 17	The variable was coded per case, however as a check I have aggregated the data by session date and checked for coding errors Source: votewatch.eu
Type of vote	Categorical, 0 for resolutions, 1 for legislative proposals - example: 1	source: votewatch.eu
Budgetary implication	Categorical, 0 for no budgetary implication, 1 for budgetary consequences - example: 0	Bills have budgetary implications only when they alter the existing status quo. Source: parltrack.euwiki.org, europarl.europa.eu
Majority formed by	Character, names of parties in winning coalition - example: GUE/NGL, Greens, S&D, ALDE, EPP, ECR, EFD	All names are separated by commas for ease of disaggregation source: votewatch.eu
Lead Rapporteur	Character, name of lead rapporteur - example: SIMPSON Brian	source: europarl.europa.eu
Party of lead rapporteur	Character, EPG of the lead rapporteur at the time of the voting - example: S&D rapporteur at the time of the voting - example: S&D	If the rapporteur changed party, the party coded is the one at the time the vote was taken, source: parltrack.euwiki.org
Number of terms served by lead rapporteur	Continuous - example: 3	source: europarl.europa.eu
Other rapporteurs	Character, name of other rapporteurs, one column per each - example: COSTA Paolo	source: europarl.europa.eu
Party of other rapporteurs	Character, EPG of the each other rapporteur at the time of the voting - example: ALDE	source: parltrack.euwiki.org, europarl.europa.eu

requested on the final vote - the case will appear twice, the full name allows the user to differentiate between the two, as it specifies which part of the document was voted upon.

Most of the other information coded is dependent on the case, therefore the variables are coded per case, however there is one exception, namely the budgetary implication. If a vote taken upon an entire bill which originally had a budgetary implications and a split is proposed only for an amendment, which did not have a budgetary implication, the first vote on the amendment will have no budgetary implication, the second vote on the bill will have a budgetary implication and the final vote on the entire bill will also have a budgetary implication. It has to be emphasized that this was a rare case, the total number of rows affected by this coding decision is very small (≤ 3).

In order for the reader to get a sense of how the data was collected and coded I present an overview of the variables, possible doing categories and a short description, in Table 3.1 on page 28. All the examples used are from the same case, hence show how a row was coded. The example was chosen arbitrary. In this paragraph I will employ a different example, in order to highlight the coding of the variables. Firstly, I coded variables that aid one in identifying the case, such as the case number, for example A7-0329/2012 and the full name of the document. One example is, "Tariff-rate quotas applying to exports of wood from Russia to the EU - Draft legislative resolution : single vote - ordinary legislative procedure, first reading". Based on this, I have coded whether the case was a legislation (coded 1), or a resolution (coded 0). Thereafter, I have coded the policy area, which in this case is International trade. Next, the voting behaviour of legislators was coded, how many voted yes, no, and abstain, as well as information about those who were present but did not vote.

The budgetary implication was coded as 0 for cases that were encompassed by the existing framework, and 1 for cases which alter the existing status-quo. This is further discussed in the next section, Section 3.2.1. Finally, with the aid of information from `votewatch.eu`, I have coded the European Party which formed the winning coalition. Lastly, the names, and European Party Groups of the rapporteurs were coded. As mentioned, I have coded the EPG to which the rapporteur belonged at the time of the vote.

As mentioned the variables are coded per case, therefore each new row in the dataset is either a new case, a recurring case which was voted again, for example a second reading, or in very few cases a split vote. It has to be emphasized that the overwhelming majority of the cases were new cases. This allows one to explore the both the structural characteristics of the case and the aggregated behaviour of legislators and to a certain extent of European Party Groups at the moment of the voting.

Most of the concepts covered are self-explanatory and require a relatively low level of abstraction. A standard code-book was not required for the data gathering process. Variables such as the number of yes, no, abstentions, or the number of absent legislators only required a transcription of the numbers to the data sheet. Yet, in order to maximize

coherence in the data gathering process I developed strict coding rules for the variables where a subjective decision was required. In the next section I will present a discussion of the decision made while coding budgetary implications.

3.2.1 When do bills have budgetary implications?

A budgetary implication can be simply defined as: *a bill has a budgetary implication when its enforcement has an impact, either positive or negative impact on the budget.* Nevertheless, under this definition any bill act would have a budgetary implication, as its mere application, and enforcement entails at least certain administrative costs. Furthermore, the European Union budget is designed as a framework, where the distribution of certain resources is allocated from the start. This entails that all European Party Groups and legislators are aware that certain sums will be spent on certain areas. It is outside the scope of the thesis to discuss what mechanisms affect the distributive decisions around budgetary allocation.

Do bills with financial implications which are restricted to the existing framework actually have budgetary implications? This question is debatable. It can be argued that these bills do not have in practice any budgetary implications, as they do not alter the status quo. The conflicts between legislators and European Party groups are already resolved at the time of the vote on the actual proposal. A bill which has financial implications which are already covered by the existing framework will not change the status quo on the area. The main focus lies on legislative unity, and the interest lies on how budgetary implications alter the voting behaviour of legislators. If a proposal is covered by the framework, there are no theoretical grounds that it will alter the behaviour for legislators as the status quo will remain unchanged.

From a theoretical perspective the interests lies on polarization within the legislative, as discussed in Chapter 2. In order to capture the theoretical concepts the definition of a budgetary implication used in this thesis is: *A bill which either adds a positive contribution or has a negative impact on the budget and which is not covered by an existing framework or goes beyond it, in other words a bill which does change the existing budgetary status quo.* In other words, bills which alter the existing framework. Under the assumption that every legislative act will have an impact on the budget, no matter how small - this definition allows one to distinguish between two types of legislation. Those that will trigger economic polarization within the legislative on the one side, and those bills that only have regulatory outcomes, where economic concerns are largely redundant in final votes.

How to differentiate between the two possible situations? In many respects this has been the hardest variable to code. Nonetheless, the European Union's commitment to openness and the availability of internal documents have enabled the coding of this variable. In order to code the budgetary implication, I have looked first at the published

legislative report, thereafter at the committee draft report and in some cases at the documents attached to the procedure from the Official Journal. The published legislative report proved to be a very good proxy for coding the budgetary implication.

During the coding process, I noticed that bills which had budgetary implications in the Commission's proposal retained them. Conversely, bills that started without budgetary implication, seem to have remained without budgetary implication to the final vote. Legislation with budgetary implications is required to have an addition set of documents attached, even if such documents are not always available, the reports mention the their presence.

In order to give the reader a better understanding of how the variables were coded and where the information was retrieve from I will choose two arbitrary examples, one without and one with budgetary implication. For example case A7-0223/2011 - Derivatives, central counter-parties and trade repositories does not have a budgetary implication. By looking at the published legislative proposal - COM(2010)0484 - it is noted in the section *Budgetary implication* that "The proposal has no implication for the Union budget." (European Commission 2010). In the committee draft report there is no mention of budget, or financial implications (PE456.945). Finally, when we look at the documents attached to the procedure published in the Official Journal we see that there is no mention of financial or budgetary implications of the legislation (OJ C126 2011: 9). Therefore, A7-0223/2011 was coded as not having a budgetary implication.

On the other hand let us shift focus to a bill with a budgetary implications. For example, case A7-0218/2012 - European statistical program 2013-2017 which has a budgetary implication. The published legislative proposal clearly states that the legislation has a budgetary implication –

> Total amount to be borne by the budget of the EU is 299.4 million EUR (current prices) for the duration of the programmer from 2013 to 2017, of which 57.3 million EUR is covered by the programming period 2007 to 2013 and 242.1 million EUR by the programming period 2014 to 2017. (European Commission 2011*c*)

A similar statement is also made in the Committee Draft report (ECON, Committee on Economic and Monetary Affairs 2012), thus budgetary implications that exceed the allocated framework are in most cases easy to recognize. At the same time, it has to be mentioned that a careful analysis of the above mentioned documents was required in order to identify budgetary implications in certain cases.

In some cases the difference between bills with budgetary implications and those without, or already covered by the budget is blurred. Generally, legislation which was fully covered by the existing framework was simply stated not to have a budgetary implication, or in other cases the Commission's report only stated that the bill has a minor impact

on the EU budget, without further details. As mentioned, in those cases, after a careful analysis of the documents from the Commission and Committees was required, and by following the definitions presented in this section a decision was made in each case.

Arguably, in the terms discussed by King, Keohane and Verba (1994) and Adcock and Collier (2001) the concepts of reliability and validity of the measurements are largely satisfied. Given the low degree of abstaction, the standard formatting of the documents and their availability there were few hinders when going from a theoretical concept to empirical observations.

3.3 Operationalization of legislative unity

In order to measure legislative unity, I choose to employ two indices used for measuring party unity (Rice 1924, Hix, Noury and Roland 2005). The classical approach was developed by Rice (1924). The index is given by the absolute difference between Yes and No votes divided by the sum of Yes and No votes. This shown in equation 3.1.

$$RICE = \frac{|Yes - No|}{Yes + No} \tag{3.1}$$

The RICE index ranges from 0 to 1, where 0 is reached when an equal number of legislators vote Yes and No, while 1 is reached when all vote either Yes or No. A vast majority of the cases in the European Parliament are voted upon under the simple majority rule (Hix and Høyland 2011), where legislators have three voting options, namely: Yes, No, Abstain. Unfortunately, the RICE index in its original form is ill-equipped to deal with abstentions.

Nevertheless, abstentions in the EP have no impact on the outcome of the vote under simple majority. Thus, ignoring abstentions is not *per se* substantially problematic. At the same time, ignoring abstentions totally, implies the strengthening of the assumptions that legislators are hard liners and will choose direct defection from the party line. At the same time, a conventional approach has been to treat abstentions as no votes. For example several empirical studies of ideology using nominate scores operate with this assumption (Hix, Noury and Roland 2005; 2006; 2007, Hix and Noury 2009). One way of understanding this in the context of the EP is to assume that the same mechanisms that leads to no votes lead to abstentions. Hence, the index becomes:

$$RICEabs = \frac{|Yes - (No + Abstentions)|}{Yes + (No + Abstentions)} \tag{3.2}$$

In order to better highlight this, I present a hypothetical example. If 100 legislators vote “Yes” and 10 “No”, while another 20 abstain from voting: RICE reports a relativly high cohesion score of 0.81, while RICEabs reports a much lower score of only 0.53. One implication of this difference is that RICE is likely to over-estimate legislative unity,

while RICEabs is likely to under-estimate it. Therefore, using both indices as dependent variables might prove a be useful and simple solution to avoiding and controlling for this bias problem.

Adding an extra assumption on behaviour is not the optimal way of dealing with abstentions. Another better approach would be to differentiate the group of legislators that did not vote from those that votes "Yes" and those that voted "No". A solution to this problem is presented by Hix, Noury and Roland (2005: 215) initially to deal with party group cohesion. However, legislative cohesion is just aggregated party cohesion, therefore there should be no constraints in using the Agreement Index as a proxy for overall legislative cohesiveness.

The Agreement Index is calculated via the following formula (Hix, Noury and Roland 2005: 215):

$$AI = \frac{max\{Y, N, A\} - [\frac{1}{2}(Y + N + A) - max\{Y, N, A\}]}{Y + N + A} \tag{3.3}$$

The Agreement Index (AI) treats abstentions, labelled with A as a separate category. Unlike, the RICE index the interest here lies on the largest group of votes against the others. RICE and the Agreement Index are similar, thus in many respects the Agreement Index can be conceptualized as a more generic version of RICE which is capable of dealing with more than two categories. Treating abstentions as a different category affects the final outcome. Using the same example from above we can illustrate how the results change. The Agreement Index in this case is of 0.538. We see that AI score is very close to the score on RICEabs when we account for abstentions, however it still remains much lower than the original RICE score.

Even if, the Agreement Index can be seen as an improved version of RICE it still fails to deal with one issue. It does not account for those that were present, but did not vote. Arguably there are two ways of including them, either as a separate category, or like in the case of RICE combine them with one of the existing categories. Those that did not vote have absolutely no impact on the outcome of the vote, hence it is hard to conceptualize them as a separate category. It can be further argued that the lack of a vote from legislator cannot affect legislative unity.

A more natural way of treating those that did not vote might be to include them in the abstention category. The reason for combining these categories is that from a theoretical standpoint they have the same impact on legislative unity. They do not impact the outcome of the vote, but are two categories that should be accounted for, at least in empirical tests. In order to test how this impacts legislative cohesion I chose to include them, this slightly alters the results and formula, becoming:

$$AD = Abstain + Did\ not\ vote \tag{3.4}$$

$$AIn = \frac{max\{Y, N, AD\} - [\frac{1}{2}(Y + N + AD) - max\{Y, N, AD\}]}{Y + N + AD} \tag{3.5}$$

Including them as a separate category will mathematically change the result only when those that did not vote are the largest group. In the sample at hand this is seldom the case. In order to have a basis for comparison I will slightly modify the example above, by assuming that there were 20 more members that were present at that session but did not vote. When those that did not vote are included we see that the AIn index decreases to 0.33, from 0.58. This implies that dealing with those that did not vote can lead to a problem of under-estimating legislative cohesion. Nevertheless, since the theoretical reasons for excluding those that did not vote are weak I choose to run the empirical tests on AIn as well.

3.4 What about ideology?

Most of the existing literature in the field has argued that ideology is the main predictor of the voting behaviour of MEPs in the European Parliament, as discussed in Chapter 2. It has been shown by employing nominate models that the left-right dimension is the main dimension of voting within the European Parliament (Hix and Noury 2009, Hix and Høyland 2013) and that European Party Groups occupy the entire range of the left-right spectrum (McElroy and Benoit 2012).

This thesis does not aim to investigate the importance of ideology for legislative unity in the European Parliament. It focuses on how the budgetary implications of bills affect legislative unity. Nonetheless, ideology, or party positions are important factors that one should control for. There are several ways of doing this, nevertheless the structure of the data employed in the empirical analysis and the length of the time series impeded me for using better controls for ideology, such as nominate scores. An alternative operationalization would have been a measure of ideology similar to that developed by McElroy and Benoit (2012). Nevertheless, data for such a measure on the current European Parliament is not available. If the measure is not adjusted in a case by case manner it might lead to misleading results. In this context I will employ an alternative solution to control for party positions, namely party dummies for each of the parties in the winning coalition of each case.

Let us take a closer look at the party system in the European Parliament. In 2003, Hix, Kreppel and Noury (2003) concluded that the party system in the EP "has become more consolidate and more competitive as the powers of the EP have increased". Nevertheless, a lot has changed from 2003, the European Union had two rounds of enlargement and in 2009 the Lisbon treaty was ratified increasing again the powers of the European Parliament. In broad terms the party system has remained relatively unchanged, however after the 2009 election new parties were formed, while others ceased to exist (McElroy

and Benoit 2012), however there were not radical changes in the overall ideological position of parties, only in the names of the European Party Groups. Secondly, parties have increased in size, but the composition of the largest parties remained relatively stable. Nonetheless, new national parties joined the European Parliament (further discussed in McElroy and Benoit (2012)).

In the seventh European Parliament, the European People's Party is the largest group with 270 members, followed by S&D with 190 members and ALDE with 85.[3] Even if these three parties to a certain extent have divergent ideologies, their policy interests overlap in many areas. If these three groups reach agreement on a certain vote the legislation will pass with a majority in favour of at least $\sim 72\%$. A center left-coalition without ALDE would mean a support of only $\sim 36\%$, while a center-right with ALDE would mean a support of $\sim 47\%$. Therefore, if S&D and EPP have divergent preferences on an issue, they will both battle for the support of ALDE. Nevertheless, it has been shown that in $\sim 70\%$ of the cases a coalition of either center-left, with EPP and ALDE or one of center-left and EPP against ALDE is formed (Hix and Høyland 2013: 9). The initial reaction is to conclude without further ado that the party system has become collusive and that there is very little competition between the largest parties within the European Parliament.

One explanation for this type of behaviour is the ideological proximity of the two largest parties (Hix, Raunio and Scully 1999, Hix 2001, Hix, Kreppel and Noury 2003, Kreppel and Tsebelis 1999). The literature points out that EPP and S&D tended to be clustered closer together on the pro/anti-integration dimension rather than on the conventional left and right one. However, the integration issues have become less salient in the past years. When looking at the voting patterns in the seventh European Parliament, we notice that there are three areas where the left and the right tend to compete more when compared to the remainder. There are two areas where a center-right coalition tends to be more successful and there is competition between the left and right on Economic and Monetary questions and in Employment and Social matters (Hix and Høyland 2013: 9). The left seems more successful in Gender Equality and Environment and Public health (Hix and Høyland 2013: 9). Both of these trends are a continuation of the pattern from the sixth EP. As the European Parliament got increased power in the budgetary sector we see that there is increased competition compared to the sixth EP between EPP and S&D on that area.

There is little doubt that ideology is a very complex concept. As discussed in the beginning of this section two of the most reliable measures of ideology cannot be used in the application at hand due to data availability issues. Using party dummies is therefore the next best alternative.

Even if, this operationalization comes with several caveats, it is the best alternative to control for party positions, given the nature of the data. It captures how party alliances

[3]There a some small variations as MEPs sometimes change affiliation during the term

vary from case to case. Given that the position of parties is only secondary to this analysis the models which control for ideology are presented in the Chapter 5 of the thesis.

3.5 Choice of model

The dependent variable in this case is the overall unity of legislators in the European Parliament. This is a latent concept that is operationalized in several distinct ways, as discussed above, in Section 3.3. In accordance with the definition from Greene (2003: 896) the dependent variable is censored. Censoring implies that the researcher is able to observe the independent variables for the entire sample, but she is not able to observe the full spectrum of the dependent variable (Long 1997: 187). In other words, censored observations occur when "some observations on the dependent variable, corresponding to the known values of the independent variable(s) are not observable" (Kennedy 2011: 262).

Kennedy (2011: 264) illustrates that omitting or not accounting for limit observations creates bias. In order to avoid such problems, Kennedy (2011: 264) proposes to include the limit observations via maximum likelihood. This means that in the case of censored variables the parameter estimates from simple OLS regressions are likely to be biased (Henningsen 2010: 1). If we were to fail to account for censoring we could have estimated an OLS, the problem would have been that censored observations would pull down the line, and hence cause an underestimated intercept while at the same time it would overestimate the slope (Long 1997: 189). James Tobin proposed a way to deal with this in his 1958 study of household expenditures (Tobin 1958).

Why not an OLS? At a first glance the model seems to require the basic requirements for an OLS model. The dependent variable must be continuous. If this is not the case. An OLS-model will return inconsistent estimates for the data (Wooldridge 2002: 524). If we are to restrict the sample to the observations of $y_i > 0$, in other words looking only at the data on the uncensored observations, we are going to create omitted variable bias.

Tobit or a probit estimation? These two models employ the same structural model, however there are some differences between the two. In a Tobit model it is assumed that we know the value of the latent dependent variable y* when $y^* > 0$, however in a probit model it as assumed that the researcher knows only if $y^* > 0$ (Long 1997, Greene 2003). Greene (2003: 776) further points out that the results from the probit model can be derived by $\frac{1}{\sigma_{tobit}}(\beta_{tobit})$. It should be emphasized that this holds only if the tobit model is correct. Therefore, it can be argued that using a tobit model is a more efficient way of estimating the regression at hand.

There are two assumptions within the model that need to be checked - first that the disturbance ϵ_i is not heteroskedastic. If this condition is not satisfied the estimates are likely to be inconsistent. Nevertheless, if the error are heteroskedastic this can be cor-

rected by modelling this directly. However, in the application at hand heteroskedasticity is not a problematic. The tests for heteroskedasticity are presented in Appendix C. As it can be seen from Figure C.1, there are relatively few reasons to doubt that the assumption of heteroskedasticity is violated.

The second assumption cannot be checked so easily. It implies that the same data generation process that determines the censoring is the one that determines the outcome variable (Long 1997). Kennedy (2011: 264) argues that this assumption in some cases is problematic. In this example we must be willing to assume that there are the same mechanisms that determine the overall agreement level in the European Parliament as those that determine absolute agreement.

The Tobit model, or censored regression model uses the information provided by censoring and provides consistent estimates of the parameters (Long 1997: 189). I have used the `AER` and `VGAM` packages in `R` in order to estimate the Tobit models presented in the next chapters. The results of the models are identical when using the two libraries. For robustness checks I have estimated fixed and random effects linear models. These models are presented and discussed in Chapter 4 and 5, respectively.

3.6 How does the Tobit model work?

Using the typology from Wooldridge (2002: 517-520) the applications of censored regression models can be divided into two categories. First, when the dependent variable y^* is observed for the entire sample but is censored below or above a value and secondly when we are interested in the features of the distribution of y (Wooldridge 2002: 517-520). The latter approach is closer to the application in this thesis. Nevertheless, such uses of tobit models have been criticized, for example by Sigelman and Zeng (1999).

Before proceeding to estimating a tobit model, let us look at the structural characteristics of the model. The equation of the tobit model is presented in Equation 3.6 (Wooldridge 2002: 517-520). Where y* is the latent variable that is observed for values that are larger than τ and otherwise censored. The error term has a normal distribution given by $\epsilon_i \sim N(0, \sigma^2)$.

$$y_i^* = X_i\beta + \epsilon_i \tag{3.6}$$

In order to reach the log-likelihood function, the standard likelihood function for censored normal distributions is used, where τ is the censoring point (Wooldridge 2002). The log-likelihood for a standard tobit model is presented in Equation 3.7 (Wooldridge 2002). The log-likelihood function of the tobit model is composed of two parts. The first part corresponds to a standard regression which does not account for censored observations (Wooldridge 2002). The latter part deals with the relative probabilities that an observation is censored.

$$ln(L) = \sum_{i=1}^{N} \left\{ d_i \left(-ln(\sigma) + ln(\phi) \left(\frac{y_i - X_i\beta}{\sigma} \right) \right) \left(1 - d_i \, ln \left(1 - \Phi \frac{X_i\beta}{\sigma} \right) \right) \right\} \tag{3.7}$$

Given the structure of the model we get three types of coefficients, nevertheless there seems to be little agreement on what is best to report (Greene 2003: 764, Wooldridge 2002: 520). First, we have the expected value of the latent variable (y*), secondly of y|y > = 0 and lastly the expected value of y. According to Greene (2003: 764) if the data is always censored there is little point in reporting the coefficients for the latent variable. In the case of the analysis at hand the data is not always censored, in fact there are few right-censored observations, namely between 1 and 5 depending on the specification of the dependent variable. Because there are relatively few censored observations and the effect on the latent variable is what is of interest, the mean effect of y* is what will be reported. This is in accordance with Greene (2003: 764).

Wooldridge (2002: 572) recommends to report the coefficients and their respective standard error. This is reported in the tables in Chapter 4. When it comes to the interpretation of the model, it should be interpreted as if there was no censoring in the data (Wooldridge 2002: 572). The reason for this is that the "population model is a linear conditional mean" Wooldridge (2002: 572). The conditional mean assumption implies that information about the expected value of the disturbances is not contained by **x** (Greene 2003: 14).

Given the formal structure of the tobit model one can also extract three different types of marginal effects. Just as in the case of expected values we retrieve the same three types of marginal effects. First we have the marginal effects on y*, thereafter those for values of y for uncensored observations and those for both censored and uncensored observations Wooldridge (2002). Yet, are these effects of interest? Given the application at hand marginal interests are not of substantial interest. There are few data points that are censored, and there are also limited theoretical reasons for which these would be of interest.

3.7 Linearity?

There are several very good reasons why a tobit model, or other linear specifications are optimal given the data and variables at hand. Nevertheless such estimations make a very stark assumption, namely that the relation between the dependent variable and the independent ones is linear. Given the similarities between the dependent variables I choose to present the tests only for the Agreement Index (AI). There are only minor changes in the results when we test for the other specifications of the dependent variable.

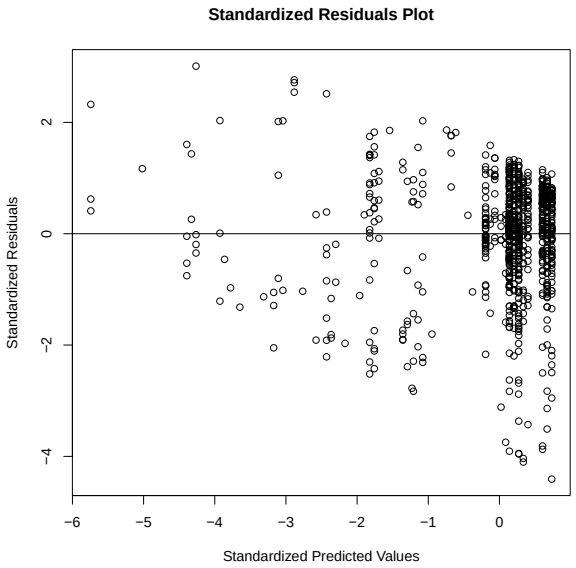


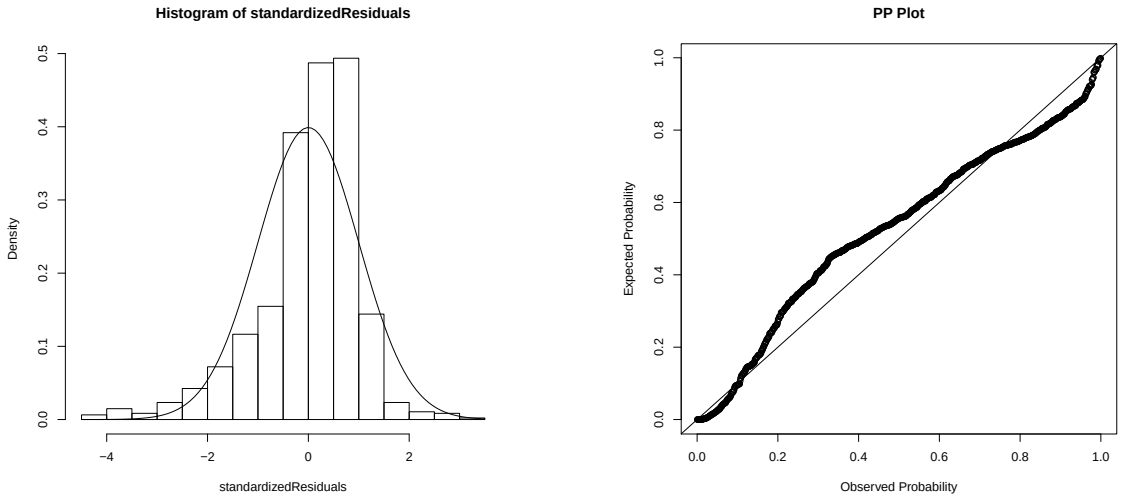
Figure 3.1: Standardized residuals vs. predicted values for the AI tobit model

First, in order to check for linearity a model needs to be estimated. The model tested in this section is the one presented in Section 4.5 and specifically in Table 4.5. There are several ways of assessing linearity in a model, I will start by first looking at the residuals versus the predicted values. This is presented in Figure 3.1.

The linearity assumption is supported in this case as long as amount of observations below and above the 0 line are relatively equally distributed. In this case it can be argued that they are relatively equally distributed, but the relationship is not perfect. Values that are located close to the 0 line are relatively well predicted. In this case the main concentration of points is around 0 for high values on the dependent variable. It has to be noted that there are some points which are under-predicted and some that are over-predicted. The further away an observation from 0 in a negative direction, it is more over predicted. Observations that have positive standardized residuals are more over predicted. Influential observations will be discussed in Chapter 5 of this thesis. Generally, the model is more likely to under-predict legislative unity.

Another assumption of linearity is the homogeneity of variance. This can also be assessed from Figure 3.1, by evaluating whether the vertical scatter of the points is similar, or ideally the same across all values of the standardized predicted values. In this case there seem to be only some problems of homogeneity of variance. Figure 3.1 shows that the model is better at predicting higher levels of legislative unity. Yet, they are not so grave that a linear approach should be dropped.

Furthermore, we need to assess whether the residuals are normally distributed, a histogram is presented in Figure 3.2a. The interpretation of this figure is straightforward, it the better the histogram matches the normal distribution, the more normally distributed the residuals. Again, in this case perfection is not reached, nevertheless, it can be argued



(a) Distribution of residuals

(b) PP Plot

Figure 3.2: Test of normal distribution for residuals

that the distribution at least resembles a normal distribution.

Another way of evaluating this is by looking at the PP Plot, which is also presented in Figure 3.2b. Overall, it can be argued that the data is relatively well-behaved, yet the relation is not perfectly linear. As highlighted by Greene (2003: 11), linearity doesn't necessarily denote the relationship between the variables, but the way in which parameters and their disturbances enter the equation. In most cases, this assumption is not restrictive (Greene 2003: 14). On a final note, the assumptions regarding the data generation process for the regressors, namely "$\mathbf{x}$ may be fixed or random, but it is generated by a mechanism that is unrelated to ϵ" (Greene 2003: 17) is relatively unproblematic in this application.

Albeit some minor concerns, the assumptions for linear regression models hold relatively well, even if the relationship between the dependent variables and the independent ones is not perfectly linear.

3.8 Summary

In order to test the theoretical implications I have collected data on all final votes taken in the European Parliament in the period 14.09.2009 - 14.03.2013. The data was collected from publically available sources and represents a first attempt to code the budgetary implications of bills voted upon in the European Parliament in the above mentioned period. The datasets encompasses information about the type of bill, and its budgetary implication, how legislators voted and the rapporteurs and their respective parties for each case. A full overview of the variables is presented in Table 3.1.

A bill is considered to have a budgetary implication when it enactment changes the existing budgetary status quo, as discussed in Section 3.2.1. Legislative unity is opreta-

tionalized by employing the standard RICE index Rice (1924) and the Agreement index as developed by Hix, Noury and Roland (2005). In order to address the caveats of these approaches I have constructed two modified version. The robustness of the results over these various operationalizations should serve as an indication that the relationship is not only dependent on the operationalization of legislative cohesion. Party positions are used a proxy for ideology. Sections 3.5 and 3.6 address the choice of model. As the dependent variable is right-censored the optimal model is a tobit. The assumption of linearity is tested in Section 3.7, despite some minor caveats, the assumption is not overall problematic.

Chapter 4

Results

In this chapter, I shall first present the descriptive statistics for the variables included in the model. Thereafter, a short discussion of simple bivariate correlations of substantial interest is undertaken. The results from a standard OLS model are presented in order to evaluate the results in the presence of controls. Given the structural form and the fact that it does not account for censoring the OLS models have, the substantial interpretation will be succinct. Hypothesis 1 is tested in Section 4.4. The main body of this chapter encompasses the results of the Tobit regression models, their substantial implications, in other words the empirical tests of Hypothesis 2 and 3. A closer discussion of the interaction between budgetary implications and defection on behalf of the party of the rapporteur is presented in Sections 4.6 and 4.6.1. Lastly, a discussion of the observations with most leverage on the results is presented in Section 4.7.

4.1 Descriptive statistics

The descriptive statistics for the variables to be included in the main statistical models are presented in Table 4.1. The dependent variables which capture legislative unity, as discussed in Section 3.3, are continuous. The Agreement Index ranges from 0 to 1. Where 0 denotes the no legislative unity, while 1 denotes perfect legislative unity. The value 0 is attained when an equal number of legislators vote yes, no and abstain, while 1 when all the legislators vote either yes, no or abstain. The RICE index reaches its minimum value when half of the legislators vote yes and the other half vote no, and its maximum when all the legislators vote either yes or no.

The independent variables in this models are all categorical. Given the nature of the concepts these variables aim to capture, it is only natural to operationalize them as such. For example, a bill either has, or does not have budgetary implications. Yet, there is one exception. The number of terms served by the lead rapporteur, which is a continuous variable.

Table 4.1: Descriptive statistics

	Mean	SD	Min	Max	Missing
AI	0.76	0.19	0.12	1.00	0.00
AIn	0.67	0.18	0.03	0.95	0.00
RICE	0.68	0.42	-0.97	1.00	0.00
RICEabs	0.61	0.41	-0.97	1.00	0.00
Budgetary implication	0.18	0.38	0.00	1.00	2.00
Legislation	0.38	0.48	0.00	1.00	0.00
No. Terms of rapporteur	1.82	0.83	1.00	5.00	253.00
Defection	0.08	0.27	0.00	1.00	0.00
EPP dummy	0.95	0.23	0.00	1.00	0.00

We see that none of the dependent variables reach their minimum value, but for instance AI, and RICE reach their maximum value, highlighting the issues of right-censoring discussed in Section 3.5. At the same time, all the specifications of the dependent variables reach values close the maximum points. This indicates that a tobit model is an appropriate way to deal with this type of a dependent variable, as it is right-censored. In the next section, I will look at bivariate correlations and thereafter, despite the censoring issues I will estimate OLS models and evaluate how the relationship changes in the presence of controls.

4.2 Bivariate Correlations

Bivariate correlations highlight the patterns present in the data, therefore I will start by assessing the simple correlations between the co-variates and the dependent variables. There are two reasons for presenting such an analysis, firstly for the intrinsic interests of the patterns present in the data and secondly as a check for the regression models estimated. It is problematic to base a large amount of substantial interpretation on bivariate correlations, other than a check for the presence of correlations and expected the regression results.

Table 4.2: Bivariate correlations for the variables of substantial interest

	AI	AIn	RICE	RICEabs	Budget	Legislative	No. Terms	Defection	EPP
AI	1.000	0.878	0.657	0.712	0.003	0.204	0.062	-0.422	0.409
AIn	0.878	1.000	0.696	0.734	-0.004	0.218	0.086	-0.365	0.379
RICE	0.657	0.696	1.000	0.982	0.007	0.120	0.057	-0.300	0.270
RICEabs	0.712	0.734	0.982	1.000	-0.005	0.130	0.044	-0.309	0.277
Budget	0.003	-0.004	0.007	-0.005	1.000	0.189	-0.034	-0.013	0.030
Legislative	0.204	0.218	0.120	0.130	0.189	1.000	0.115	-0.078	0.077
No. Terms	0.062	0.086	0.057	0.044	-0.034	0.115	1.000	-0.006	0.018
Defection	-0.422	-0.365	-0.300	-0.309	-0.013	-0.078	-0.006	1.000	-0.275
EPP	0.409	0.379	0.270	0.277	0.030	0.077	0.018	-0.275	1.000

The bivariate correlations are presented in Table 4.2. They give one a measure of the relationship between two variables and ranges from -1 to 1 (Hellevik 2006: 236-242).

The closer the correlation to ±1, the stronger the relation. It can be seen that all the independent variables have a degree of correlation with the dependent ones. It seems that budgetary implications are weakly correlated with the Agreement Index and its modified version which includes those that did not vote. Furthermore, the direction of the relationship changes. There is a small negative correlation between AIn, and RICEabs and budgetary implications. Between AI, and RICE and budgetary implications the correlation is positive. As discussed in Chapter 2, the impact of budgetary implication is dependent on the existent level of polarization within the European Parliament. However, this does not imply that the relationship is non-existent or not significant. The weakness of bivariate correlation is that they do not control for the presence of other factors that might in turn affect the relationship. In order to determine the true nature of the relationship, or whether it is a mere artifact of statistical modelling, further tests are needed. That there is a certain level of correlation between the independent variables means that they all have to be included in the model in order to avoid bias in the estimates. As it can be seen from Table 4.2 multicollinearity is not a problem in this case.

At the same time the bivariate correlations help us asses the relationship between the various specifications of the dependent variables. There is a 87.8% correlation between the Agreement Index as proposed by Hix, Noury and Roland (2005) and the modified version, AIn. The high correlation implies that the two indices measure almost the same thing. That they are not perfectly correlated implies that the concepts captured are slightly different. This explanation is analogous for RICE and RICEabs. The bivariate correlation between the RICE index and the modified version of RICE that accounts for abstentions is even higher. A correlation of 0.982, implies that they almost capture the same concept.

The relationship between the Agreement Index and the RICE index is presented in Figure 4.1. It illustrates that the relationship is linear. Most of the data points are clustered around the value 1, indicating a high level of agreement within the European Parliament. The correlation between the AI and RICE is of only 0.657. This is expected as the two measure slightly different theoretical concepts and deal with abstentions in different ways. The Agreement Index deals with abstentions as a new category, equally important to yes and no votes, whereas RICE completely ignores abstentions. Solely based on the bivariate correlation one can expect to a certain extent that the effect of budgetary implications is likely to differ across the different specifications of the dependent variable. However, when the nature of the data is accounted for, the relationship stabilizes as discussed in the following sections.

Let us take a closer look at scatter plot between the AI unity measure and the RICE index, presented in Figure 4.1. As the relationship between the two indices is linear, observations that attain high values on one, will most likely attain high on the other. We notice that there is a lot of clustering around the 1 region, while there are fewer

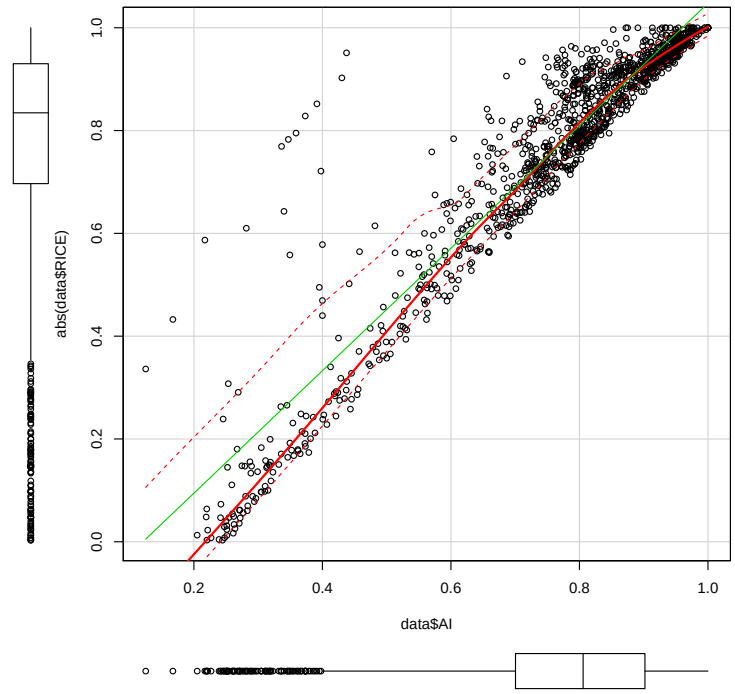


Figure 4.1: Scatter plot between AI and RICE index

observations that attain minimum values. This supports the theoretical consensus that the European Parliament is a united legislative body. It seems that also in the current European Parliament, legislators tend to agree and vote in a similar fashion.

Furthermore, there are several observations that tend to receive lower scores on AI than compared to RICE. One explanation for this is that the Agreement index deals with abstentions, while the RICE index ignores them. Thus, cases with a large number of abstentions will receive a different score on AI on RICE. One example of this is in the case of "Exclusion of certain countries from trade preferences", which is a draft legislative resolution voted upon by co-decision. In this case, namely A7-0207/2012, 322 legislators votes for, 78 against, while 218 abstained. The AI score is of 0.28 which is considerably lower than the RICE score of 0.42.

Arguably, AI and RICE are likely to over-report legislative cohesion while their respective modified versions under-report it. In order to determine whether the results are dependent on the specification of the dependent variable I will estimate all the regressions with these various specifications of legislative unity. Obtaining similar results across these various model specifications can be seen as convincing evidence that the results are not dependent on the measure of cohesion used. At the same time, using diverse specifications of the dependent variable is a good way of dealing with the issue of under or over reporting legislative cohesion by setting different constraints on certain categories.

There is one problematic aspect that remains, namely dealing with those that were

present but did not vote. There are no theoretical reasons to assume anything about this group. Not voting can either be a random event. For example, legislator X had a meeting to attend at the time of the vote. At the same, not voting can be a strategic decision. One example of this could be that legislator Y is against a proposal, but does not want to defect, and hence decides not to vote. As discussed in Section 3.3 I choose to include those that were present, but did not vote in AIn.

There are few, if any accurate ways of empirically testing whether the reason for not voting is strategic or simple random. Making stalk assumptions about what not voting means would only increase the distance between the theoretical and the empirical models. One such assumption is made, namely I have assumed that those that did not vote are equally important as abstentions. This is incorporated by the AIn. As there are no theoretical reasons to exclude those that did not vote, I have incorporated this this constraint on the AI. AIn can serve as a test of how much the results are driven by those that did not vote. Despite this change AIn remains relatively highly correlated with RICE (0.87), with RICEabs (0.73), and AI (0.87).

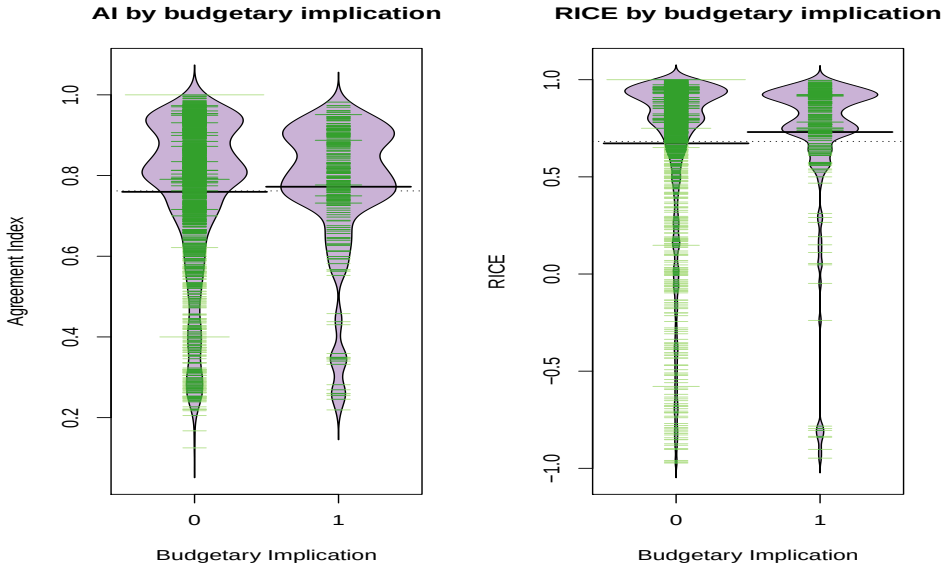


Figure 4.2: Party unity by budgetary implication. The green lines illustrate individual observations, while the purple area shows the distribution.

An alternative way of displaying bivariate correlation between two variables of substantial interest is by looking at bean plots. Bean plots are a version of box plots, which unlike box plots reveal the true form of the density, therefore making them more informative. The polygon represents the shape of the density, while the short horizontal lines represent each data point (Kampstra et al. 2008). The data points that are duplicates are represented by longer thin horizontal lines (Kampstra et al. 2008). The long thicker horizontal lines represent the mean of each distribution (Kampstra et al. 2008).

For the Agreement Index the distribution of no budgetary implication is slightly dif-

ferent than that of budgetary implications, therefore it can be argued that there is a relation between the two. When it comes to other dependent variables we see a similar pattern, the means of the two distributions vary. Without controlling for other factors it seems that budgetary implications increase legislative cohesion in both the case of AI and RICE, while they decrease it for AIn and RICEabs. One possible reason is that bivariate correlations fail to account for the initial level of polarization. Although offering some evidence for the proposition that budgetary implications affect legislative unity, any firm conclusions require moving beyond these bivariate plots. Furthermore, the relationship is expected to change in the presence of controls. In the next section, I will proceed to present the results from the OLS regression model and discuss briefly how the relationship of interests changes in the presence of controls.

4.3 OLS Regression Results

In order to facilitate interpretation I first estimate standard OLS-regression models disregarding the censoring issues of the dependent variable. In terms of magnitude and implicitly significance the results are likely to be biased, as discussed in section 3.5. It is still interesting to examine the results even if we fail to account for the nature of the data. As can be seen from Table 4.3, the OLS results provide some preliminary support for the hypothesized relationship.

Firstly, when no interaction is assumed between the defection by the party of the rapporteur and budgetary implication we see that budgetary implications have an overall negative effect on legislative cohesion, yet the coefficient is not significant. In other words, in the absence of controls for the initial level of polarization budgetary implications does not affect legislative unity. Despite this caveat, the interesting theoretical relationship is for cases where there is a higher level of polarization. As discussed in Section 2.3, one way of studying this more in depth is to set up an interaction between defection by the party of the rapporteur and budgetary implications. This is presented in Table 4.3 in models (2) - (5).

Once this interaction is in place, the coefficient for budgetary implications remains negative, but gains significance. This implies that in the case of OLS, the effect of budgetary implication is not strong enough to have an impact on its own on legislative cohesion, indicating perhaps that there is not enough variation in the data. Nonetheless, when the interaction is removed for tobit model specifications budgetary implications retain their significance, as presented in Appendix B, in Table B.1. In this case the models have been estimated on all types of votes, we see that legislative bills increase the overall legislative unity in the plenary. Therefore, it can be argued that legislators value legislative proposals higher than resolutions, as they have a tendency to be more cohesive on such votes. At the same time, parties are more likely to exert party pressure

Table 4.3: OLS Models

	Dependent variable:				
	AI		AIn	absRICE	abs(RICEabs)
	(1)	(2)	(3)	(4)	(5)
Budget	−0.018	−0.034***	−0.035***	−0.027*	−0.036**
	(0.011)	(0.012)	(0.012)	(0.014)	(0.015)
Result	0.150***	0.139***	0.211***	0.150***	0.052*
	(0.022)	(0.022)	(0.022)	(0.027)	(0.028)
Legislative	0.050***	0.048***	0.054***	0.056***	0.067***
	(0.009)	(0.009)	(0.009)	(0.012)	(0.012)
No. Terms	0.007	0.007	0.011**	0.013**	0.006
	(0.006)	(0.005)	(0.005)	(0.007)	(0.007)
Defection	−0.165***	−0.202***	−0.157***	−0.270***	−0.274***
	(0.016)	(0.018)	(0.018)	(0.022)	(0.023)
EPP dummy	0.268***	0.265***	0.240***	0.347***	0.338***
	(0.023)	(0.023)	(0.023)	(0.029)	(0.030)
Budget:Defection		0.177***	0.139***	0.261***	0.229***
		(0.038)	(0.038)	(0.046)	(0.049)
Constant	0.361***	0.381***	0.221***	0.284***	0.326***
	(0.032)	(0.032)	(0.032)	(0.039)	(0.041)
Observations	944	944	944	944	944
R^2	0.343	0.358	0.343	0.377	0.330
Adjusted R^2	0.338	0.353	0.338	0.373	0.325
Residual Std. Error	0.140($df = 937$)	0.138($df = 936$)	0.139($df = 936$)	0.171($df = 936$)	0.180($df = 936$)
Note:					*p<0.1; **p<0.05; ***p<0.01

on the legislators on these types of votes. Legislative proposals can alter the existing status-quo, which compared to resolutions, which in many cases can be conceptualized as policy statements. The number of terms served by the lead rapporteur has a positive impact on legislative unity only in models (3) and (4).

It is worth noticing that despite the different specifications of the dependent variable the results do not change much in terms of significance and direction. This implies that regardless of the way in which we deal with abstentions, or even when we include the legislators that did not vote, the results remain robust. There is one exception – the coefficient which controls for the number of terms the lead rapporteur has served loses significance in the AI model. The number of terms served by the lead rapporteur is has a small positive impact on overall legislative cohesion in models (3) - (5). Overall, the coefficients for seniority, even if positive, remain weak in the OLS models. The evidence about the impact of seniority in the literature have been split. Yet, given the size of these coefficients and the possible bias in OLS estimation I will explore their impact further in the Section 4.5.

In general, defections by the party of the rapporteur are rare, with a total of 97 defections in this period. Nevertheless, when we use the Agreement Index and its modified version as a dependent variable, the coefficient is significant and has a negative impact

on the overall cohesion, when there are no budgetary implications. The relation does not change much for RICE and its modified version. In the cases where there is no defection by the party of the rapporteur budgetary implications will have a negative impact on the overall cohesion. For example in the case of AI, legislative unity will decrease with 3.4% and for RICE with 2.8%.

The interaction term between budgetary implication and the defection by the party of rapporteur is positive. This implies that defection by the party of rapporteur does not decrease cohesiveness for cases with budgetary implication. On the other hand, the effect of budgetary implications has a negative impact on cohesion for cases where there is no such defection. As presented in Section 2.3, there are several substantial ways of understanding this relation, yet given the problems of model estimation a check of robustness might be needed before proceeding to substantial conclusions on the empirical tests.

When it comes to the control variables, the result of the vote and the presence of the largest party in the winning coalition we see that both have a positive impact on legislative cohesiveness. As discussed in Section 3.5, the results from the OLS models are to be interpreted with caution as they from a statistical standpoint per definition are biased. In the next section, I will present simple logit models with result as the dependent variable in order to test the first hypothesis. Thereafter, I shall proceed to a discussion of the tobit models, which account for the censoring of the dependent variable. Towards the end of the chapter, after a discussion of the substantial results, and a discussion of influential observation is undertaken in order to check whether the results obtained are only driven by a small number of cases.

4.4 Cohesion, not rejection

The first hypothesized relationship is that budgetary implications do not affect the failure or passage of a bill. In order to test this proposition I have estimated a simple logit with the outcome of the vote as the dependent variable and the remainder of the co-variates as independent. I have included, in successive models, the AI, AIn, RICE and RICEabs as controls for cohesion. The results are presented in Table 4.4. Removing the controls for cohesion does not alter the results substantially.

The outcome of the vote is affected by other factors, and not by budgetary implications. The results show that the defection by the party of the rapporteur reduces the changes for a passed bill, while the presence the European People's Party in the winning coalition increases the chances of passage for a bill. However, EPP is the largest party, and represents around $\sim$ 36 % of the legislative. Arguably, there are other factors that might predict the outcome of the vote, yet they are outside the theoretical realm of this thesis.

Table 4.4: Logit models with outcome of the vote as the dependent variable

	Dependent variable:			
	Outcome of the vote			
	(1)	(2)	(3)	(4)
Budget	0.111	0.128	−0.022	−0.316
	(0.414)	(0.414)	(0.420)	(0.435)
AI	−0.412			
	(0.879)			
AIn		0.602		
		(1.101)		
RICE			−2.408***	
			(0.564)	
RICEabs				−4.602***
				(0.684)
Legislative	0.186	0.120	0.406	0.682*
	(0.339)	(0.341)	(0.347)	(0.365)
No. Terms	0.066	0.051	0.145	0.164
	(0.189)	(0.189)	(0.192)	(0.198)
Defection	−1.313***	−1.265***	−1.356***	−1.309***
	(0.379)	(0.378)	(0.388)	(0.408)
EPP Dummy	0.952*	0.883*	1.131**	0.771
	(0.503)	(0.501)	(0.510)	(0.526)
Constant	2.332***	2.101***	2.861***	3.834***
	(0.663)	(0.641)	(0.637)	(0.695)
Observations	944	944	944	944
Log likelihood	−167.575	−167.531	−158.284	−143.132
Akaike Inf. Crit.	349.149	349.061	330.567	300.264
Note:				*p<0.1; **p<0.05; ***p<0.01

Claiming that budgetary implications have an effect on the failure or passage of a bill would be theoretically inconsistent. In order to better illustrate this, let us focus on a hypothetical example. We have a set of legislators A, B, C and D, which all have equal voting rights. Assume that A, B and C desire a costly legislation, while D does not. In order for A, B and C to be rational to desire such a legislation they must be willing to internalize its costs, despite opposition from D. If they would not have been willing to do so, it would not have been rational for them to desire the set legislation in the first place.

The example above illustrates another aspect, that as long as there is a high enough number of legislators that desire a costly bill, they are more likely to focus on insuring that necessary majority is in place before reaching the final stage of the negotiations and

tolerate strong disagreement from a minority. This section offers supportive evidence of Hypothesis 1. In other words, as discussed in Section 2.3 budgetary implications do not impact the passage or failure of a bill.

This section has illustrated one important substantial difference. There is no statistically significant relationship between budgetary implications and the failure or passage of a bill. In other words, budgetary implications have no effect on the passage or failure of a bill. This is supportive evidence of Hypothesis 1. Still, at the moment nothing can be said with certainty yet about the effect of budgetary implications on legislative unity. This is addressed in the next sections.

4.5 Tobit Regression Results

The failure to account for the censoring of the dependent variable leads to biased estimates, as discussed in Section 3.5. In order to correct for such bias, I estimate several tobit models, which differ in how the dependent variable is treated. As mentioned, a tobit model, unlike an OLS model, accounts for the right-censoring on the dependent variable. It is estimated via maximum likelihood. The potential problem with the OLS models estimated is that they are likely to underestimate the intercept while at the same time to overestimate the slope (Long 1997: 189). Given the small magnitude of the coefficients a wrongful estimation of the model might lead one to misleading conclusions about the significance and importance of the covariates, and thus of their substantial implications. Furthermore, using an OLS in these circumstances per definition creates omitted variable bias as discussed in Section 3.5. Therefore, Tobit models are estimated as an empirical test of the hypotheses presented in Section 2.3.

The models are estimated with four specifications of the dependent variable, legislative agreement. In short, the models show that budgetary implications in the absence of other polarizing factors, and defection on behalf of the party of the rapporteur in the absence of budgetary implications decrease legislative unity. When there is both defection and the bill has a budgetary implication legislative unity is increased. Furthermore, legislative bills – and in Models (2) and (3) also seniority – have positive effects on legislative unity. Using legislative agreement aggregated to the entire legislative has one down side, namely that it aggregates individual level data to the level of the entire legislature. Many nuances are lost in this aggregation process, making us unable to differentiate between defections from the European Party group, or from national parties.

Nevertheless, given the that budgetary implications have not been directly discussed in the literature on the European Parliament, I am more interested in defections in general, not necessarily their source. Differentiation between individual behaviour requires very detailed individual level data, which unfortunately is not available. Nevertheless, there is a way to circumvent this issue. No assumptions are made upon the effect of party

group pressure on MEPs. Recent evidence also shows that national parties are not likely to defect from the European counterpart (Nordkvelle 2012: 34). In only 3.76% of the cases the national party line defected from the European Level one (Nordkvelle 2012: 34). Therefore, not being able to differentiate between MEPs that defected from the European party line to support their national party, or vice-versa is not problematic.

The models are estimated on all the final votes, irrespective of type of vote taken in the European Parliament in the current session. The reason for this is that there are no theoretical reasons to expect that the effects will be stronger or absent on some types, while they will be present on other types of votes. There has been a debate in the field in how the type of procedure affects the behaviour of legislators and the Parliament's power relative to the other institutions within the European Union (Crombez 1996; 1997; 2000, Tsebelis 1994, Tsebelis and Garrett 2000). This approach has offered important insights in how the European Parliament functions. It has explained the relative power of EPGs and has aided research aimed at understanding the dimensionality of this institution. However, in the post-Lisbon setting co-decision II became the ordinary legislative procedure. This implies that variations in the procedural aspects have become so sparse that in the context of the current European Parliament such an approach has become moribund.

The tobit regression results are presented in Table 4.5. Firstly, I estimate a model with the Agreement Index as the dependent variable, thereafter with AIn, its modified version. In order to check whether the results are dependent on the measure of legislative unity employed the tobit regression is also estimated with RICE and RICEabs. In order to capture the theoretical argument that the effect of budgetary implications is dependent on the initial level of polarization, I set up an interaction between budgetary implications and defection by the party of the rapporteur. The models further control for the result of the vote, whether the bill was a legislation, or a resolution, the number of terms served by the lead rapporteur, and whether EPP was in the winning coalition. Below, I will proceed to the interpretation of the results. Overall, given the significance and magnitude of the scaling parameter, σ, tobit model specifications are a significant improvement from OLS, as they account for the censoring on the dependent variable.

The Agreement Index takes values between 0 and 1, where 0 represents the lowest level of agreement possible. In other words, when for example 100 vote yes, 100 vote no and 100 abstain AI will be 0. Let us focus on the results when we disregard those that were present but did not vote. In this case the lowest score on AI is reached in the case of " Motions for resolutions - G-20 Summit in Pittsburgh", voted upon on 08.10.2009 where 158 legislators voted yes, 318 no, while 164 abstained. The agreement score for case, B7-0086/2009 is 0.125. It might be surprising that the highest level of disagreement is reached on a resolution. One way of understanding this is the that the conclusions of the G-20 summit in Pittsburgh led to substantial implications for the regulation of

Table 4.5: Tobit models with different specifications of the dependent variable

	Dependent variable:			
	AI	AIn	abs(RICE)	abs(RICEabs)
	(1)	(2)	(3)	(4)
Budget	-0.034^{***}	-0.035^{***}	-0.028^{*}	-0.036^{**}
	(0.012)	(0.012)	(0.014)	(0.015)
Result	0.139^{***}	0.211^{***}	0.150^{***}	0.052^{*}
	(0.022)	(0.022)	(0.027)	(0.028)
Legislative	0.048^{***}	0.054^{***}	0.057^{***}	0.067^{***}
	(0.009)	(0.009)	(0.012)	(0.012)
No. Terms	0.007	0.011^{**}	0.014^{**}	0.006
	(0.005)	(0.005)	(0.007)	(0.007)
Defection	-0.202^{***}	-0.157^{***}	-0.271^{***}	-0.274^{***}
	(0.018)	(0.018)	(0.022)	(0.023)
EPP dummy	0.265^{***}	0.240^{***}	0.347^{***}	0.338^{***}
	(0.023)	(0.023)	(0.029)	(0.030)
Budget:Defection	0.177^{***}	0.139^{***}	0.261^{***}	0.229^{***}
	(0.038)	(0.038)	(0.046)	(0.049)
Constant	0.381^{***}	0.221^{***}	0.284^{***}	0.326^{***}
	(0.032)	(0.032)	(0.039)	(0.041)
σ	-1.981^{***}	-1.975^{***}	-1.768^{***}	-1.717^{***}
	(0.023)	(0.023)	(0.023)	(0.023)
Observations	944	944	944	944
Log likelihood	529.119	525.504	325.851	280.819
Wald Test (df = 7)	525.511^{***}	493.260^{***}	570.476^{***}	464.899^{***}
Note:				*p<0.1; **p<0.05; ***p<0.01

financial markets in the European Union, while at the same time the summit increased the external pressure on the EU as a whole to increase regulation on the financial markets and hinder further losses because of the financial crisis. Additionally, given the timing there was a lot of pressure on legislators from their national constituencies and perhaps governments. The low level of agreement is easy to understand in this case.

The results from the tobit models show that legislators are more inclined to reach a grand coalition in absolute terms [1] when they vote over legislation compared to resolutions. As a large part of the literature has argued, it seems that legislators place more importance on legislative proposals than on resolutions. The costs are lower for legislators to disagree on resolutions and set up working bodies on the task or area, than to fail to agree on legislation. If legislation is failed in the first reading, an absolute majority is

[1] and not in terms of how many parties vote

required to pass it in the second reading (Hix and Høyland 2011), thus creating several procedural effects. These effects produce an extra incentive for legislators to present a cohesive behaviour in the first reading in the plenary.

One possible explanation is that legislative proposals bear greater importance compared to resolutions, which can be considered as mere policy statements. Legislative proposals can in certain cases radically change the existing legislation in a country or at the European level. Furthermore, given either the difficulty, at least in terms of procedural aspects, or the length of time necessary, European Party Groups, and maybe even national ones may increase the constraints placed on legislators. Such arguments are supported by the tobit models presented in this section. The effect of legislative proposals is small, yet significant at the 1% level and robust over the different operationalizations of legislative unity.

The argument that legislators that have served more terms gain leeway and are able to create a more cohesive behaviour in the European Parliament is only partly supported. The evidence in the literature has been mixed so far, as they are from this model specification. The coefficients for seniority are small, and they are only significant at the 5% level in the AIn and RICE. The number of terms can also be conceptualized as a proxy for legislative leverage of certain MEPs. It might be that the position and reputation of these legislators aid them when leading discussions within the European Parliament.

Scarrow (1997) shows that the European Parliament seems to attract members with long-standing careers in the national politics. It can be argued that this implies that senior legislators are able to forge a higher level of cohesion within their national delegations as well, given their prestige and reputation. McElroy (2006: 14) finds that both experience and expertise are important factors that determine the committee allocation of MEPs. Her findings are contrasting to those of Bowler and Farrell (1995). The finding can be extrapolated to legislative unity. Yet, caution is advised when arguing that rapporteurs which served more than one term have a positive effect on legislative unity, as this finding is supported by only two of the four models presented. This finding is further explored in the Robustness chapter, where it is shown that its significance is dependent on model specification.

The presence of EPP in the winning coalition also has a moderate positive effect on legislative unity. The result is robust across the different specifications of the dependent variable. Unlike seniority, the magnitude of the effect is relatively larger, varying between 0.240 in the AIn model and 0.347 in the RICE specification. The finding is significant at the 1% level. In the 7^{th} European Parliament the European People's Party is the largest group with 270 members. If all the members of the European People's Party would vote for a proposal, that would represented $\sim 36.7\%$ of the votes. Conversely, if the European Party does not support a bill, it is much harder to the remaining parties to force a grand coalition, as parties on the Left side of the political spectrum, and Center would have

to collaborate with those on the far Right. This positive effect is not surprising, yet at the same time it highlights the importance of including a control for the largest party within the European Parliament. Alongside, the interaction of substantial interest this is perhaps one of the most robust finding. The effect of party positions is further explored in Section 5.2.

Largely, the results remain robust regardless of the specification of the dependent variable in terms of direction and statistical significance, with the exception of seniority. This finding provides us with some indication that the results are not so dependent on the measure of cohesiveness used. More specifically, regardless of the way we deal with abstentions, and even when we include those that did not vote the results remained relatively unchanged in terms of direction, relative magnitude, and significance.

The theoretical section of this thesis has mainly focused on the effect of budgetary implications on legislative unity. There are only 210 bills with budgetary implications that exceed the existing framework. In other words, in only $\sim 17\%$ of the cases legislators voted upon bills with such implications. As we have seen in the previous section, budgetary implications do not have an impact on failure or passage. Given the theoretical framework employed this finding is expected. However, as discussed the impact of budgetary implications is dependent on the initial level of polarization. In order to capture this an interaction term is set up between budgetary implications and defection by the party of the rapporteur. This will enable one to see how the effect of budgetary implications varies in the absence of other polarizing factors, compared to cases where there is a known level of disagreement. Even if legislative unity is observed at the same time as defection, defection is decided before the actual moment of the vote. Further endogenity issues are discussed in section 5.1.

Using defection as a proxy for legislative polarization gives one a tool which enables her to study this effect more in-depth. Both budgetary implications and defections seem to be relatively rare events. When there is no budgetary implication, defections of behalf of the party of the rapporteur have a negative effect on legislative unity. This effect is robust regardless of the specification of legislative unity. This implies that the effect is presented regardless of the way we deal with abstentions, or even when we include those legislators who did not vote. This is supportive of Hypothesis 3.

When there is no defection on behalf of the party of the rapporteur, budgetary implications have a small negative effect on the level of cohesion within the European Parliament. The effect is significant at the 1% level for AI and AIn, while at 5% for the modified version of RICE which accounts for abstentions, and only at the 10% level for RICE. The way in which we deal with abstentions does not only affect the significance or RICE, but also the magnitude of the coefficient. In the versions of the dependent variable that deal with abstentions, the magnitude of the effect of budgetary implications ranges between -0.034 and -0.036. Nonetheless, when abstentions are ignored, namely in the RICE model, the

effect is smaller, of only -0.028. This implies that legislators seem to prefer to abstain, on in some cases not to vote, rather than vote against the European Party Group's wishes.

In other words, European Party Groups seem to have a certain leverage over the behaviour of legislators. This leeway is not so strong that it deters individual members from expressing their own wishes, but they do it in such a way that it doesn't defy the party line, for example by abstaining on the respective vote. This is supportive evidence of the theoretical arguments presented in Section 2.3. The presence of this tendency does not imply that legislators are willing to alter their behaviour totally, or that they never defect, but merely that in certain cases they prefer to be soft-liners and abstain, instead of voting the opposite of their party. Hence, they aim at minimizing the potential costs of defection, while at the same time aiming at maximizing their power in the legislature.

These findings are supportive of the hypothesized relationship in the theoretical chapter. The coefficient of the interaction term is supportive of Hypothesis 3. The interaction term is robust and significant at the 1% level in all the four models presented in this section. This offers relatively convincing evidence that the coefficient is not only a matter of statistical randomness.

As negotiations are shifted to the committee level, and rapporteurs have a rather high leverage in the decision making process, the other legislators present at the case negotiations will know when the rapporteur, and implicitly her party, is likely to defect. Given that parties have accepted and constantly invest in appointing skillful rapporteurs it is likely that they will follow the position of the rapporteur, or in some cases there might simply be a split in this party. Knowing this, provides the other legislators, or even party groups with a very strong incentive to find other alliance partners and to try to induce a cohesive behaviour within the party at the time of the vote. Therefore, the observed overall cohesion will be higher in cases where legislators already have an incentive to disagree, namely cases with budgetary implications, and knowledge of a defection on behalf of the party of the rapporteur. This interaction is further explored in the two next sections.

In conclusion, the tobit models provide convincing evidence in favour of the hypothesized relationship. Firstly, the behaviour of individual members, is shaped, at least to a certain degree by budgetary implications. Secondly, these findings suggest that there may be an economic dimension of voting within the European Parliament. This highlights that the conclusions reached by (Fenno 1978) for the US Congress are highly relevant for the European Parliament and again show the similarities between the US Congress and the European Parliament.

This is further explored in section 3.4. So far it has been shown that, almost regardless of the way in which one deals with abstentions, and those that did not vote budgetary implications have a certain impact on legislative unity. The theoretical predictions presented in Hypothesis 2 are supported, at least to a certain degree. Furthermore, by only

looking the coefficients we see that budgetary implications seem to be more important also for bills where there is relatively little initial polarization. In order to further discuss whether the empirical results actually support Hypothesis 3, I will focus on the interaction term between budgetary implication and outcome of the vote in the next section.

4.6 Budgetary implications and defections

Figure 4.3 presents the interaction between bills where the party of the rapporteur was in the winning coalition versus those were it was not, with regards to their budgetary implications for the AI model. If the dependent variable is changed the changes in the plot are only minimal, given the small differences between the coefficients. The points represent the estimate, while the red lines represent the confidence interval of the estimate. The confidence interval for bills with defection and budgetary implications and defection is relatively large, given that there are few bills that fit in the category. Even so, the confidence intervals of the two terms do not overlap, supporting that the effect is statistically significant.

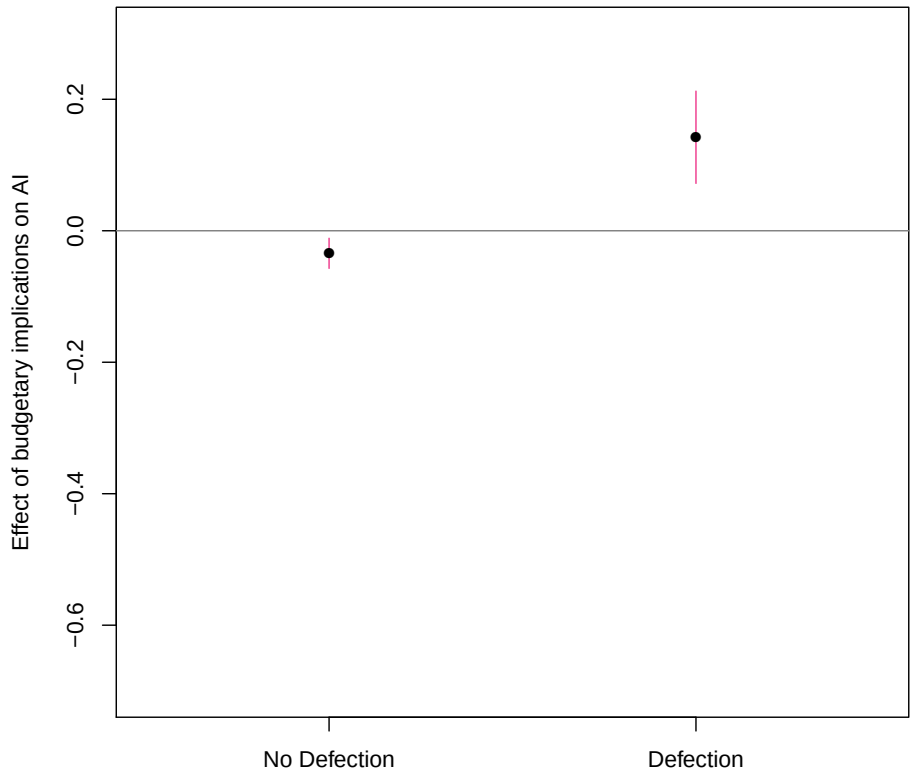


Figure 4.3: Interaction plot based on Model (1) showing the effect of budgetary implications for cases with and without defection on behalf of the party of the rapporteur

The importance of inherent characteristics of a bill has been largely neglected in the literature. As presented in Chapter 2, most of the work has focused on the type of procedure, ideology or in some cases the salience of the case as explanations for the voting behaviour in the plenary. The economic traits of a bill have been largely ignored for the European Parliament, and only recently studied for the Council. These results show that the budgetary implications have a significant impact on to cohesiveness in the European Parliament, even if their effect is small. This can be seen as a suggestion that there is an economic determinant of voting in the current European Parliament.

Figure 4.3 allows one to see how the effect of budgetary implications differs in two cases and to better link the empirical evidence to Hypothesis 2 and Hypothesis 3. In normal cases, where there is no evidence of disagreement in the negotiation phase before the vote, budgetary implications have a small negative effect on overall cohesion. Many of the bills coded in this period had a positive implication the communitary budget, therefore if the time series is extended to cover other sessions of the European Parliament we would expect to see a stronger effect, especially if it is differentiated between bills with a negative implication for the budget and those with a positive one.

Another way of looking at the mechanisms that lead to this effect is by focusing on successful negotiations at the committee stage and party pressure. When there is no defection on behalf of the party of the rapporteur, it is an indication that negotiations at the committee stage were relatively successful and that the bill is likely to have an acceptable level of support in the plenary. This proposition is in accordance with previous findings for example those of Neuhold (2001) and Yordanova (2009). As argued in Section 2.3, European Party Group leaders will in those situations have fewer incentives to enforce the party line in the plenary, therefore individual legislators, that still disagree with the agreed proposal are more likely to defect, either by voting against the party line or abstaining. In such cases it can argued that parties are less focused on legislative unity, and hence less likely to apply sanctions to legislators who defect. One possible explanation for this is that the leadership is to a large extent convinced of the passage of the bill, as they also rely on their alliance partners as well.

The opposite happens in cases where we have both budgetary implications and defection on behalf of the party of the rapporteur. Given the nature of the negotiation process before the plenary, European Party leadership will know that at least one party is likely to defect from the agreed consensus, either to support or to vote against the bill. Therefore, being convinced, at least to a certain extent, they will increase party pressure on legislators in those cases in order to insure the desired outcome in the final vote. Hence, we observe a higher level of legislative unity. If legislators value at least equally the goals of protecting the interests of their home constituency and those of insuring power in the legislative, they are less likely to defect in cases where there is increased party pressure, hence in cases where their behaviour might be sanctioned. In the next section I will

provide several case examples to better illustrate the mechanisms at work.

As I have noticed from coding the dataset, budgetary implications are not always detrimental to constituencies, sometimes they add increased revenue to the EU budget. In most cases, however, these budgetary implications make losers and beneficiaries easier to identify. Some of the bills that are covered in the dataset had a positive budgetary implication for the communitary budget, yet their impact was different from member state to member state depending on the existing regulation. Another reason for why this relationship may be observed and why the impact of budgetary implications is negative, yet weak on legislative unity. One potential explanation for this is that a large majority of the bills actually increase the revenue of the European Union. The evidence so far suggests that alongside the Left-Right ideological dimension that has been proved to drive votes in the plenary (Hix 2004, Hix, Noury and Roland 2007, Hix and Noury 2009) there are other mechanisms at work.

The apparently high level of cohesion in the European Parliament might be slightly more superficial than previously assumed. Looking at cases with budgetary implications might reveal new ways of moving beyond the surface and understanding the strategic choices legislators make in the European Parliament. Nonetheless, the plot presented in Figure 4.3 only presents the interaction term. Empirically it might be more interesting to look at the interaction term while setting various levels on the other covariates. A plot of simulated probabilities is presented and discussed in section 4.6.1.

4.6.1 Simulated Probabilities: Substantial difference?

It might be interesting to investigate whether the effects are strong enough to produce substantially different results. This is done in the simulation plots. The simulated effects for budgetary implications for bills where defection is present, and respectively for those without, are presented in Figure 4.4 and in Figure 4.5. Unlike the interaction plot, the simulated effects account for the effect of the other covariates present in the model. It produces random samples from the specified multivariate normal distribution. The distribution is given by the beta coefficients and the co-variance matrix of the model. 1000 random draws are taken in this case. The simulation shows that there is a substantial difference in cohesion also when other variables are taken into account and kept at median. At the same time, it allows one to grasp a more detailed picture of the interaction between budget and defection, which allows one to make more detailed inferences about the hypothesized relationship. The predicted cohesiveness does not change substantially when we only look at legislation and keep the rest of the coefficients at their mean values, of course with the exception of the interaction term.

For ease of interpretation, I choose to present the simulated probabilities as box plots. The box is bordered by the 25^{th} and 75^{th} quartile, while the dotted lines rep-

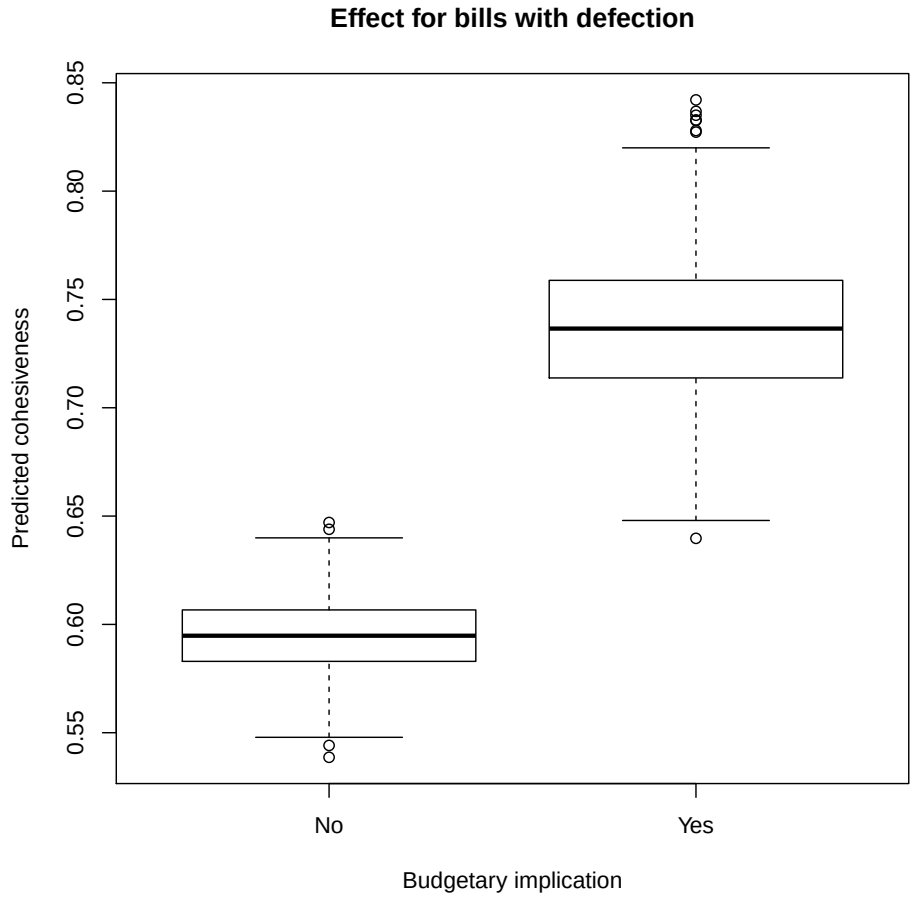


Figure 4.4: Simulated effect of budgetary implication for bills with defection when the other co-variates are kept at their median values, and EPP at 0

resent the "whiskers" and are bordered by the lowest and the highest values within the 1.5 * range(25^{th}, 75^{th} quartile). The small circles in the outskirts of the graph show the extreme values, or outliers. Outliers in this care not necessarily problematic, as they can be seen as an artifact of the algorithm used to randomly draw the distributions and hence of little substantial interest. The overall interpretation of the figure is the standard one of a box and whisker diagram.

In Figure 4.4 the effects of budgetary implications for bills where the party of the legislator defected is presented. When there is a defection, we see that the impact on predicted cohesiveness is positive. This is much smaller for bills without budgetary implications, compared to those which have such implications. This supports the theoretical arguments presented in the theoretical section of this thesis and shows that the relationship holds even in the presence of other co-variates. The mere defection of the party of the rapporteur, increases legislative unity, as the other parties get together to to insure that their most desired outcome will actually happen in the plenary, while at the same time they increase pressure on legislators. Therefore, European Party Groups are more likely to use their available "sticks and carrots" in order to insure that their legislators

will act in a cohesive manner in the plenary.

There is little doubt that cases where both budgetary implications are presented and there is a defection on behalf of the party of the rapporteur are important and even salient cases. In more general terms these cases usually have clearly identifiable losers and beneficiaries. Several examples of this are "Security of gas supply", "EU guarantee to the EIB against losses under loans and guarantees for projects outside the EU", "Temporary suspension of autonomous Common Customs Tariff duties on imports of certain industrial products into the Canary Islands", or "Common system for taxing financial transactions", are only some of the cases that have both budgetary implications and where the party of the rapporteur defected.

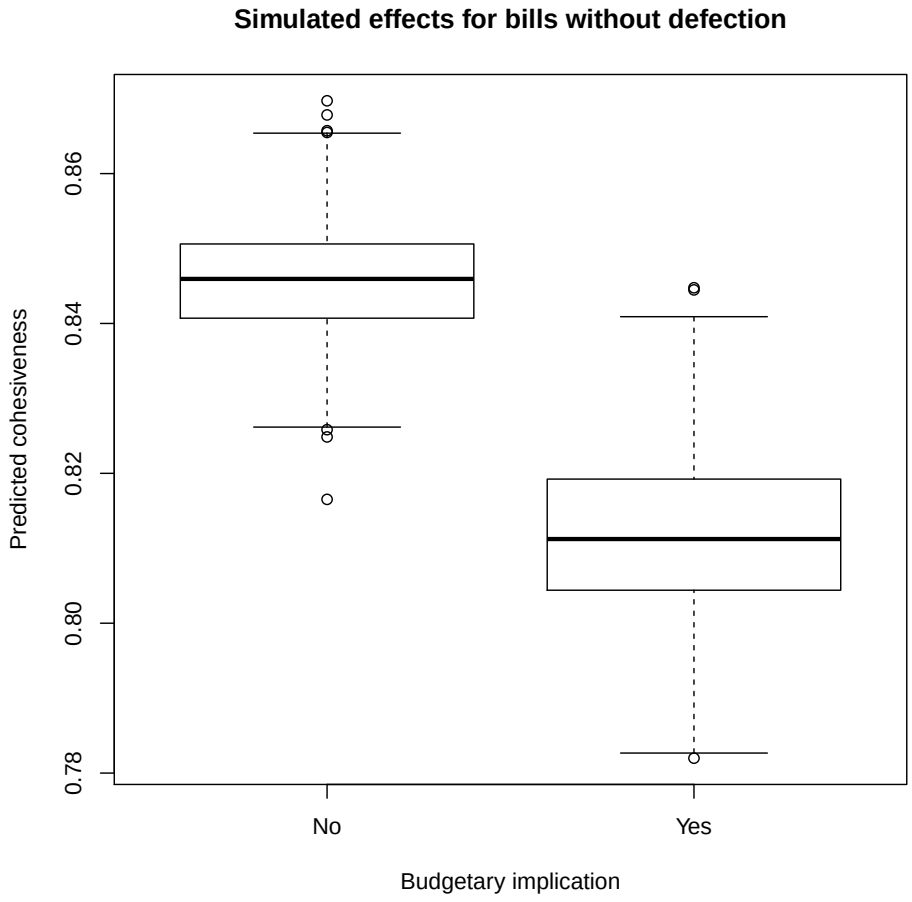


Figure 4.5: Simulated effect of budgetary implication for bills without defection, when the other co-variates are kept at their median values and EPP at 1

This effect is even stronger when we have budgetary implications. There are some reasons to believe that budgetary implications are likely to increase the existing level of polarization within the European Parliament. Furthermore, the leadership of the parties might be even more motivated to put pressure on individual legislators as they are aware that national parties might also put pressure on their legislators.

Figure 4.4 provides relatively good evidence of the theoretical mechanisms discussed in the theoretical chapter. First, it shows that budgetary implications have an impact on legislative cohesion, and this effect is stronger and positive in the presence of other factors that on their own reduce the expected level of unity. Even if budgetary implications on their own have a weak, and non-significant impact on legislative unity, this section has shown that this effect is dependent on the initial level of polarization.

As noted previously, defections are relatively rare. Let us look at the effect of budgetary implications for normal cases. Given that the party of the rapporteur is in the winning coalition and an overwhelming majority of the cases, it is likely that European Party Groups have fewer incentives to apply party pressure on their legislators in these cases. Therefore, Figure 4.5 allows us to see a more detailed picture of the effect of budgetary implications when there are no defections.

Based solely on Figure 4.5 one can argue that budgetary implications decrease overall legislative unity. There is a higher level of agreement in the European Parliament in the absence of budgetary implications. Even if, legislative unity is positive in cases where there are no defections on behalf of the party of the rapporteur, it still remains slightly lower compared to cases where there are no defections and no budgetary implications.

Even if, there were not so many cases which had both budgetary implications and where the party of the rapporteur defected, one notices that these cases are relatively high-profile. Several examples where the confluence of these polarizing factors was exhibited are: “Trans-European energy infrastructure”, “Fishing opportunities and financial contribution provided for in the EC-Denmark/Greenland Fisheries Partnership Agreement”, “Financing instrument for development cooperation - banana accompanying measures”, “EU guarantee to the EIB against losses under loans and guarantees for projects outside the EU ”, or “Security of gas supply”.

Another highly interesting case is “Common system for taxing financial transactions”, which has a positive impact on the EU budget - “Preliminary estimates indicate that, depending on market reactions, the revenues of the tax could be 57 EUR billion on a yearly basis in the whole EU.” (European Commission 2011*a*). The winning coalition was formed by GUE/NGL, Greens, S&D and EPP, and in total encompassed 487 legislators that voted for the proposal, while 152 voted against and 46 abstained. Given that the nature of the case and the way it impacts the EU budget one would have perhaps expected a higher level of cohesion. Alongside ideological differences, it can be argued that this case highlights that legislators are also concerned with the interests of their constituencies. This implies that legislators which are aware that higher taxes at the national level will have a negative impact on chances for their re-election are likely to have voted against, or abstained in this case. As in that all of the parties of the three rapporteurs were in the winning coalition and knew that they had the vote secured, it is unlikely that the added increased pressure on their legislators, hence lowering the costs of defection.

In conclusion, legislative unity is affected by budgetary implications. In cases where there are other polarizing factors and pressure on the legislators is increased, Figure 4.4 shows that the confluence of such factors with budgetary implications increases legislative unity. On the other hand, in cases where there are no other polarizing factors and only the budgetary status-quo is altered, Figure 4.5 shows that budgetary implications will have a negative impact on legislative unity. This is in accordance to the theoretical propositions presented in Section 2.3.

4.7 Model diagnostics

The first question that comes to mind is which model is better? Nevertheless, as substantially important effects remain significant over various specifications of the dependent variable this question is not so relevant. An aspect that might be more relevant for model fit is to look at the residual plots and investigate the cases which have leverage over the results.

4.7.1 What drives the estimates?

Even if the substantial effects are stable across various specifications of the dependent variable it is interesting to look at which cases drive the estimates for each model. The main focus in this section will lie on the interaction term and its components. Given the robustness of the results over different specifications of the dependent variable, I choose to focus on the tobit model with the unaltered Agreement Index as the dependent variable. The residual plots for this are presented in figure 4.6. Each point is labelled with the row number of ease of identification. For the other models, the residual plots are presented in Appendix A.

In order to test whether the results are only driven by a small number of cases I remove the 5 of most influential observations for each term of the interaction on both the negative and positive side. In total, I re-estimate the Tobit models without the 30 most influential observations. The results are presented in Table 4.6. As it can be seen from the table the results remain largely unchanged in terms of direction and significance. Consequently, it can be argued that the results are not only driven by a small number of cases, even though these cases have the highest leverage over the results. In other words, the 30 most influential observations on the interaction term are removed.

One of the cases which has the highest negative leverage on the coefficient for budget is "Surveillance of budgetary positions and surveillance and coordination of economic policies"[2], voted on 23.06.2011. In this case the vote was split, with 333 legislators voting for, 303 voting against and only 26 abstentions. The winning coalition was formed

[2]case number: A7-0178/2011

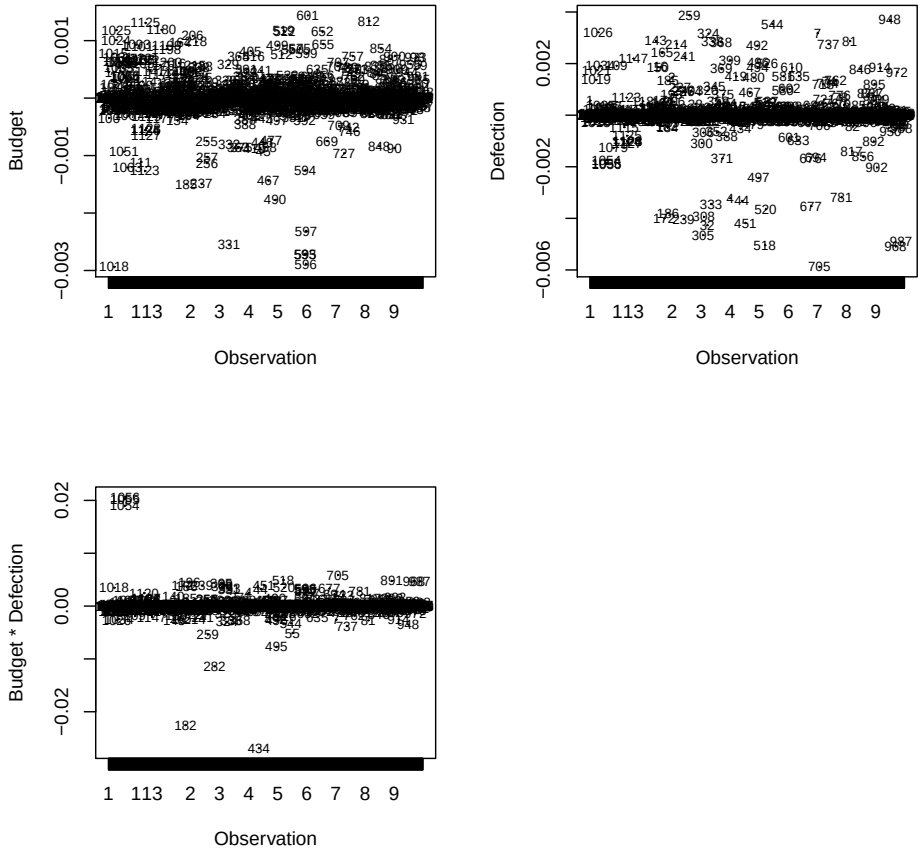


Figure 4.6: Most influential observations for interaction term

only of ALDE and EPP. The lead rapporteur, Corien Wortmann-Kool has served two terms and the bill had an implication for the overall EU budget. In this case the party of the rapporteur did not defect, yet budgetary implications alone caused polarization. Given the theoretical framework employed, it is not problematic that this case has a high leverage over the estimates.

Granted the nature of the case there is little doubt that national interests another polarizing issue in this case, especially as the regulation aims "to monitor and coordinate Member States' budgetary policies, by way of a preventive measure to ensure budgetary discipline within the European Union" (Europa.eu 2012). Another dimension of conflict in this case was the amount of power that was to be delegated to the EU as institution (euractiv.com 2013). This case highlights that even if defection by the party of the rapporteur does not capture all the dimensions of conflict within the European Union, such as national or pro - anti- integration defection remains a stable and relatively reliable proxy for the initial level of polarization in the EP before final votes.

The example brings one close to a major weakness of this thesis, its inability to accurately capture national polarization on cases. This implies that the intergovernmentalism

Table 4.6: Tobit models without influential observations

	Dependent variable:			
	AI	AIn	abs(RICE)	abs(RICEabs)
	(1)	(2)	(3)	(4)
Budget	-0.029^{***}	-0.033^{***}	-0.023^{*}	-0.036^{**}
	(0.011)	(0.011)	(0.013)	(0.014)
Result	0.163^{***}	0.232^{***}	0.155^{***}	0.030
	(0.021)	(0.021)	(0.024)	(0.029)
Legislative	0.061^{***}	0.065^{***}	0.075^{***}	0.079^{***}
	(0.009)	(0.009)	(0.010)	(0.011)
No. Terms	0.004	0.009^{*}	0.011^{*}	0.001
	(0.005)	(0.005)	(0.006)	(0.007)
Defection	-0.180^{***}	-0.149^{***}	-0.261^{***}	-0.280^{***}
	(0.017)	(0.018)	(0.020)	(0.021)
EPP dummy	0.289^{***}	0.266^{***}	0.408^{***}	0.350^{***}
	(0.022)	(0.023)	(0.026)	(0.028)
budget:defection	0.158^{***}	0.156^{***}	0.240^{***}	0.227^{***}
	(0.038)	(0.040)	(0.044)	(0.045)
Constant	0.332^{***}	0.174^{***}	0.221^{***}	0.344^{***}
	(0.030)	(0.030)	(0.035)	(0.039)
σ	-2.072^{***}	-2.050^{***}	-1.917^{***}	-1.813^{***}
	(0.023)	(0.023)	(0.023)	(0.023)
Observations	919	917	918	920
Log likelihood	598.596	579.201	453.003	361.760
Wald Test (df = 7)	643.357^{***}	600.534^{***}	823.404^{***}	570.399^{***}
Note:				*p<0.1; **p<0.05; ***p<0.01

critique on the ideology-approach that national interests drive the behaviour of legislators cannot be dismissed or incorporated more than already presented in the theoretical section. On the positive side the thesis shows that there are other dimensions of polarization, or even conflict within the European Parliament except the legislators own ideology. Hence, it shows the importance of economic polarization.

The cases that have a positive leverage over the estimates for budgetary implications are mainly resolutions that aim at changing the existing budgetary framework in the future, for example: "Draft amending budget No 3/2012: surplus from the 2011 financial year"; "Draft amending budget No 3/2011: 2010 budget surplus", or "Draft amending budget No 8/2010: Section III - Commission - European Solidarity Fund: floods in Ireland - completion of ESF - Objective 1 (2000 to 2006)". Given the nature of these two cases, with the exception of the latter they were accepted by a grand-majority and generally

there was little polarization. One potential reason for this is simply that these cases are pure formalities, even potentially alter the budget they encompass mainly technicalities. The latter case is a good example of a highly uncontroversial issue, given the norms and values upheld by the European Union. Yet again there are few reasons for which the leverage of these cases is problematic.

If one is to contrast this the theoretical framework it becomes rather expected that such cases have leverage. Furthermore, the cases which have positive leverage over the estimates for budgetary implications also have a positive implication for the overall EU budget. Legislators have few incentives not to support such cases, or to polarize in these circumstances.

Table 4.6 presents the tobit models without the 30 most influential observations on the interaction term. The results remain relatively robust. The greatest loss in significance is in the RICE model for the coefficient for budgetary implications. This implies that the RICE model is more dependent on those high-leverage cases compared to the other models. One of the most influential cases for the RICE model is the "Implementation of excessive deficit procedure"[3], one of the few bills decided upon by consultation. As expected given the high leverage of this proposal upon member states the vote has been split with 339 legislators voting for, 304 against and 26 abstentions. The small number of abstentions can be seen as results of high party pressure. Again, in this case the majority was formed by two parties, EPP and ALDE. Given the theoretical framework employed in this thesis, it is expected that such bills will have a negative leverage in the models.

It should not be problematic that these observations drive the estimates, as they are in line with the theoretical arguments. The persistence of the statistical relations between the variables, and the results remain supportive of the theoretical framework. Nevertheless, these cases are only a handful, therefore they may not be representative. Even if the tobit models are robust, it can be argued that a better robustness check would be either to include other co-variates that might affect the studied relationship. Alternatively, I will also check whether the results are robust enough to tolerate different model specifications, namely multi-level fixed and random effects. Such tests are presented in Chapter 5.

Even when removing some of the observations with most leverage the results of these Tobit models provide empirical support for the hypothesized relation. In other words, budgetary implications have a negative impact on legislative cohesion, in the absence of other polarizing factors. Yet in cases where the party of the rapporteur also defects the effect of budgetary implications is positive on legislative unity.

[3]case number: A7-0179/2011

4.8 Summary

Simple bivariate correlations show that there is a weak relationship between budgetary implications and legislative unity. The OLS model allows one to better grasp the patterns in the data, nonetheless the estimates are potentially bias, consequently tobit models are estimated. Hypothesis 1 is supported by the models presented in Section 4.4. As predicted in the theoretical section, budgetary implications do not affect the failure or passage of a bill. Alike the OLS models, the tobit specifications show that budgetary implications affect legislative cohesion. Hypothesis 2 and 3 are supported. The relationship between budgetary implications and the voting behaviour of legislators in final votes is further explored in Sections 4.6 and 4.6.1.

Figure 4.3 shows that budgetary implications decrease legislative unity in the absence of splits in the party of the rapporteur, or in other words in the absence of other polarizing factors. This relationship remains robust even when the effect of the other co-variates is taken into account as show in Figure 4.5. This is supportive evidence of Hypothesis 2. Hypothesis 3 is also supported, the coefficient for the interaction between budgetary implications and defections on behalf of the party of the rapporteur is significant and positive in all the models estimated in this Chapter. The relationship is illustrated in Figure 4.4.

The major caveat of the results is the weakness of the coefficients, warranting some concern that the models might be driven by a few cases only. However, in Section 4.7 I have removed 30 of the observations that had most leverage on the result. Even if the coefficients became weaker they retained their direction and to a large extent their significance level. In the next section, I will explore whether the results are a mere artifact of model specification, by employing hierarchical models and adding more controls.

Chapter 5

Robustness

In the previous section I have presented the results from the empirical testing of the theoretical arguments proposed. I have argued that the results are robust over different specifications of the dependent variable. The results were robust, yet in order to insure that the findings are not driven by the type of model or by the set of covariates employed, I will test several other model specifications and include some new control variables. I will include controls for ideology, based on the findings from Hix and Noury (2009), and for time as recommended by Cox and McCubbins (2007). Before proceeding to the above mentioned, a discussion of the caveats of the empirical specification is undertook.

5.1 Shortcomings of the empirical approach

A tobit model seems to be the optimal model given the specification of the dependent variables. As discussed in Section 3.5 the tobit model is able to eliminate a great deal of bias linked to model estimation. Nevertheless, it does not steer clear of all potential sources of bias. In this section, I am aim to highlight several other potential sources of bias, and thereafter propose several remedies. However, Clarke (2005) shows that this is not so problematic as previously assumed.

Omitted variable bias is perhaps the biggest concern given the specification employed in the Results chapter. Therefore, there are considerable reasons to believe that the estimates presented suffer from a great deal of bias. For example, Johnston and DiNardo (1972: 110) argue that the inclusion of irrelevant variables in the model is much less problematic, when compared to excluding variables that might be correlated with the co-variates of interest. The same dictum is presented by King, Keohane and Verba (1994: 173).

Arguably, there are two such variables that have been ignored so far, firstly party positions, or ideology, and secondly policy areas. In the following sections I present models with controls for party positions and thereafter proceed to an estimation of multi-level models, both fixed and random effects in order to account for both omitted variable

bias as an excluded co-variate and in order to account for the nature of the data.

Is this enough? Ideally, I would include more control variables. Nonetheless, in this case, even if it is desired, it is practically impossible. Mainly, because of the nature of the dataset, the time-series is recent and there are few, if any available datasets that are compatible. The models employed in this thesis are all linear, therefore limiting the sources of omitted variable bias to other variables that are correlated with the variables included in the regression (Clarke 2005: 348).

Clarke (2005) shows that unless the researcher know the true specification of the model "[t]he addition may increase or decrease the bias, and we cannot know for sure which is the case in any particular situation" (Clarke 2005: 342). There is relatively limited research on budgetary implications of legislation within the European Union, and even less within the European Parliament. It can be concluded that omitted variable bias remains a problem for this thesis. As presented in the next two sections the main findings remain robust even when dealing with the two most likely sources of bias.

A second potential problem of the general model specification is endogenity. Ideally, it would be desired that all the independent variables occur and are observed, in time, and prior to the dependent one. This aspect is mainly problematic for the outcome of the vote which is observed at the same time as the level of legislative unity. When this variable is removed from the model specification there are only minor changes in the coefficients. Alternatively, even if the defection of the party of the rapporteur is known a priori, it is observed also at the same time as legislative unity.

Confluence of events makes causal inferences more problematic. From a chronological perspective, defection on behalf of the party of the rapporteur occurs before the observed legislative unity in final votes. According to Cox (1992: 293) this temporal ordering serves as a way of showing, or at least arguing for the existence of a causal effect. Causality is only secondary here. Even if it can be argued that from a temporal perspective defection is observed prior to cohesion, it might be better to attempt to remedy this problem.

Arguably, a more suitable way to deal with this endogeniety problem is by employing a system estimation by instrumental variables (Wooldridge 2002: 183-205). Simply put, in order to employ such a model specification one is to find an instrument that predicts the endogenous independent variable, but does not predict the dependent variable (Greene 2003, Sovey and Green 2011). The purpose is to isolate exogenous variation in defections (Sovey and Green 2011). According to Greene (2003) one way of doing this is by employing a two-stage least squares regression. In the first step, the instrument, alongside the other co-variates of interests is used to estimate the predicted values for the endogenous independent variable, in this case defection (Greene 2003). Secondly, these predicted values are used to regress the dependent variable (Greene 2003).

Nonetheless, finding a good and strong enough instrument is not an easy task. Unfortunately, there is little theoretical guidance in choosing an instrument in this case.

Arguably, one potential instrument is the country of the rapporteur. It can be argued that rapporteurs which come from influential member states have higher leverage within the European Parliament and enjoy a stronger backing within the Council, and hence are more likely to lead successful committee level negotiations. Yet, the correlation has proven to be too low for this instrument to be valid. I have also employed the GDP level within the national country of the lead rapporteur, Yet again the conclusions was the same, the instrument was too weak. As these instruments were too weak, I have abandoned this strategy. Consequently, even if endogenity is not critical in this example, it still remains slightly problematic.

5.2 What else is there? Controlling for ideology and time.

Given the theoretical focus on the structural characteristics of bills, especially on their economic implications, the models so far neglected ideology. This could be seen as a potential weakness, especially as one of the arguments from the literature is that the effect of budgetary implications is often hidden by ideology (Peltzman 1984). If budgetary implications are actually significant, we should expect this relationship to hold even when we control for ideology, or in other words for party positions. Ideally, I would have employed a similar method to Hix, Noury and Roland (2006) to capture ideology, by using the nominate scores. Nevertheless, corresponding data to this time series was not available at the time of the writing, as discussed in Section 3.4. The proxy for ideology employed in this analysis is party positions on each case, whether a party was or was not in the winning coalition on each vote.

The usage of this proxy for ideology allows us to capture which parties supported each bill, and how this impacts legislative unity. Using European party group dummies requires us to make a secondary assumption, namely that MEPs join the party that best represents their ideological standpoint. Given the recent evidence (Hix and Høyland 2013, McElroy and Benoit 2010) there seems to be a certain level of empirical support for this assumption. Therefore, there are few reasons that make us consider this assumption problematic. Most of the empirical and theoretical evidence suggests that the main dimension of voting in the European Union is the Left-Right one. This proxy allow one to isolate whether there are parties that are neto-defectors.

There are numerous empirical accounts showing the European Parliament operates in a low dimensional policy space, where the most important dimension is the left - right one. The evidence shows that the importance of pro and anti-integration issues has decreased throughout time (Hix and Høyland 2013). Therefore, it can be argued that a proxy for ideology which captures this, is a good substitute for nominate scores. More specifically

Table 5.1: Tobit models with controls for ideology and number of sessions

	Dependent variable:			
	AI	AIn	abs(RICE)	abs(RICEabs)
	(1)	(2)	(3)	(4)
Budget	-0.010^{*}	-0.015^{*}	-0.005	-0.004
	(0.006)	(0.008)	(0.008)	(0.008)
Result	0.059^{***}	0.139^{***}	0.043^{***}	-0.056^{***}
	(0.011)	(0.016)	(0.016)	(0.014)
Legislative	0.005	0.022^{***}	0.018^{**}	0.012^{*}
	(0.005)	(0.007)	(0.007)	(0.006)
No. Terms	-0.0003	0.005	0.003	-0.003
	(0.003)	(0.004)	(0.004)	(0.004)
Defection	-0.023^{**}	-0.007	-0.054^{***}	-0.037^{***}
	(0.010)	(0.013)	(0.013)	(0.012)
Time	-0.00003^{***}	-0.00002^{**}	-0.00003^{***}	-0.00004^{***}
	(0.00001)	(0.00001)	(0.00001)	(0.00001)
EPP dummy	0.337^{***}	0.298^{***}	0.424^{***}	0.433^{***}
	(0.012)	(0.017)	(0.017)	(0.015)
S&D dummy	0.322^{***}	0.285^{***}	0.432^{***}	0.423^{***}
	(0.012)	(0.016)	(0.016)	(0.014)
ALDE dummy	0.141^{***}	0.120^{***}	0.197^{***}	0.198^{***}
	(0.012)	(0.017)	(0.017)	(0.015)
Greens dummy	0.134^{***}	0.112^{***}	0.154^{***}	0.176^{***}
	(0.007)	(0.010)	(0.010)	(0.008)
GUE/NGL dummy	0.056^{***}	0.037^{***}	0.035^{***}	0.074^{***}
	(0.005)	(0.007)	(0.007)	(0.007)
ECR dummy	0.102^{***}	0.079^{***}	0.097^{***}	0.129^{***}
	(0.005)	(0.007)	(0.007)	(0.006)
EFD dummy	0.058^{***}	0.054^{***}	0.075^{***}	0.079^{***}
	(0.005)	(0.007)	(0.007)	(0.006)
budget:defection	0.078^{***}	0.055^{**}	0.142^{***}	0.098^{***}
	(0.019)	(0.027)	(0.027)	(0.024)
Constant	-0.259^{***}	-0.325^{***}	-0.504^{***}	-0.528^{***}
	(0.023)	(0.032)	(0.032)	(0.028)
σ	-2.671^{***}	-2.334^{***}	-2.333^{***}	-2.448^{***}
	(0.023)	(0.023)	(0.023)	(0.023)
Observations	944	944	944	944
Log likelihood	1,179.445	863.677	857.460	969.669
Wald Test (df = 14)	$4,888.157^{***}$	$1,998.342^{***}$	$3,729.560^{***}$	$5,123.591^{***}$
Note:				*p<0.1; **p<0.05; ***p<0.01

in the case at hand the interest lies mainly on the impact of controlling for party positions with regard to issues.

A problem with this proxy is that it fails to capture the individual ideological position. Therefore, within the realm of this thesis it cannot be claimed that legislators value economic concerns more than their ideological position, or vice-versa. Even if nominate scores would have been calculated, such inferences would remain problematic.

There is another important aspect that has been largely ignored both in the theoretical discussion and in the empirical approach, namely the time perspective. Some studies of the European Parliament, and mainly research on the US Congress (Cox and McCubbins 2007) highlight that legislators tend to act in a more heterogeneous way in the beginning of the parliamentary mandate and that their behaviour gets more and more cohesive as sessions go by. In order to capture this aspect, I have designed a variable that simply counts every session that went by. If there are 50 cases discussed in the same session they will have the same number, while the next session when legislators meet will be incremented by 1. This variable is continuous. Taking the natural logarithm of this variable does not substantially affect the results presented in Table 5.1.

Tobit models specifications with the above mentioned control variables are included Table 5.1. Perhaps the most contrasting result in this table is the very small, yet significant negative coefficient for time. In the case of the 7^{th} European Parliament it seems that cohesion decreases slightly or, marginally as time goes by. The effect is so weak in this case. Overall, the introduction of controls for party potions and time decreases the magnitude and in some cases also the significance of the results. For example, seniority is not significant in any of the models. Legislative bills retain their positive effect on legislative unity only in models (2) - (4). Controlling for ideology and the number of sessions that passed seems to reduce the impact of legislative bills. Yet, for the models AIn and RICE it can be argued that legislative bills have a small, but positive effect on legislative unity in the European Parliament.

The coefficients for budgetary implications become smaller and lose significance in the RICE and RICEabs models. The effect remains negative for bills where the party of the rapporteur does not defect. The effects of defection by the party of the rapporteur remain unchanged and are significant in all the models with the exception of the AIn. The interaction term, is significant and positive in all the models. Although, the magnitude of the effects of the interaction get weaker the substantive interaction presented in the previous Chapter is largely unaltered. In short budgetary implications reduce legislative cohesion. Yet, when the party of the rapporteur defect on a case with a budgetary implication legislative unity is likely to increase.

The coefficients for the parties are positive and significant in all the models presented in Table 5.1. The largest effects are for the two largest parties within the European Parliament in the current sitting: EPP and S&D. The coefficients for all the party dummies are significant at the 1% level.

Given the small changes in several of the co-variates might also argue that the models presented in Section 4.5, might have been affected by omitted variable bias. The substantial interpretation of the relationship of interest, the interaction between budgetary implications and the proxy for polarization has not changed to a large extent. Highlighting the robustness of the hypothesized relationship presented in Section 2.3. Adding

controls for party positions shows another substantial difference, specifically the importance of abstentions. Yet, the models became more sensitive to the way in which we deal with abstentions. One can infer that legislators are soft-liners and prefer to abstain, or not to vote, rather than directly defect from the party line. This is supportive evidence of the hypotheses presented in the theoretical Chapter of this thesis. Overall the relationship of substantial interest remains robust even in the presence of more controls, for the Agreement Index and its modified version AIn.

There are many other controls that could have been included in this section, nevertheless, given that the time series employed in the analysis is relatively recent there are few corresponding datasets publicly available. These circumstances make the inclusion of new control variables impossible. Nevertheless, in order to investigate whether the relationship remains robust I will estimate multi-level models control for policy areas. This is presented in the next section. By doing this I am also able to show how and whether policy areas affect the relationship of substantial interest. Hix and Høyland (2013) show the cohesion varies across policy areas.

5.3 Accounting for policy areas

Differences between policy areas have so far only received limited attention. This may be problematic. Previous research found that there are different level of cohesion along various policy areas (Hix and Høyland 2013). Furthermore, it has been shown that there are also differences in the coalitions that are formed across policy areas (Hix and Høyland 2013). Not accounting for differences between policy areas may be seen as a source of omitted variable bias, as it means excluding unobserved differences between policy areas from the analysis. Furthermore, ignoring the hierarchical character is a problem in itself.

Ignoring the hierarchical character of the data may introduce bias in the standard errors, and thus increase the chances for Type I errors (Steenbergen and Jones 2002: 219). At the same time accounting for the hierarchical character of the data will allow one to test whether the results are robust enough to support both a different estimation and a new variable.

There are different ways of accounting for the multi-level structure of the data. One approach is to assume fixed effects, the other is random effects (Gelman and Hill 2007: Chapter 14). Both of these approaches are pursued in the following. I first estimate a set of fixed effects models. I then move on to estimate a set of models where I include both a random intercept and a random effect of budget. The reported results show that the relationship of interests remains significant.

The data at hand is both highly clustered and at the same time it has a clear hierarchical structure, as each case can be seen as nested within a policy area and the data at hand has both subsets, fitting nicely in the definition developed by Steenbergen and

Table 5.2: Fixed Effects Multi-level linear models

	Dependent variable:			
	AI	AIn	abs(RICE)	abs(RICEabs)
	(1)	(2)	(3)	(4)
Budget	-0.036^{***}	-0.043^{***}	-0.028^{*}	-0.036^{**}
	(0.012)	(0.012)	(0.015)	(0.016)
Result	0.140^{***}	0.209^{***}	0.155^{***}	0.054^{*}
	(0.022)	(0.022)	(0.027)	(0.028)
Legislative	0.076^{***}	0.093^{***}	0.085^{***}	0.101^{***}
	(0.012)	(0.013)	(0.015)	(0.016)
No. Terms	0.012^{**}	0.018^{***}	0.019^{***}	0.012^{*}
	(0.006)	(0.006)	(0.007)	(0.007)
Defection	-0.180^{***}	-0.140^{***}	-0.248^{***}	-0.246^{***}
	(0.018)	(0.018)	(0.022)	(0.023)
EPP dummy	0.259^{***}	0.230^{***}	0.341^{***}	0.331^{***}
	(0.023)	(0.024)	(0.029)	(0.030)
Budget	0.034	0.030	0.044	0.053
	(0.026)	(0.026)	(0.032)	(0.033)
Budgetary control	−0.002	0.012	0.021	0.003
	(0.027)	(0.027)	(0.034)	(0.035)
Civil liberties, justice & home affairs	−0.037	-0.071^{**}	−0.001	−0.037
	(0.028)	(0.028)	(0.034)	(0.036)
Constitutional & inter-institutional affairs	−0.032	−0.041	−0.046	−0.036
	(0.040)	(0.041)	(0.050)	(0.052)
Culture & education	0.013	0.009	0.107^{*}	0.074
	(0.045)	(0.045)	(0.056)	(0.058)
Development	−0.025	−0.040	0.005	−0.021
	(0.035)	(0.035)	(0.043)	(0.045)
Economic & monetary affairs	-0.098^{***}	-0.082^{***}	-0.083^{***}	-0.120^{***}
	(0.026)	(0.026)	(0.032)	(0.033)
Employment & social affairs	-0.060^{*}	-0.072^{**}	-0.074^{*}	−0.069
	(0.034)	(0.035)	(0.043)	(0.044)
Environment & public health	−0.030	−0.024	−0.024	−0.024
	(0.028)	(0.029)	(0.035)	(0.037)
Fisheries	0.036	0.011	0.046	0.060
	(0.031)	(0.031)	(0.038)	(0.040)
Foreign & security policy	−0.015	−0.003	0.032	−0.001
	(0.030)	(0.030)	(0.037)	(0.038)
Gender equality	-0.068^{*}	−0.056	−0.050	-0.083^{*}
	(0.038)	(0.039)	(0.048)	(0.050)
Industry, research & energy	−0.043	−0.045	−0.048	−0.052
	(0.030)	(0.031)	(0.038)	(0.039)
Internal market & consumer protection	0.022	0.028	0.034	0.041
	(0.035)	(0.035)	(0.043)	(0.045)
International trade	−0.029	−0.036	0.0002	−0.027
	(0.027)	(0.027)	(0.034)	(0.035)
Legal affairs	−0.002	-0.050^{*}	0.012	0.011
	(0.029)	(0.029)	(0.036)	(0.037)
Petitions	0.025	0.029	0.026	0.042
	(0.082)	(0.083)	(0.102)	(0.106)
Regional development	0.005	0.006	0.029	0.031
	(0.033)	(0.034)	(0.041)	(0.043)
Transport & tourism	−0.026	−0.041	0.005	−0.001
	(0.032)	(0.033)	(0.040)	(0.042)
budget:defection	0.136^{***}	0.106^{***}	0.224^{***}	0.176^{***}
	(0.038)	(0.038)	(0.047)	(0.049)
Constant	0.378^{***}	0.224^{***}	0.259^{***}	0.310^{***}
	(0.037)	(0.037)	(0.046)	(0.048)
Observations	944	944	944	944
R^2	0.400	0.379	0.410	0.378
Adjusted R^2	0.383	0.362	0.394	0.360
Residual Std. Error (df = 917)	0.135	0.137	0.168	0.175
F statistic (df = 26; 917)	23.518^{***}	21.562^{***}	24.539^{***}	21.445^{***}
Note:				*p<0.1; **p<0.05; ***p<0.01

Jones (2002: 219). Alongside accounting for the nature of the data, multi-level models present several other advantages. They allow one to specify predictors at different level and to investigate whether the effect of lower level predictors is conditioned or modified by the higher level ones Steenbergen and Jones (2002: 219). Multi-level modelling allows one to make more specific inferences about the nuances of the effects investigated.

The reference category for fixed effects models, presented in Table 5.2, is the Agriculture committee. It can be argued that the bills discussed in the Agriculture committee might concern structural funds to a larger degree when compared to bills from other committees. The Common Agricultural Policy has been one of the most salient topics in the European Parliament since its entry into force. Aksoy (2010: 174) points out that Agriculture is one of the largest expenses in the European Union budget. Given that the importance of the agricultural sector varies across members states it can be argued that this policy area is rather polarized. Furthermore, this is one of the areas where, according to the theoretical framework, the legislator's interest on their constituencies is likely to be strong.

Therefore, it can be argued that agriculture is a substantially interesting reference category. From a theoretical perspective it is suggested that budgetary implications will differ across policy areas. This motivates letting the effect of budgetary implications vary in these model. The results from the random intercept and random effect models are presented in Table 5.3. The fixed effects models are presented in Table 5.2.

The fixed effects models only capture variation within each policy area when estimating the models, hence effectively controlling for all observed and unobserved differences across policy areas. The results are presented in Table 5.2. The coefficient for budgetary implications retains its significance in all the models with fixed effects. When it is assumed that policy areas have a fixed effect, budgetary implications for bills where there was no defection on behalf of the party of the rapporteur will have a negative effect on overall legislative unity, regardless of the way in which one deals with abstentions and those that did not vote. The magnitude of the coefficient for budget varies between -0.028 in the RICE model to -0.043 in the AIn model. When the MEPs that did not vote are accounted for, the effect of budgetary implications is slightly stronger, enforcing again the claim that legislators prefer a form of mild defection, either not to vote, or to abstain, rather than directly defect. Unfortunately, the distinction between defecting by voting the opposing from the party line, for example voting No, when the party line is Yes, versus abstaining or not voting remains blurred. Hix (2002) considers defections those cases where legislators vote differently from the party line.

It seems that European Party Groups mobilize and induced, more pressure on legislators, and hence a higher level of cohesion among their members when they know the initial level of disagreement is high. This is shown by the interaction term between defection and budgetary implications. Setting aside the interaction term one notices that the

coefficient for seniority regains its significance. Thus, it seems that members that served more than one term are better equipped at forging legislative unity within the European Parliament. Although, it has to be mentioned that the effect are relatively small, yet the coefficient is significant in all the model specifications. At the same time, legislative proposals have a relatively higher positive impact on legislative unity. Even when accounting for the hierarchical nature of the data by estimating a fixed effects linear model the results are analogous to those from the initial tobit models, presented in section 4.5.

The fixed effects model includes a dummy variable for each policy areas, which produces less efficient estimates. Only looking at variation within policy areas means avoiding all possible sources of omitted variable bias from variables at the policy area level. This does however come at the cost that all variation between policy areas is discarded (Gelman and Hill 2007: Chapter 12). It may also be interesting to investigate whether the reported results hold when the effect of budgetary implication itself is allowed to differ across these policy areas and controls for party positions are introduced.

Random effects models can be understood as an approximation of the "weighted average of the mean of the observations in the [group] and the mean over all [groups]" (Gelman and Hill 2007: 253). In contrast to fixed effects models, which accept estimations on very little data, random effects models tend to constrain the estimates from groups with very little individual data towards the mean of all the data available (Gelman and Hill 2007). The fixed effect model imposes several restrictions on the variations of coefficients. By looking at table 5.2 we see that even when the assumption about the effects of policy areas is relaxed the results remain largely unaltered in terms of significance across the various specifications of the dependent variable.

I have included party dummies in the models with random intercept, random effects of budget across policy areas. As discussed in section 5.2 controlling for party positions decreases the importance of the effect of budgetary implication, especially for bills where there is not defection. These results hold even when we account for policy areas as it can be seen from Table 5.3, the substantial effects are not different from those presented in Section 5.2. The effect of budgetary implications for cases where there are not defections are only significant in the AI and AIn model, showing again that legislators try to avoid defection and select a softer approach. At the same time it shows that accounting for party positions affect the relationship between budgetary implications and legislative unity. This is expected in light of Peltzman's (1984) argument that economic factors are often hidden by ideological variables.

Albeit the loss of significance for the coefficient of budget alone in the RICE and RICEabs model, the interaction term remains significant in all the models as it can be seen from Table 5.3. Even so, there is a decline in the estimated effect. The theoretical argument that in polarized cases, where there is a high risk of both individual and party defection, the remaining European Party Groups will push for a cohesive behaviour within

Table 5.3: Random intercept and effect of budget controlled for party positions

	Dependent variable:			
	AI	AIn	abs(RICE)	abs(RICEabs)
	(1)	(2)	(3)	(4)
Budget	-0.022^{*}	-0.019^{*}	-0.005	-0.005
	(0.012)	(0.010)	(0.010)	(0.009)
Result	0.050^{***}	0.138^{***}	0.043^{***}	-0.058^{***}
	(0.011)	(0.016)	(0.016)	(0.014)
Legislative	0.015^{**}	0.035^{***}	0.020^{**}	0.020^{***}
	(0.006)	(0.008)	(0.009)	(0.008)
No. Terms	0.002	0.008^{*}	0.006	-0.0001
	(0.003)	(0.004)	(0.004)	(0.004)
Defection	-0.022^{**}	-0.006	-0.054^{***}	-0.036^{***}
	(0.010)	(0.013)	(0.013)	(0.012)
EPP dummy	0.333^{***}	0.292^{***}	0.423^{***}	0.427^{***}
	(0.012)	(0.017)	(0.017)	(0.015)
S&D dummy	0.323^{***}	0.287^{***}	0.430^{***}	0.422^{***}
	(0.012)	(0.016)	(0.016)	(0.015)
ALDE dummy	0.145^{***}	0.121^{***}	0.200^{***}	0.202^{***}
	(0.012)	(0.017)	(0.017)	(0.016)
Greens dummy	0.133^{***}	0.109^{***}	0.154^{***}	0.174^{***}
	(0.007)	(0.010)	(0.010)	(0.009)
GUE/NGL dummy	0.060^{***}	0.043^{***}	0.039^{***}	0.079^{***}
	(0.006)	(0.008)	(0.008)	(0.007)
ECR dummy	0.106^{***}	0.084^{***}	0.102^{***}	0.136^{***}
	(0.005)	(0.008)	(0.008)	(0.007)
EFD dummy	0.058^{***}	0.051^{***}	0.078^{***}	0.079^{***}
	(0.005)	(0.007)	(0.007)	(0.006)
budget:defection	0.088^{***}	0.052^{*}	0.146^{***}	0.099^{***}
	(0.020)	(0.027)	(0.027)	(0.024)
Constant	-0.289^{***}	-0.350^{***}	-0.542^{***}	-0.569^{***}
	(0.022)	(0.031)	(0.031)	(0.028)
Observations	944	944	944	944
Log likelihood	1,121.495	815.201	811.101	913.988
Akaike Inf. Crit.	$-2,206.991$	$-1,594.403$	$-1,586.202$	$-1,791.976$
Bayesian Inf. Crit.	$-2,119.688$	$-1,507.101$	$-1,498.900$	$-1,704.674$

Note: *p<0.1; **p<0.05; ***p<0.01

their own parties in order to insure their most desired outcome in the plenary.

Contrariwise to the fixed effects model the number of terms sever by the lead rapporteur looses significance in models (1), (3) and (4). It barely remains significant in the AIn model at the 10% level and has a very small magnitude of only 0.008. Consequently, there is little that can be said about the actual effect of seniority on legislative unity as the effect seems to be dependent on both model and specification. On the other hand, legislators seem to act in a more cohesive way when they vote upon legislative bills compared to resolutions. This effect has proved robust across various model types and specifications.

5.4 Summary

A caveat of the approach that remains unsolved is dealing with the potential endogenity. Several instruments for defection were tested, yet, the correlation was to weak for such an approach to be fruitful. Therefore, such a course was not pursued. Sections 5.2 and 5.3 aims to address the omnipresent threat of omitted variable bias. The results are relatively robust, yet in the presence of party controls the effects of budgetary implications on their own loose significance for the RICE and RICEabs models, yet the remainder of the interaction remains significant. This suggests that the findings of this thesis are relatively vulnerable to the way in which ideological positions are captured. Despite this caveat, the robustness tests remain supportive of the hypothesized relationships. Budgetary implications on their own have a negative effect on legislative unity, yet this effect is mitigated when the part of the rapporteur also defects.

In order to test whether the results were driven by the type of model I have estimated fixed and random effects models, which also account for the hierarchical structure of the data. This chapter has shown that in the presences of controls for party positions the relationship between budgetary implications and legislative unity is weaker when there are no other polarizing factors. Yet, irrespective of the controls for party positions the relationship remains significant in situations where there are both budgetary implications and defections by the party of the rapporteur, even when policy areas are accounted for, as presented in Table 5.3.

Chapter 6

Conclusion

This thesis has set out to investigate whether budgetary implications affect the behaviour of legislators in final votes. The main focus in the literature has been on the ideological determinants of voting (Hix, Noury and Roland 2006, Hix and Noury 2009), and in some cases on the procedural differences between the bills (Kreppel 2002). After the ratification of the Lisbon treaty, the European Parliament has become an equal legislator to the Council in most policy areas and has gained budgetary power (Hix and Høyland 2013). Peltzman (1984) has shown that ideological variables may mask economic interests. Economic determinants of voting in the European Parliament have been overlooked by the literature so far. This thesis makes a contribution to filling this gap in the existing literature by investigating how the budgetary implications of bills affect the behaviour of legislators in final votes.

Drawing upon a recent study (Bailer, Mattila and Schneider 2010) on the Council and using classical theory developed for the US Congress (Cox and McCubbins 2007, Fenno 1978), I have proposed that, depending on the initial level of polarization in the European Parliament, budgetary implications alter the behaviour of legislators. At the same time, it has to be mentioned that budgetary implications do not affect the chances for passage or failure of a bill. Budgetary implications are important for the level of agreement, not for the outcome of the vote. It is conceptualized that legislators have three main goals: re-election, power while in office and good policy (Faas 2003, Fenno 1978). In order for them to attain the latter two goals, they are to further the interests of their home constituencies (Fenno 1978).

For the setting of the European Parliament I have, however – in line with much of the existing literature (Hix 2002, Hix, Raunio and Scully 1999, Hix and Noury 2009, Mühlböck 2012) – argued that legislators are responsive to the demands of their European Party Groups, and hence less likely to defect in situations where there is increased party pressure. This is especially so because the electoral connection between legislators and their constituencies is frail (Carey 2007). Such situations are captured by looking at situations where there is a breakdown in the negotiations and the party of the rapporteur

either defects or is split. From this proposition I derive two testable hypotheses. First, I hypothesize that in situations where the bill has implications for the status quo allocation of resources, legislative cohesion is likely to be lower. Secondly, legislative unity is likely to increase in situations where the party of the rapporteur defects, as legislators respond to increased party pressure. Failure to respond to party pressure might lead to sanctions, consequently making the attainment of the second goal harder.

To the best of my knowledge, such propositions have not been tested on the European Parliament previously. In order to rectify this omission, I have collected data on all final votes in the European Parliament in the period 14.09.2009 - 14.03.2013. The dataset contains information about the type of bill, information about how the legislators voted, as well as the rapporteurs on the case. Bills are coded to have budgetary implications when they alter the existing status quo on the set area, as discussed in Section 3.2.1.

By employing the RICE index (Rice 1924) and the Agreement Index (Hix, Noury and Roland 2005) in their original form and with some modifications, I have tested the impact of budgetary implications. Despite the small level of censoring, OLS estimates are likely to be inconsistent. Consequently, I have employed Tobit model specifications in order to draw inferences about the hypothesized relationship. The initial level of polarization before final votes has been captured by the interaction between budgetary implications and defection on behalf of the party of the rapporteur. This interaction has been shown to be robust across model specifications. Yet, as predicted by Peltzman (1984) it seems that ideological variables mask in part the effect of budgetary implications. Even when controlling for party positions, budgetary implications in the absence of other polarizing factors retain their significance in the models with the Agreement Index. Accounting for the hierarchical nature of the data does not alter the results substantially, as shown in Section 5.3.

In conclusion, it can be argued that the interaction between budgetary implications and legislative unity is significant and relatively robust. Generally, members of the European Parliament aim at pleasing their home constituencies, while at the same time remain loyal to their European Party Group. In cases where the party of the rapporteur defects and the bill has budgetary implications, it seems that parties use their pressuring mechanisms and, as a consequence, higher cohesion in the legislative is likely.

Despite the relative robustness of these findings, caution is warranted. First, the effects are weak in terms of magnitude. Secondly, even if defection is known chronologically before the final vote, it is only observed at the time of the vote, thus raising problems of endogenity. Several instruments have been tested in order to remedy the problem, nonetheless they have proven too weak. Given the weak correlation such an approach has not been pursued.

This thesis has been unable to differentiate between national interests and partisan ones. For example, Grossman and Helpman (1996) propose that interest groups are also

able to alter the behaviour of legislators, hence legislators might also defect because of partisan interests and not only because of national constituencies. Further research is needed in order to map the exact mechanisms that lead to defections. Another aspect that could be potentially interesting for future research is the dis-aggregation of budgetary implications further in order to investigate how these effects differ when bills add increased revenue, or in cases in which they are extractive from the national constituencies versus in cases where they only impact the budget of the EU as an institution.

This thesis provides some evidence that altering the existing budgetary allocation is bound to lead to a higher level of disagreement between legislators. As mentioned, future research could dis-aggregate budgetary implications further and investigate how legislative unity is influenced when national party positions are accounted for. This is perhaps most interesting in situations when the implications are detrimental for the respective member states.

These caveats notwithstanding, this thesis has provided robust evidence for how budgetary implications impact the level of cohesiveness in the European Parliament, yet the effects are dual as they are dependent on the initial level of polarization. Nevertheless, in order to better map the dynamics of the European Parliament, future research could elaborate on both the factors that influence committee level negotiations, while at the same time differentiate more clearly between the mechanisms that affect the legislator's behaviour in the plenary,or example, by differentiating between partisan interests and national ones.

In conclusion, this thesis has shown that budgetary implications are important for the level of cohesion within the European Parliament. For cases where the bill alters the existing budgetary status-quo, while there are few other polarizing factors, legislative unity is lower. The main exceptions are the cases where the party of the rapporteur either defects or is split. In these cases party groups are able to forge a higher degree of cohesion.

Chapter 7

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Appendix A

Influential observations

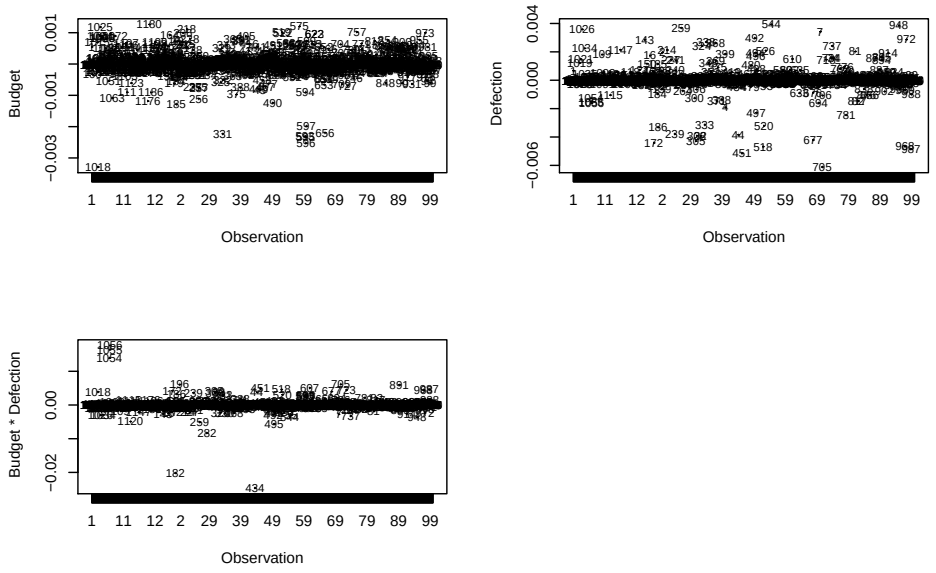

Figure A.1: Influential observations for the tobit model with AIn as the dependent variable. The dfbeta values are small, therefore observations with leverage are not a major concern. I have removed the 30 of the most influential observations in this case and re-estimated the model. Removing these observations did not impact the substantive interpretation of the models.

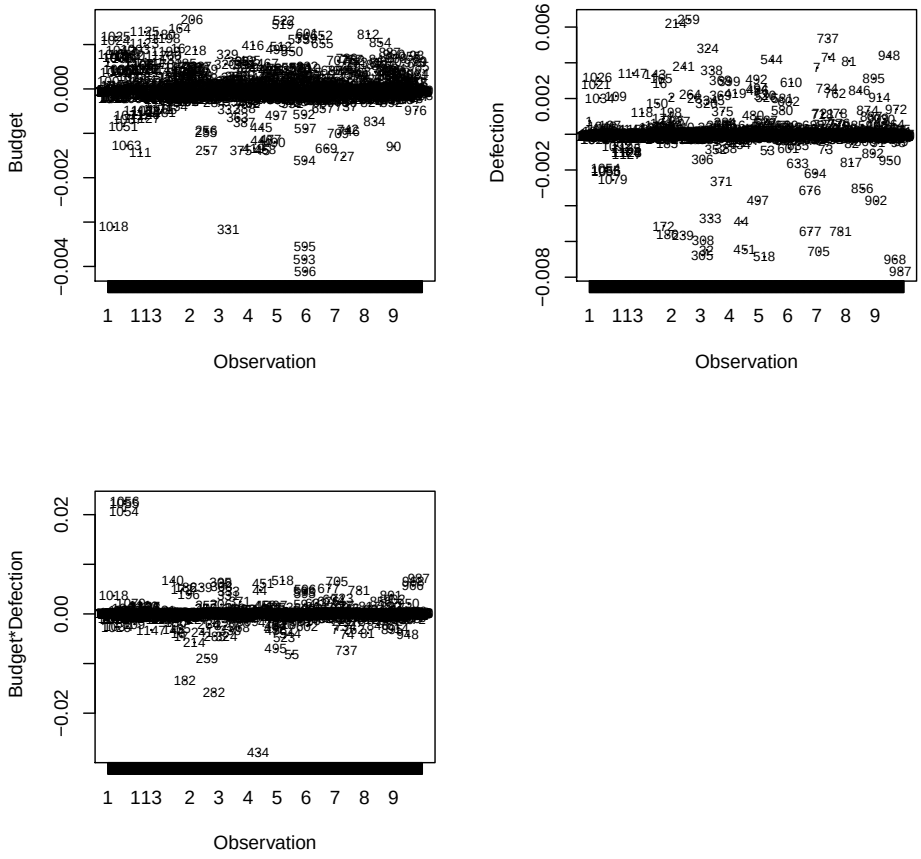

Figure A.2: Influential observations for the tobit model with RICE as the dependent variable. The dfbeta values are small, therefore observations with leverage are not a major concern. I have removed the 30 of the most influential observations in this case and re-estimated the model. Removing these observations only slightly impacted substantive interpretation of the models. The model remains supportive of the hypothesized relationship.

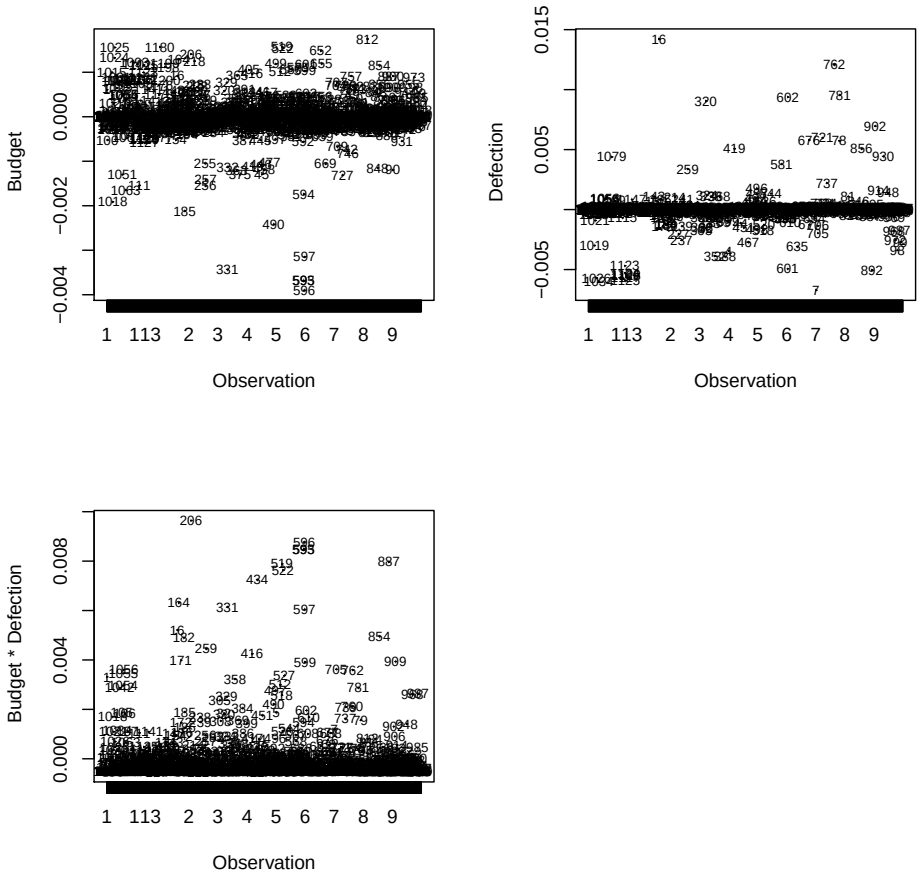

Figure A.3: Influential observations for the tobit model with RICEabs as the dependent variable. The dfbeta values are small, therefore observations with leverage are not a major concern. I have removed the 30 of the most influential observations in this case and re-estimated the model. Removing these observations had only a minor impact the substantive interpretation of the models.

Appendix B

Tobit models without interaction

Table B.1: Tobit models with only budgetary implication. It presents the tobit models without the interaction. Budgetary implications retain their negative effect on legislative unity even in the absence of an interaction with defection of behalf of the party of the rapporteur.

	Dependent variable:			
	AI	AIn	abs(RICE)	abs(RICEabs)
	(1)	(2)	(3)	(4)
Budget	−0.018	−0.022*	−0.004	−0.015
	(0.011)	(0.011)	(0.014)	(0.015)
Result	0.150***	0.220***	0.166***	0.066**
	(0.022)	(0.022)	(0.027)	(0.028)
Legislative	0.051***	0.056***	0.060***	0.070***
	(0.009)	(0.009)	(0.012)	(0.012)
No. Terms	0.007	0.012**	0.015**	0.007
	(0.005)	(0.006)	(0.007)	(0.007)
Defection	−0.165***	−0.128***	−0.216***	−0.226***
	(0.016)	(0.016)	(0.020)	(0.021)
EPP dummy	0.268***	0.242***	0.351***	0.342***
	(0.023)	(0.023)	(0.029)	(0.030)
Constant	0.361***	0.206***	0.255***	0.300***
	(0.032)	(0.032)	(0.039)	(0.041)
σ	−1.969***	−1.968***	−1.751***	−1.706***
	(0.023)	(0.023)	(0.023)	(0.023)
Observations	944	944	944	944
Log likelihood	518.164	518.784	310.315	269.933
Wald Test (df = 6)	491.789***	472.942***	521.415***	432.769***
Note:				*p<0.1; **p<0.05; ***p<0.01

Appendix C

Heteroskedasticity

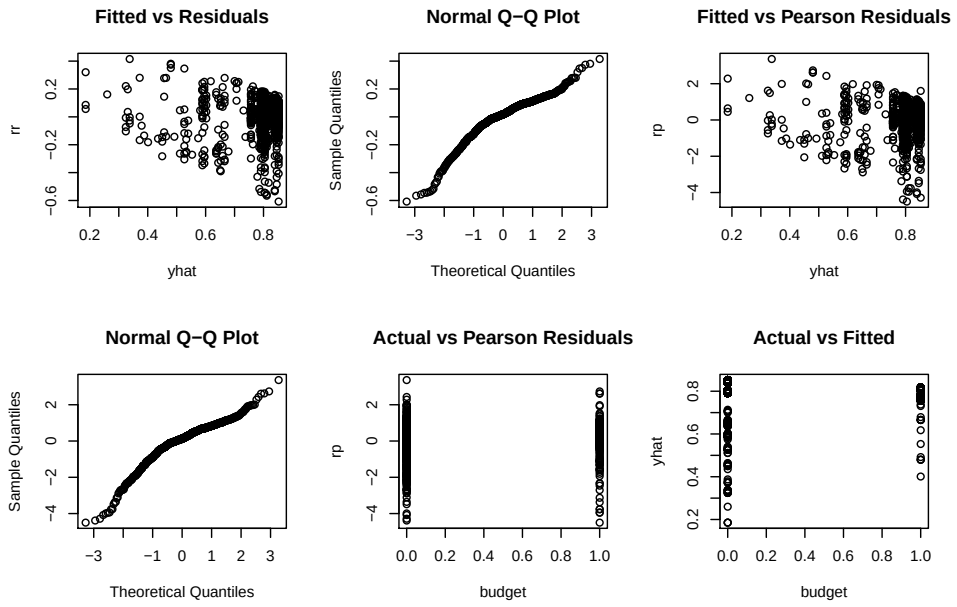

Figure C.1: Test of heteroskedasticity for the AI tobit model. The figure shows that heteroskedasticity is not a major concern for the analysis at hand.

Appendix D

R code

```
1
2  setwd("d:/Workspace/R/Projects/CleanCode")
3
4  #setwd("C:/Users/Andreea/Dropbox/Thesis")
5
6  library(AER)
7  library(beanplot)
8  library(car)
9  library(foreign)
10 library(lattice)
11 library(lme4)
12 library(stargazer)
13 library(xtable)
14 library(Zelig)
15
16 #### Read data #####
17
18 #data <- read.csv("C:/Users/Andreea/Dropbox/Jinx/Votes/DataSet.csv") # remember to put in correct path / use setwd and
19 data <- read.csv("DataSet.csv")
20
21 #votes = read.table("votes.txt")
22 #cases = read.table("cases.txt")
23 #BjornData <- merge(votes, cases, by.x = c("case_id"), all.x = TRUE)
24
25 #### Functions ####
26
27 # Extracting the parties of all rapporteurs for each case #
28
29 getRapporteursEPGs <- function(epg1, epg2, epg3, epg4, epg5, epg6, epg7, epg8) {
30  epgs <- c("GUE/NGL", "Greens", "S&D", "ALDE", "EPP", "ECR", "EFD", "NI")
31
32  rapEpgs <- c("", "", "", "", "", "", "", "", "")
33
34  if(is.na(epg1) == FALSE && epg1 != "") rapEpgs[grep(epg1, epgs)] <- epg1
35  if(is.na(epg2) == FALSE && epg2 != "") rapEpgs[grep(epg2, epgs)] <- epg2
36  if(is.na(epg3) == FALSE && epg3 != "") rapEpgs[grep(epg3, epgs)] <- epg3
37  if(is.na(epg4) == FALSE && epg4 != "") rapEpgs[grep(epg4, epgs)] <- epg4
38  if(is.na(epg5) == FALSE && epg5 != "") rapEpgs[grep(epg5, epgs)] <- epg5
39  if(is.na(epg6) == FALSE && epg6 != "") rapEpgs[grep(epg6, epgs)] <- epg6
40  if(is.na(epg7) == FALSE && epg7 != "") rapEpgs[grep(epg7, epgs)] <- epg7
41  if(is.na(epg8) == FALSE && epg8 != "") rapEpgs[grep(epg8, epgs)] <- epg8
42
43  return(rapEpgs)
44 }
45
46 getStringFromArray <- function(array) {
47  if(is.null(array)) {
48   return("")
49  }
50
51  string <- ""
52
53  for(i in 1 : length(array)) {
54   if(array[i] != "") {
55    string <- paste(string, array[i], sep = ",")
56   }
57  }
58
```

```
 return(substring(string, 2))
}


### Extracting whether a party of a rapporteur has defected from the winning coalition ####
getDeltaBetween <- function(majority, rapEpgs) {
 if(length(majority) == 0) {
  return(NULL)
 }

 delta <- NULL

 for(i in 1 : length(rapEpgs)) {
  if(rapEpgs[i] != "NI") {
   found <- FALSE

   for(j in 1 : length(majority)) {
    if(rapEpgs[i] == majority[j]) {
     found <- TRUE
     break
    }
   }

   if(found == FALSE) {
    delta <- c(delta, rapEpgs[i])
   }
  }
 }

 return(delta)
}

#### Constructing and renaming variables #####

data$result1 <- ifelse(data$Result.of.vote == "+", 1, ifelse(data$Result.of.vote == "-", 0, NA))
data$area1 <- as.numeric(data$Policy.area)

policyareaNames <- levels(data$Policy.area)[2 : 21]

data$budget <- ifelse(data$Budgetary.implication..1..0. >= 1, 1, 0)

data$size.winning.coal <- NA
data$Majority.formed.by <- as.character(data$Majority.formed.by)
class(data$Majority.formed.by)

data$parties.of.rapp <- NA

data$EPG1 <- as.character(data$EPG1)
data$EPG2 <- as.character(data$EPG2)
data$EPG3 <- as.character(data$EPG3)
data$EPG4 <- as.character(data$EPG4)
data$EPG5 <- as.character(data$EPG5)
data$EPG6 <- as.character(data$EPG6)
data$EPG7 <- as.character(data$EPG7)
data$EPG8 <- as.character(data$EPG8)

for(i in 1 : nrow(data)) {
 majority.array <- unlist(strsplit(data$Majority.formed.by[i], ",␣"))
 data$size.winning.coal[i] <- length(majority.array)

 rapp.epg.array <- getRapporteursEPGs(data$EPG1[i], data$EPG2[i], data$EPG3[i], data$EPG4[i], data$EPG5[i], data$EPG6[i
                     data$EPG7[i], data$EPG8[i])
 data$parties.of.rapp[i] <- getStringFromArray(rapp.epg.array)

 rappEpgNotInMajority <- getDeltaBetween(majority.array, rapp.epg.array)
 data$rapp.party.not.in.majority[i] <- getStringFromArray(rappEpgNotInMajority)

 if(data$rapp.party.not.in.majority[i] != "") {
  data$defection.by.party.of.rapp[i] = 1
 } else {
  data$defection.by.party.of.rapp[i] = 0
 }

 if(length(grep("EPP", data$Majority.formed.by[i])) > 0) {
  data$EPPdummy[i] = 1
 } else {
  data$EPPdummy[i] = 0
 }

 if(length(grep("S&D", data$Majority.formed.by[i])) > 0) {
  data$SDdummy[i] = 1
```

```
  } else {
   data$SDdummy[i] = 0
  }

  if(length(grep("ALDE", data$Majority.formed.by[i])) > 0) {
   data$ALDEdummy[i] = 1
  } else {
   data$ALDEdummy[i] = 0
  }

  if(length(grep("Greens", data$Majority.formed.by[i])) > 0) {
   data$Greensdummy[i] = 1
  } else {
   data$Greensdummy[i] = 0
  }

  if(length(grep("GUE/NGL", data$Majority.formed.by[i])) > 0) {
   data$GUENGLdummy[i] = 1
  } else {
   data$GUENGLdummy[i] = 0
  }

  if(length(grep("ECR", data$Majority.formed.by[i])) > 0) {
   data$ECRdummy[i] = 1
  } else {
   data$ECRdummy[i] = 0
  }
  if(length(grep("EFD", data$Majority.formed.by[i])) > 0) {
   data$EFDdummy[i] = 1
  } else {
   data$EFDdummy[i] = 0
  }
}

#### The Agreement Index and AIn are calculated below #####

class(data$Yes)

data$AI <- (
        ifelse(
         data$Yes > data$No & data$Yes > data$Abs,
         data$Yes,
         ifelse(
          data$No > data$Abs,
          data$No,
          data$Abs
         )
        ) - (
         0.5 * (data$Yes + data$No + data$Abs - ifelse(
                                data$Yes > data$No & data$Yes > data$Abs,
                                data$Yes,
                                ifelse(
                                 data$Yes > data$Abs,
                                 data$No,
                                 data$Abs
                                )
                               )
             )
        )
       ) / (data$Yes + data$No + data$Abs)

data$AI <- ifelse(data$AI == 0, NA, data$AI)

#data$AI2 <- ifelse(data$AI > .7, 1, 0)

data$AbsDidntVote <- data$Abs+data$Didn.t.vote

data$AIn <- (
        ifelse(
         data$Yes > data$No & data$Yes > data$AbsDidntVote,
         data$Yes,
         ifelse(
          data$No > data$AbsDidntVote,
          data$No,
          data$AbsDidntVote
         )
        ) - (
         0.5 * (data$Yes + data$No + data$AbsDidntVote - ifelse(
                                    data$Yes > data$No & data$Yes > data$AbsDidntVote,
                                    data$Yes,
                                    ifelse(
```

```
                                    data$Yes > data$AbsDidntVote,
                                    data$No,
                                    data$AbsDidntVote
                                   )
                                  )
            )
         )
        ) / (data$Yes + data$No + data$AbsDidntVote)

#### Calculating the RICE index #####

data$RICE <- (data$Yes - data$No) / (data$Yes + data$No)
data$RICE2 <- ifelse(data$RICE > 0.1, 1, 0)

data$RICEabs <- NA
data$NoAndAbs <- data$No + data$Abs
data$RICEabs <- (data$Yes - data$NoAndAbs) / (data$Yes + data$NoAndAbs)

###### Calculating the number of sessions passed ##########

names(data)

data$Date <- as.Date(as.character(data$Date), format = "%d.%m.%Y")

data$time <- as.numeric(data$Date) - as.numeric(as.Date("2009-09-14"))
data$logtime <- log(data$time)

#### Descriptives #####

pdf("scatterPlotDV.pdf")
par(mfrow = c(2, 1))
scatterplot(data$AIn, data$AI)
scatterplot(data$RICE, data$RICEabs)
dev.off()

pdf("scatterAIandRICE.pdf")
scatterplot(data$AI, abs(data$RICE))
dev.off()

scatterplot(data$AI, abs(data$RICEabs))

#BudgetaryImplicationTable <- xtable(table(data$budget))

boxplot(data$RICEabs)
boxplot(data$AI ~ data$Budgetary.implication..1..0.)
hist(data$AI)
#table(data$AI, data$Budgetary.implication..1..0.)
plot(data$AI, data$budget, cex = 0.5, pch = 19)
dev.off()

budgetLegislation <- with(data, xtabs(~ Budgetary.implication..1..0. + Procedure..1.legislative..0.resolution.))

xtable(budgetLegislation, caption = "Budgetary implication by legislative votes", label = "bugetLegislation", align =

#xtable(summary(data[, c("AI", "AIn", "RICE", "RICEabs")]))

numdata <- data[, c("AI", "AIn", "RICE", "RICEabs", "budget", "Procedure..1.legislative..0.resolution.", "No..Terms",
          "defection.by.party.of.rapp", "EPPdummy"
          )
        ]

# ### Descriptive table ###

# library(xtable)
align = c("l", rep("c", 3))

desc.table <- cbind(
 colMeans(numdata[, 1 : 9], na.rm = T),
 apply(numdata[, 1 : 9], MARGIN = 2, FUN = sd, na.rm = T),
 apply(numdata[, 1 : 9], 2, min, na.rm = T),
 apply(numdata[, 1 : 9], 2, max, na.rm = T),
 colSums(is.na(numdata[, 1 : 9]))
)

colnames(desc.table) <- c("Mean", "SD", "Min", "Max", "Missing")
rownames(desc.table) <- c("AI", "AIn", "RICE", "RICEabs", "Budgetary implication", "Legislation", "No. Terms of rapporte
              "Defection", "EPP dummy")

print(
 xtable(
  desc.table,
```

```
  digits = 2,
  caption = "Descriptive statistics",
  label = "tab:descriptiv",
  align = c("l", rep("c", 5))
 ),
 size = "footnotesize",
 file = "descriptives.tex"
)

#### Bivariate Correlations between variables of substantial interest #####

data$absRICE <- abs(data$RICE)

cor(abs(data$RICE), data$budget, use = "complete.obs")
cor(data$absRICE, data$budget, use = "complete.obs")

bivariateCor <- cor(data[, c("AI", "AIn", "RICE", "RICEabs", "budget", "Procedure..1.legislative..0.resolution.", "No..
                "defection.by.party.of.rapp", "EPPdummy")], use = "complete.obs")

colnames(bivariateCor) <- c("AI", "AIn", "RICE", "RICEabs", "budget", "Procedure..1.legislative..0.resolution.", "No..T
                "defection.by.party.of.rapp", "EPPdummy")
rownames(bivariateCor) <- c("AI", "AIn", "RICE", "RICEabs", "budget", "Procedure..1.legislative..0.resolution.", "No..T
                "defection.by.party.of.rapp", "EPPdummy")

print(
 xtable(
  bivariateCor,
  digits = 3,
  caption = "Bivariate correlations",
  label = "tab:bivariateCor"
 ),
 size = "footnotesize",
 file = "bivariateCor.tex"
)



pdf("beanplotsAIandRICE.pdf")
par(mfrow = c(1, 2))
beanplot(
 data$AI ~ data$budget,
 col = c("#CAB2D6", "#33A02C", "#B2DF8A"),
 border = "black",
 xlab = "Budgetary Implication",
 ylab = "Agreement Index",
 main = "AI by budgetary implication"
)
#green lines show individual observations while the purple polygon shows the distribution
beanplot(
 data$RICE ~ data$budget,
 col = c("#CAB2D6", "#33A02C", "#B2DF8A"),
 border = "black",
 xlab = "Budgetary Implication",
 ylab = "RICE",
 main = "RICE by budgetary implication"
)
dev.off()

pdf("beanplotsAIandRICElegislation.pdf")
par(mfrow = c(1, 2))
beanplot(
 data$AI ~ data$Procedure..1.legislative..0.resolution.,
 col = c("#CAB2D6", "#33A02C", "#B2DF8A"),
 border = "black",
 xlab = "Legislative = 1",
 ylab = "Agreement Index",
 main = "AI by legislation"
)
#green lines show individual observations while the purple polygon shows the distribution
beanplot(
 data$RICE ~ data$Procedure..1.legislative..0.resolution.,
 col = c("#CAB2D6", "#33A02C", "#B2DF8A"),
 border = "black",
 xlab = "Legislative = 1",
 ylab = "RICE",
 main = "RICE by legislation"
)
dev.off()

#### Estimating OLS models #####

```

```
olsAI.noInteraction <- lm(AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.pa
            + EPPdummy, data = data)
summary(olsAI.noInteraction)

olsAI <- lm(AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp + E
      + budget * defection.by.party.of.rapp, data = data)
summary(olsAI)

olsAIn <- lm(AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp -
       + budget * defection.by.party.of.rapp, data = data)
summary(olsAIn)

olsRICE <- lm(absRICE ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.r
       + EPPdummy + budget * defection.by.party.of.rapp, data = data)
summary(olsRICE)

olsRICEabs <- lm(abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
         + defection.by.party.of.rapp + EPPdummy + budget * defection.by.party.of.rapp, data = data)
summary(olsRICEabs)

stargazer(olsAI.noInteraction, olsAI, olsAIn, olsRICE, olsRICEabs)

### Estimating Tobit without interaction ####

tobit.AI.noInteraction <- tobit(AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                + defection.by.party.of.rapp + EPPdummy, data = data, left = 0, right = 1)
summary(tobit.AI.noInteraction)

tobit.AIn.noInteraction <- tobit(AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                 + defection.by.party.of.rapp + EPPdummy, data = data, left = 0, right = 1)
summary(tobit.AIn.noInteraction)

tobit.RICE.noInteraction <- tobit(abs(RICE) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                 + defection.by.party.of.rapp + EPPdummy, data = data, left = 0, right = 1)
summary(tobit.RICE.noInteraction)

tobit.RICEabs.noInteraction <- tobit(abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Ter
                  + defection.by.party.of.rapp + EPPdummy, data = data, left = 0, right = 1)
summary(tobit.RICEabs.noInteraction)

#### Estimating tobit models ######

tobit.AI.defect <- tobit(AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.part
            + EPPdummy + budget * defection.by.party.of.rapp, data = data, left = 0, right = 1)
summary(tobit.AI.defect)

tobit.AIn.defect <- tobit(AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
            + defection.by.party.of.rapp + EPPdummy + budget * defection.by.party.of.rapp, data = data, left = 0, right
summary(tobit.AIn.defect)

tobit.RICE.defect <- tobit(abs(RICE) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
              + defection.by.party.of.rapp + EPPdummy + budget * defection.by.party.of.rapp, data = data, left = 0, righ
summary(tobit.RICE.defect)

tobit.RICEabs.defect <- tobit(abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
               + defection.by.party.of.rapp + EPPdummy + budget * defection.by.party.of.rapp, data = data, left = 0, rig
summary(tobit.RICEabs.defect)

stargazer(tobit.AI.defect, tobit.AIn.defect, tobit.RICE.defect, tobit.RICEabs.defect)

#save.image("MayImage.Rdata")


#### Linearity tests #####

summary(tobit.AI.defect)

#get unstandardized predicted and residual values
unstandardizedPredicted <- predict(tobit.AI.defect)
unstandardizedResiduals <- resid(tobit.AI.defect)

#get standardized values
standardizedPredicted <- (unstandardizedPredicted - mean(unstandardizedPredicted)) / sd(unstandardizedPredicted)
standardizedResiduals <- (unstandardizedResiduals - mean(unstandardizedResiduals)) / sd(unstandardizedResiduals)

#create standardized residuals plot
pdf("StandardizedvsPredictedResidualsAI.pdf")
plot(
 standardizedPredicted,
 standardizedResiduals,
 main = "Standardized␣Residuals␣Plot",
```

```
 xlab = "Standardized Predicted Values",
 ylab = "Standardized Residuals"
)
abline(0,0)
dev.off()

#create residuals histogram
pdf("ResidualsHistAI.pdf")
hist(standardizedResiduals, freq = FALSE)
curve(dnorm, add = TRUE)
dev.off()

#get probability distribution for residuals
probDist <- pnorm(standardizedResiduals)

#create PP plot
pdf("PPPlotAI.pdf")
plot(
 ppoints(length(standardizedResiduals)),
 sort(probDist),
 main = "PP Plot",
 xlab = "Observed Probability",
 ylab = "Expected Probability"
)
abline(0,1)
dev.off()

##### Residuals and influential cases: dfbeta tests ######

data$row <- rownames(data)

attach(data)
nona <- na.omit(data.frame(AI, AIn, RICE, RICEabs, budget, result1, Procedure..1.legislative..0.resolution., No..Terms,
               defection.by.party.of.rapp, EPPdummy, row))
detach(data)

summary(tobit.AI.defect)

dfbeta <- as.data.frame(residuals(tobit.AI.defect, type = "dfbeta"))
dfbeta$id < rownames(data)

pdf("ResidualsInteractionDefection.pdf")

par(mfrow = c(2, 2))

plot(nona$row, dfbeta[, 2], type = "n", ylab = "Budget", xlab = "Observation" )
text(nona$row, dfbeta[, 2], label = nona$row, cex = 0.7)

plot(nona$row, dfbeta[, 6], type = "n", ylab = "Defection", xlab = "Observation" )
text(nona$row, dfbeta[, 6], label = nona$row, cex = 0.7)

plot(nona$row, dfbeta[, 8], type = "n", ylab = "Budget * Defection", xlab = "Observation" )
text(nona$row, dfbeta[, 8], label = nona$row, cex = 0.7)

dev.off()

data[1056, ]
data[98, ]

AI.noInfluence <- tobit(
           AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp
             + budget * defection.by.party.of.rapp + EPPdummy,
           data = nona[which(
                  nona$row != 1123 & nona$row != 1034 & nona$row != 1126 & nona$row != 184 & nona$row != 781
                 & nona$row != 98 & nona$row != 1126 & nona$row != 295 & nona$row != 1177 & nona$row != 576
                ), ],
           left = 0,
           right = 1
          )
summary(AI.noInfluence)

AI.no.EffectOnInteraction <- tobit(
                 AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                   + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy,
                 data = nona[which(nona$row != 1054 & nona$row != 1056 & nona$row != 182 & nona$row != 434), ],
                 left = 0,
                 right = 1
                )
summary(AI.no.EffectOnInteraction)

AI.no.EffectOnInteraction <- tobit(
```

```
                  AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                    + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy,
                  data = nona[which(
                         nona$row != 1054 & nona$row != 1056 & nona$row != 182 & nona$row != 434
                        & nona$row != 601 & nona$row != 812 & nona$row != 1125 & nona$row != 1180
                        & nona$row != 1025 & nona$row != 652 & nona$row != 1018 & nona$row != 596
                        & nona$row != 595 & nona$row != 331 & nona$row != 597 & nona$row != 256
                        & nona$row != 1026 & nona$row != 544 & nona$row != 948 & nona$row != 1026
                        & nona$row != 324 & nona$row != 705 & nona$row != 518 & nona$row != 968
                        & nona$row != 987 & nona$row != 305
                       ), ],
                  left = 0,
                  right = 1
                 )
summary(AI.no.EffectOnInteraction)

#Df beta for AIn

tobit.nona.AIn <- tobit(
           AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp
             + EPPdummy + budget * defection.by.party.of.rapp,
           left = 0,
           right = 1,
           data = nona
          )
summary(tobit.nona.AIn)

dfbeta.AIn <- as.data.frame(residuals(tobit.nona.AIn, type = "dfbeta"))
#dfbeta.AIn$id1 <- rownames(data)

pdf("ResidualsInteractionAIn.pdf")

par(mfrow = c(3, 2))

plot(nona$row, dfbeta.AIn[, 2], type = "n", ylab = "␣Budget", xlab = "Observation")
text(nona$row, dfbeta.AIn[, 2], label = nona$row, cex = 0.7)

plot(nona$row, dfbeta.AIn[, 6], type = "n", ylab = "␣Defection", xlab = "Observation")
text(nona$row, dfbeta.AIn[, 6], label = nona$row, cex = 0.7)

plot(nona$row, dfbeta.AIn[, 8], type = "n", ylab = "␣Budget␣*␣Defection", xlab = "Observation")
text(nona$row, dfbeta.AIn[, 8], label = nona$row, cex = 0.7)

dev.off()

#AI MODEL without influential cases

AIn.no.EffectOnInteraction <- tobit(
                  AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                    + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy,
                  data = nona[which(
                         nona$row != 434 & nona$row != 182 & nona$row != 282 & nona$row != 1056
                        & nona$row != 1054 & nona$row != 1025 & nona$row != 1180 & nona$row != 575
                        & nona$row != 973 & nona$row != 757 & nona$row != 218 & nona$row != 1018
                        & nona$row != 331 & nona$row != 596 & nona$row != 656 & nona$row != 567
                        & nona$row != 1026 & nona$row != 259 & nona$row != 544 & nona$row != 7
                        & nona$row != 948 & nona$row != 972 & nona$row != 705 & nona$row != 451
                        & nona$row != 987 & nona$row != 518 & nona$row != 172
                        ), ],
                  left = 0,
                  right = 1
                 )
summary(AIn.no.EffectOnInteraction)

#Residuals RICE without influential cases

tobit.nona.RICE <- tobit(
             abs(RICE) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
               + defection.by.party.of.rapp + EPPdummy + budget * defection.by.party.of.rapp,
             left = 0,
             right = 1,
             data = nona
            )
summary(tobit.nona.RICE)

dfbeta.RICE <- as.data.frame(residuals(tobit.nona.RICE, type = "dfbeta"))
#dfbeta.AIn$id1 <- rownames(data)

pdf("ResidualsInteractionRICE.pdf")

par(mfrow = c(2, 2))
```

```
626
627 plot(nona$row, dfbeta.RICE[, 2], type = "n", ylab = "␣Budget", xlab = "Observation" )
628 text(nona$row, dfbeta.RICE[, 2], label = nona$row, cex = 0.7)
629
630 plot(nona$row, dfbeta.RICE[, 6], type = "n", ylab = "␣Defection", xlab = "Observation" )
631 text(nona$row, dfbeta.RICE[, 6], label = nona$row, cex = 0.7)
632
633 plot(nona$row, dfbeta.RICE[, 8], type = "n", ylab = "␣Budget*Defection", xlab = "Observation" )
634 text(nona$row, dfbeta.RICE[, 8], label = nona$row, cex = 0.7)
635
636 dev.off()
637
638 RICE.no.EffectOnInteraction <- tobit(
639                   abs(RICE) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
640                     + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy,
641                   data = nona[which(
642                           nona$row!=434 & nona$row!=282 & nona$row!=128 & nona$row!=1056
643                           & nona$row!=1054 & nona$row!=206 & nona$row!=522 & nona$row!=519
644                           & nona$row!=601 & nona$row!=164 & nona$row!=812 & nona$row!=596
645                           & nona$row!=593 & nona$row!=595 & nona$row!=331 & nona$row!=125
646                           & nona$row!=259 & nona$row!=214 & nona$row!=737 & nona$row!=324
647                           & nona$row!=544 & nona$row!=74 & nona$row!=987 & nona$row!=968
648                           & nona$row!=705 & nona$row!=518 & nona$row!=305
649                          ), ],
650                   left = 0, right = 1
651                  )
652 summary(RICE.no.EffectOnInteraction)
653
654 #Residuals RICEabs
655
656 tobit.nona.RICEabs <- tobit(
657              abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
658                + defection.by.party.of.rapp + EPPdummy + budget * defection.by.party.of.rapp,
659              left = 0,
660              right = 1,
661              data = nona
662             )
663 summary(tobit.nona.RICEabs)
664
665 dfbeta.RICEabs <- as.data.frame(residuals(tobit.nona.RICEabs, type = "dfbeta"))
666 #dfbeta.AIn$id1 <- rownames(data)
667
668 pdf("ResidualsInteractionRICEabs.pdf")
669
670 par(mfrow = c(2, 2))
671
672 plot(nona$row, dfbeta.RICEabs[, 2], type = "n", ylab = "␣Budget", xlab = "Observation" )
673 text(nona$row, dfbeta.RICEabs[, 2], label = nona$row, cex = 0.7)
674
675 plot(nona$row, dfbeta.RICEabs[, 3], type = "n", ylab = "␣Defection", xlab = "Observation" )
676 text(nona$row, dfbeta.RICEabs[, 3], label = nona$row, cex = 0.7)
677
678 plot(nona$row, dfbeta.RICEabs[, 9], type = "n", ylab = "␣Budget␣*␣Defection", xlab = "Observation" )
679 text(nona$row, dfbeta.RICEabs[, 9], label = nona$row, cex = 0.7)
680
681 dev.off()
682
683 # RICEabs model without influential cases
684
685 RICEabs.no.EffectOnInteraction <- tobit(
686                    abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
687                      + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy,
688                    data = nona[which(
689                             nona$row != 206 & nona$row != 596 & nona$row != 593 & nona$row != 887
690                             & nona$row != 519 & nona$row != 812 & nona$row != 1025 & nona$row != 1180
691                             & nona$row != 522 & nona$row != 652 & nona$row != 206 & nona$row != 596
692                             & nona$row != 593 & nona$row != 595 & nona$row != 331 & nona$row != 397
693                             & nona$row != 16 & nona$row != 752 & nona$row != 781 & nona$row != 602
694                             & nona$row != 320 & nona$row != 902 & nona$row != 7 & nona$row != 1034
695                             & nona$row != 1026 & nona$row != 1123 & nona$row != 892
696                            ), ],
697                    left = 0,
698                    right = 1
699                   )
700 summary(RICEabs.no.EffectOnInteraction)
701
702 #### Table of models with no influential observations for all the dependent variables ####
703
704 stargazer(AI.no.EffectOnInteraction, AIn.no.EffectOnInteraction, RICE.no.EffectOnInteraction, RICEabs.no.EffectOnInterac
705       title = "Tobit␣models␣without␣influential␣observations")
706
```

```
#### Ideology AER models with party dummy #####

tobit.AI.PartyDummies <- tobit(
                AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                  + defection.by.party.of.rapp + time + EPPdummy + SDdummy + ALDEdummy + Greensdummy + GUENGLdummy
                  + ECRdummy + EFDdummy + budget * defection.by.party.of.rapp,
                data = data,
                left = 0,
                right = 1
               )
summary(tobit.AI.PartyDummies)

tobit.AIn.PartyDummies <- tobit(
                AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                  + defection.by.party.of.rapp + time + EPPdummy + SDdummy + ALDEdummy + Greensdummy
                  + GUENGLdummy + ECRdummy + EFDdummy + budget * defection.by.party.of.rapp,
                data = data,
                left = 0,
                right = 1
               )
summary(tobit.AI.PartyDummies)

tobit.RICE.PartyDummies <- tobit(
                 abs(RICE) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                   + defection.by.party.of.rapp + time + EPPdummy + SDdummy + ALDEdummy + Greensdummy
                   + GUENGLdummy + ECRdummy + EFDdummy + budget * defection.by.party.of.rapp,
                 data = data,
                 left = 0,
                 right = 1
                )
summary(tobit.RICE.PartyDummies)

tobit.RICEabs.PartyDummies <- tobit(
                  abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                    + defection.by.party.of.rapp + time + EPPdummy + SDdummy + ALDEdummy + Greensdummy
                    + GUENGLdummy + ECRdummy + EFDdummy + budget * defection.by.party.of.rapp,
                  data = data,
                  left = 0,
                  right = 1
                 )
summary(tobit.RICEabs.PartyDummies)

stargazer(tobit.AI.PartyDummies, tobit.AIn.PartyDummies, tobit.RICE.PartyDummies, tobit.RICEabs.PartyDummies)

### ML random intercept with party positions ####

#with party positions

AI.MLbudget.party <- lmer(
              AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy + SDdummy + ALDEdummy
                + Greensdummy + GUENGLdummy + ECRdummy + EFDdummy + (1 + budget|area1),
              data = data
             )
summary(AI.MLbudget.party)

AIn.MLbudget.party <- lmer(
              AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                 + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy + SDdummy
                + ALDEdummy + Greensdummy + GUENGLdummy + ECRdummy + EFDdummy + (1 + budget|area1),
              data = data
             )
summary(AIn.MLbudget.party)

RICE.MLbudget.party <- lmer(
               abs(RICE) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                 + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy + SDdummy + ALDEdummy
                 + Greensdummy + GUENGLdummy + ECRdummy + EFDdummy + (1 + budget|area1),
               data = data
              )
summary(RICE.MLbudget.party)

RICEabs.MLbudget.party <- lmer(
                abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
                  + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy + SDdummy
                  + ALDEdummy + Greensdummy + GUENGLdummy + ECRdummy + EFDdummy + (1 + budget|area1),
                data = data
               )
summary(RICEabs.MLbudget.party)

stargazer(AI.MLbudget.party, AIn.MLbudget.party, RICE.MLbudget.party, RICEabs.MLbudget.party,
```

```
      title = "Random interept and effect of budget controlled for party positions")


#### ML Fixed Effects ####
AI.MLbudgetfe <- lm(
           AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp
             + budget * defection.by.party.of.rapp + EPPdummy + as.factor(area1),
           data = data
          )

class(data$area1)
summary(AI.MLbudgetfe)

AIn.MLbudgetfe <- lm(
           AIn ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp
             + budget * defection.by.party.of.rapp + EPPdummy + as.factor(area1),
           data = data
          )

class(data$area1)
summary(AIn.MLbudgetfe)

RiceMLbudgetfe <- lm(
           abs(RICE) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
             + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy + as.factor(area1),
           data = data
          )

class(data$area1)
summary(RiceMLbudgetfe)

RiceabsMLbudgetfe <- lm(
            abs(RICEabs) ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
              + defection.by.party.of.rapp + budget * defection.by.party.of.rapp + EPPdummy + as.factor(area1),
            data = data
           )

class(data$area1)
summary(RiceabsMLbudgetfe)

stargazer(AI.MLbudgetfe, AIn.MLbudgetfe, RiceMLbudgetfe, RiceabsMLbudgetfe)

#### Logit Result models ####

resultModel.AI <- zelig(
           result1 ~ budget + AI + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp
             + EPPdummy,
           model = "logit",
           data = data
          )
summary(resultModel.AI)

resultModel.AIn <- zelig(
            result1 ~ budget + AIn + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp
              + EPPdummy,
            model = "logit",
            data = data
           )
summary(resultModel.AIn)

resultModel.RICE <- zelig(
            result1 ~ budget + abs(RICE) + Procedure..1.legislative..0.resolution. + No..Terms
              + defection.by.party.of.rapp + EPPdummy,
            model = "logit",
            data = data
           )
summary(resultModel.RICE)

resultModel.RICEabs <- zelig(
             result1 ~ budget + abs(RICEabs) + Procedure..1.legislative..0.resolution. + No..Terms
               + defection.by.party.of.rapp + EPPdummy,
             model = "logit",
             data = data
            )
summary(resultModel.RICEabs)

stargazer(resultModel.AI, resultModel.AIn, resultModel.RICE, resultModel.RICEabs)


###### Interaction Plot AI models #####

```

```
require(AER)

tobit.AI.InterPlot <- tobit(
            AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms+ defection.by.party.of.rapp
              + EPPdummy + budget * defection.by.party.of.rapp,
            data = data
           )

tobit.AI.InterPlot1 <- tobit(
             AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms
               + I(defection.by.party.of.rapp - 1) + EPPdummy + budget * I(defection.by.party.of.rapp - 1),
             data = data
            )

coefs <- cbind(summary(tobit.AI.InterPlot)$coefficients[2, 1], summary(tobit.AI.InterPlot1)$coefficients[2, 1])

se <- cbind(summary(tobit.AI.InterPlot)$coefficients[2, 2], summary(tobit.AI.InterPlot1)$coefficients[2, 2])

conf.int <- matrix(NA, nrow = 2, ncol = 2)
for(i in 1 : 2) {
 conf.int[i, ] <- c(coefs[i] - 1.96 * se[i], coefs[i] + 1.96 * se[i])
}

pdf("InteractionPlotDefectBudget.pdf")

par(mfrow = c(1, 1))

plot(c(-0.5, 1.5), c(-0.7, 0.3), type = "n", ylab = "Effect␣of␣budgetary␣implications␣on␣AI", xlab = "", xaxt = "n")
axis(1, at = 0 : 1, labels = c("No␣Defection", "Defection"))

for(i in 1 : 2) {
 segments(y0 = conf.int[i, 1], y1 = conf.int[i, 2], x0 = i - 1, col = "violetred2")
}

points(c(0 : 1), coefs, type = "p", pch = 16)
segments(y0 = 0, x0 = -1, x1 = 2, col = "grey50")

dev.off()


##### Simulation ###########

require(MASS)
require(AER)

tobit.AI.SimPlot <- tobit(
            AI ~ budget + result1 + Procedure..1.legislative..0.resolution. + No..Terms + defection.by.party.of.rapp
              + EPPdummy + budget * defection.by.party.of.rapp,
            data = data
           )

beta <- summary(tobit.AI.SimPlot)$coefficients[1 : 8, 1]
vcov <- tobit.AI.SimPlot$var[1 : 8, 1 : 8]
nsims <- 1000
set.seed(2709)

simb <- mvrnorm(n = nsims, mu = beta, Sigma = vcov)

###intercept = 1, budget = 0, defection = 1, interaction = 0
x.0 <- cbind(1, 0, median(data$result1, na.rm = T), median(data$Procedure..1.legislative..0.resolution., na.rm = T),
       median(data$No..Terms, na.rm = T), 1, min(data$EPPdummy, na.rm = T), 0)
###intercept = 1, budget = 1, defection = 1, interaction = 1
x.1 <- cbind(1, 1,
       median(data$result1, na.rm = T),
       median(data$Procedure..1.legislative..0.resolution., na.rm = T),
       median(data$No..Terms, na.rm = T),
       1,
       min(data$EPPdummy, na.rm = T),
       1)

x.beta.0 <- x.0 %*% t(simb)
x.beta.1 <- x.1 %*% t(simb)
exp.y.0 <- x.beta.0
exp.y.1 <- x.beta.1

quantile.values0 <- quantile(exp.y.0, probs = c(0.025, 0.5, 0.975))
quantile.values1 <- quantile(exp.y.1, probs = c(0.025, 0.5, 0.975))

sim <- data.frame(c(exp.y.0, exp.y.1))
sim$budget <- NA
sim$budget[1 : 1000] <- "No"
```

```
sim$budget[1001 : 2000] <- "Yes"

pdf("BoxPlotSimulationDefection.pdf")
boxplot(
 sim$c.exp.y.0..exp.y.1. ~ sim$budget,
 frame = T,
 xlab = "Budgetary implication",
 ylab = "Predicted cohesiveness",
 main = "Effect for bills with defection"
)
dev.off()

pdf("SimulationPlotDensityforFailed.pdf")
plot(c(0.4, 0.9), c(0, 20), type = "n", ylab = "Density", xlab = "Budgetary implication")
lines(density(sim$c.exp.y.0..exp.y.1.[1 : 1000]), col = "tomato")
lines(density(sim$c.exp.y.0..exp.y.1.[1001 : 2000]), col = "seagreen")
segments(x0 = quantile(sim$c.exp.y.0..exp.y.1.[1 : 1000], probs = 0.025), y0 = 0, y1 = 2.6, col = "tomato")
segments(x0 = quantile(sim$c.exp.y.0..exp.y.1.[1 : 1000], probs = 0.975), y0 = 0, y1 = 2.67, col = "tomato")
segments(x0 = quantile(sim$c.exp.y.0..exp.y.1.[1001 : 2000], probs = 0.025), y0 = 0, y1 = 1.9, col = "seagreen")
segments(x0 = quantile(sim$c.exp.y.0..exp.y.1.[1001 : 2000], probs = 0.975), y0 = 0, y1 = 1.9, col = "seagreen")
legend(0.63, 18, c( "No Defection", "Defection"), fill = c("seagreen", "tomato"), cex = 0.8, pt.bg = 1)
dev.off()

pdf("SimulationBudgetRICEBeanPlot.pdf")
beanplot(
 sim$c.exp.y.0..exp.y.1. ~ sim$budget,
 frame = T,
 xlab = "Budgetary implication",
 ylab = "Predicted cohesiveness",
 col = c("#CAB2D6", "#33A02C", "#B2DF8A"),
 border = "black",
 main = "Simulated effects of budgetary implication for RICE"
)
dev.off()


#### Simulation for bills with no defection ####

#intercept = 1, budget = 0, defection and interaction = 0
a.0 <- cbind(1, 0, median(data$result1, na.rm = T),
        max(data$Procedure..1.legislative..0.resolution., na.rm = T),
        median(data$No..Terms, na.rm = T),
        0,
        max(data$EPPdummy, na.rm = T),
        0)
#intercept=1, budget=1, defection and interaction =0
a.1 <- cbind(1, 1, median(data$result1, na.rm = T),
        max(data$Procedure..1.legislative..0.resolution., na.rm = T),
        median(data$No..Terms, na.rm = T),
        0,
        max(data$EPPdummy, na.rm = T),
        0)

a.beta.0 <- a.0 %*% t(simb)
a.beta.1 <- a.1 %*% t(simb)
exp.ya.0 <- a.beta.0
exp.ya.1 <- a.beta.1

quantile.valuesa0 <- quantile(exp.ya.0, probs = c(0.025, 0.5, 0.975))
quantile.valuesa1 <- quantile(exp.ya.1, probs = c(0.025, 0.5, 0.975))

sima <- data.frame(c(exp.ya.0, exp.ya.1))
sima$budget <- NA
sima$budget[1 : 1000] <- "No"
sima$budget[1001 : 2000] <- "Yes"

names(sima)

pdf("SimulationPlotDensityforFailed.pdf")
plot(c(0.1, 0.4), c(0, 25), type = "n", ylab = "Density", xlab = "Predicted cohesiveness")
lines(density(sima$c.exp.ya.0..exp.ya.1.[1 : 1000]), col = "hotpink" )
lines(density(sima$c.exp.ya.0..exp.ya.1.[1001 : 2000]), col = "limegreen")
segments(x0 = quantile(sima$c.exp.ya.0..exp.ya.1.[1 : 1000], probs = 0.025), y0 = 0, y1 = 2, col = "hotpink")
segments(x0 = quantile(sima$c.exp.ya.0..exp.ya.1.[1 : 1000], probs = 0.975), y0 = 0, y1 = 2, col = "hotpink")
segments(x0 = quantile(sima$c.exp.ya.0..exp.ya.1.[1001 : 2000], probs = 0.025), y0 = 0, y1 = 2, col = "limegreen")
segments(x0 = quantile(sima$c.exp.ya.0..exp.ya.1.[1001 : 2000], probs = 0.975), y0 = 0, y1 = 2.6, col = "limegreen")
legend(0.09, 12, c("No budgetary implication", "Budgetary implication"), fill = c("limegreen", "hotpink"), cex = 0.8, pt
dev.off()

pdf("SimulationBudgetRICEBeanPlotRESULT.pdf")
beanplot(
```

```
 sima$c.exp.ya.0..exp.ya.1. ~ sima$budget,
 frame = T,
 xlab = "Budgetary implication",
 ylab = "Predicted cohesiveness",
 col = c("#CAB2D6", "#33A02C", "#B2DF8A"),
 border = "black",
 main = "Simulated effects of budgetary implication for RICE for votes without defections"
)
dev.off()


pdf("BoxPlotSimulationNODefection.pdf")
boxplot(
 sima$c.exp.ya.0..exp.ya.1. ~ sima$budget,
 frame = T,
 xlab = "Budgetary implication",
 ylab = "Predicted cohesiveness",
 main = "Simulated effects for bills without defection"
)
dev.off()


######## MISC ##################

data[which(data$budget == 1 & data$defection.by.party.of.rapp == 1), ]
class(data$size.winning.coal)

poisson.WinningCoal <- glm(
              size.winning.coal ~ budget + Procedure..1.legislative..0.resolution. + No..Terms
                + defection.by.party.of.rapp + EPPdummy,
              data = data,
              family = poisson
             )
summary(poisson.WinningCoal)


poisson.WinningCoal.interaction <- glm(
                    size.winning.coal ~ budget + Procedure..1.legislative..0.resolution. + No..Terms
                      + defection.by.party.of.rapp + EPPdummy + defection.by.party.of.rapp * budget,
                    data = data,
                    family = poisson
                   )
summary(poisson.WinningCoal.interaction)

poisson.AIn.WinningCoal <- glm(
                size.winning.coal ~ budget + AIn + Procedure..1.legislative..0.resolution. + No..Terms
                  + defection.by.party.of.rapp + EPPdummy + defection.by.party.of.rapp * budget,
                data = data,
                family = poisson
               )
summary(poisson.AIn.WinningCoal)

poisson.RICE.WinningCoal <- glm(
                size.winning.coal ~ budget + abs(RICE) + Procedure..1.legislative..0.resolution. + No..Terms
                  + defection.by.party.of.rapp + EPPdummy,
                data = data,
                family = poisson
               )
summary(poisson.RICE.WinningCoal)

poisson.RICEabs.WinningCoal <- glm(
                  size.winning.coal ~ budget + abs(RICEabs) + Procedure..1.legislative..0.resolution. + No..Terms
                    + defection.by.party.of.rapp + EPPdummy + defection.by.party.of.rapp * budget,
                  data = data,
                  family = poisson
                 )
summary(poisson.RICEabs.WinningCoal)

stargazer(poisson.WinningCoal, poisson.WinningCoal.interaction)

save.image("2Mai.Rdata")
```