PRIME MINISTERS' POPULARITY RATINGS: THE IMPACT OF THE ENVIRONMENTAL CONNECTION AND GOVERNMENTAL CHARACTERISTICS

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ABSTRACT

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This study examines how popularity ratings of political leaders are shaped by characteristics of governments in parliamentary systems. In the dissertation's three chapters, I examine (1) the relationship between economic popularity and changes in different aspects of the government's clarity of responsibility; (2) legislative divisions among members of a coalition government as a measure of cohesiveness and the influence of these divisions on public support for the prime minister; and (3) the mutual dependence between popularity ratings and vote intentions.

The first chapter argues that public perception of prime ministerial economic responsibility is related to properties of government that commonly lead to conflicts among members of the government. I contrast this explanation with an alternative account, which argues that popularity ratings of political leaders are impervious to all types of clarity of responsibility. Using a newly gathered dataset of prime ministers' popularity from six parliamentary democracies during the last two decades, I show that low *policy unity* within the government, which is likely to lead to internal disagreements, can obscure the level of prime minister's responsibility, since economic conditions can then be perceived by the public to be the result of the government's policy and not just the leader's policy.

After examination of popularity ratings and government clarity of responsibly, the second chapter turns to coalition government's legislative behavior and asks whether coalition government dissent is a political liability for the prime minister. Conventional scholarly wisdom has long held that the popularity of political leaders is determined by their government's economic and social performances. But for coalition governments in multiparty parliamentary democracies the feasibility of prime ministers' policies is dependent on members of the coalition and their willingness to support the prime minister's agenda. Focusing on the consequences of cohesive roll call voting

in Israel between 2006 and 2015, I examine how coalition government's parliamentary behavior can influence the prime minister's popularity. Although economic performance, war casualties and political events also matter, I show that as the coalition becomes less cohesive, and members of the coalition do not vote with the government, public support for the prime minister decreases.

Chapter three focuses on the relationships between public support for the prime minister, the entire government and the incumbent party. Previous studies on parliamentary democracies, have explored the effect of economic and security conditions on three types of political units: prime ministers, governments and parties. Yet, to date, the relationships between these three political units in parliamentary systems have not been examined. To examine the relationships between the three political units of accountability this study focuses on Britain as a case-study to offer a general account of VP-functions dynamics that takes into consideration 1) the degree to which executive powers are shared within the government for socio-economic versus security issues, 2) the importance of prime ministerial popularity for the government, and 3) the mutual relationship between popular support for the executive and vote intentions. This study shows that in Britain those who are held accountable for economic and security outcomes – the prime minister, the government and the incumbent party – also depend on each other for their public support. Moreover, security conditions has stronger effect on the prime minister than on the government as a whole, since the prime minister is perceived by the public as the "commander in chief". Economic conditions, however, have similar impact on both the prime minister and the government, since the economic decision making process is more equally shared among most government members.

לאבי, שתמיד האמינו בי
ועודדו אותי להגשים את חלומותי.
לאשתי ובני, על היותכם מקורות המוטיבציה
המשמעותיים ביותר עבורי במהלך המסע הזה.

To my parents, who have always believed in me
and encouraged me to follow my dreams.
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CHAPTER 1

INTRODUCTION

1.1 Popularity Ratings and the Instability Problem

Since the 1930s, when the Gallup organization began asking Americans "do you approve or disapprove of the way [the incumbent] is handling his job as president?", scholars of public opinion, first in the United States and later in other countries around the world, have used this type of question to explore the processes that shape public evaluation of the incumbent. This exploration is often referred to as study of the popularity function. Surveys on public support for leaders tend to share the following characteristics. First, while in preelection polls questions are often related to particular actions by the respondents, in popularity surveys the inquiry is not related to any political action and behavior. Second, popularity surveys are also not related to any concrete information on specific issues. Third, questions on the popularity of leaders, as well as the responses, are unfocused "which tells us anything or nothing about what respondents meant by what they said" (Neustadt, 1980, p. 81). Finally, popularity questions tend to be measured frequently, from quarterly to daily queries. The timing and frequency of the surveys are crucial components to scholars of public opinion, since they reflect what respondents saw, and the conditions under which they lived, while they answered the popularity question. While the popularity question is measured at the individual level, it is most commonly reported and analyzed at the aggregate level. Therefore, the unit of analysis in this study is the percentage of public support in a country for the head of the executive.

Leaders' popularity ratings are a continuous vote of confidence from the total electorate. As Crespi (1980) notes, "[w]hile not binding in any sense, this vote of confidence is accepted by both politicians and political analysts as an indicator of the [leader]'s ... ability to govern effectively" (p. 42). Conceptualizing popularity ratings as perpetual elections can therefore explain their importance (Hodgson, 1980). Public evaluations of leaders' performances are a form of political currency that is vital to both the political survival and substantive effectiveness of a

government (Marta et al., 1990). The acknowledgment in the importance of popularity ratings, has led scholars in many democratic (Nannestad and Paldam, 1994; Lewis-Beck and Stegmaier, 2013) and non-democratic (e.g., Treisman 2011; Lewis-Beck et al. 2014) countries to explore the determinants of public support for leaders' job performances.

Nevertheless, over the years as the literature developed it became clear that empirical findings in studies on popularity ratings are "sadly lacking in stability" (Paldam, 1991, p. 9). Even when we just focus on presidential approval ratings in the United States, which have generated the highest number of titles in this literature, it is clear that "the literature failed to deliver empirically stable popularity functions ... [and e]ven after 40 years of empirical research on the determinants of government popularity no clear picture evolved" (Berlemann and Enkelmann, 2014, p. 42). The concern over the instability problem, has even led some to question the value of the popularity function (Bellucci and Lewis-Beck, 2011; Lewis-Beck and Stegmaier, 2007).

The instability problem is even more severe in the context of parliamentary systems for two main reasons. First, far less studies have explored democracies that are not presidential or semi-presidential. In a review of the literature on popularity and vote functions, in the context of economic conditions, Lewis-Beck and Stegmaier (2007) counted 400 books and articles, most of them focused on the United States and the number of studies on parliamentary systems is relatively small. Second, even when studies have focused on parliamentary systems, they mostly ignored the institutional and governmental characteristics of those systems. In a literature review that focused on popularity functions Bellucci and Lewis-Beck (2011) list the main studies in several parliamentary systems and in all of them characteristics of parliamentary systems are widely overlooked.

In my dissertation, I directly address the instability problem by considering how various macro-political contexts, which have been ignored in previous studies on popularity, can change public evaluations. Each chapter focuses on a different aspect of governments in parliamentary systems. First, ideological differences between parties in government is an important characteristic of the executive branch in parliamentary democracies, which can shape the clarity of responsibility for economic outcomes. Second, coalition governments do not always vote as a cohesive unit in

parliament and the public might reward or punish the prime minister for it. Third, in parliamentary systems three political units have been shown to be held accountable for economic and security conditions – prime ministers, their governments and their parties – and they might also influence each other in shaping public support. The next paragraphs explain how each macro-political characteristic is examined and what is the effect on the dynamic of popularity ratings.

1.2 Cross-national Analysis

1.2.1 How the Clarity of Government Responsibility Influences Prime Ministers' Popularity

The first chapter explores if popularity ratings of political leaders are impervious to the clarity of government responsibility? Most of the literature on popularity has either overlooked the importance of government clarity, or argued that popularity should not be affected by it. Using a newly gathered dataset of prime ministers' popularity from six countries during the last two decades, two main properties of government clarity, which have been shown to shape economic voting for parties, are evaluated: the concentration of responsibility and policy unity. Since prime ministers are highly associated with their government's policy and economic outcomes it is harder to change public perception of prime ministerial responsibility. Nevertheless, this study shows that low policy unity within the government can still obscure the level of prime minister's responsibility. Overall, policy unity is empirically more important than the concentration of responsibility in explanting how prime ministers can be held accountable for economic outcomes.

1.3 Case-study Analyses

1.3.1 Coalition Government and Cohesive Roll-Call Voting

The second chapter examines whether coalition government dissent is a political liability for the prime minister. Conventional scholarly wisdom has long held that the popularity ratings of political leaders is determined by their government's economic and social performances. But for coalition

governments in multiparty parliamentary democracies the feasibility of prime ministers' policies is dependent on members of the coalition and their willingness to support the prime minister's agenda. When members of the coalition do not support government proposals, the public may question the policy making process and the coalition's political feasibility. It hence lowers the likelihood of getting satisfactory economic and social outcomes. In Israel, where prime ministers have been historically dependent on coalition governments, members of the coalition sometimes do not support government proposals. Even though this parliamentary behavior may threaten the existence of a coalition government and draw public attention, it has received limited scholarly attention. Focusing on the consequences of cohesive roll call voting in Israel between 2006 and 2015, this study examines how coalition government's parliamentary behavior can influence the prime minister's popularity. Although economic performance, war casualties and political events also matter, it is shown that as the coalition becomes less cohesive, and members of the coalition do not vote with the government, public support for the prime minister decreases. This study aims at the theoretical development of a comprehensive model of popularity for Israel, as well as augmenting the model to make it applicable to coalition type governments in parliamentary systems.

1.3.2 Popularity Ratings, Vote Intentions and their Mutual Dependence

In the third chapter, I ask if those who are held accountable for economic and security outcomes also depend on each other for their public support? Previous studies on parliamentary democracies, have explored the effect of economic and security conditions on three types of political units: prime ministers, governments and parties. However, to date, the relationships between these three political units in parliamentary systems have not been examined. This study is the first to investigate the possibility of reciprocal relationships between evaluations of prime ministers, governments and incumbent parties. To examine the relationships between the three political units of accountability this study focuses on Britain as a parliamentary system where the impact of both economic conditions and wars can be investigated simultaneously over a long period of time

and data on public support for prime ministers, governments and parties is available. This study contends that since some executive powers are more concentrated with the prime minister while others are more broadly shared among government ministers, the public should be able to assign responsibility for issues based on the level of shared responsibility. While both the prime minister and the government should be held accountable for economic outcomes, security conditions are most likely to be attributed to the prime minister who holds the executive authority over the armed forces. In addition, the prominence of the prime ministers in their governments, and prime minister's pivotal role in the decision making process should cause popular support for the prime minister to shape support for the government, but not necessarily vice versa. Finally, this study argues that just as a government's job performances should influence vote intention for the incumbent party greater support for the incumbent party should increase popular support for the executive.

CHAPTER 2

PUTTING ECONOMIC POPULARITY IN CONTEXT: HOW GOVERNMENT POLARIZATION INFLUENCES PRIME MINISTERS' POPULARITY

One very desirable aspect of democracy is the continuous interaction between citizens and their governments. Popularity ratings of political leaders, similar to voting in elections but more frequent, communicate the public's evaluation of their leaders' performance. Starting out from the United States and the United Kingdom, the literature on leaders' popularity was later expanded to other Western democracies (Nannestad and Paldam, 1994). Most of the existing literature, both in the US and cross nationally, has highlighted the effect of economic conditions and shows that the state of the economy is a major cause of popularity ratings. The entire political system then uses this information as a surrogate for electoral results, thereby creating a sort of perpetual election.

The instability of the impact of the economy on political leader's popularity, in the context of this perpetual election, is a persistent problem in the empirical literature on popularity ratings that assumes that political leaders are rewarded and punished similarly for their economic performances over time and across countries (Lewis-Beck and Paldam, 2000, p. 114). This study raises issues with the current literature that assumes a consistent economic/popularity relationship, by unpacking and investigating the possible conditions under which the effect of economic conditions on political leaders might vary (i.e., be unstable). The main finding of this is paper is that political context plays an important role in the clarity of the leader's responsibility for economic conditions and thereby provides at least a partial account for the observed instability.

The instability problem means that individual popularity models that have been suggested over the years have a tendency to only be relevant in specific countries and periods of time (Berlemann and Enkelmann, 2014; Lewis-Beck and Paldam, 2000). One possible solution to the problem is to view it as related to model specification: prior studies might have missed something in their explanations (Lewis-Beck and Paldam, 2000). Such solution can be found in the related literature on economic voting that has dealt with a similar instability problem (Paldam, 1981) by considering

macro-political contexts that can influence (or condition) the effect of economic performance assessments (e.g., Powell and Whitten 1993; Anderson 2000, 2007; Van der Brug et al. 2007; Duch and Stevenson 2008). By altering the model specification through a consideration of macro-political contexts, this paper offers a cross-national popularity model that account for varying degrees of economic popularity.

Turning to the features of the macro-political context, many studies have followed the logic of Powell and Whitten's (1993) 'clarity of responsibility', which identifies factors that make it more difficult for voters to hold incumbent parties accountable for their economic performances. It was later shown that government's characteristics are the main source of blurred responsibility (Hobolt et al., 2013), which according to the literature has two main characteristics (Hellwig, 2011; Hobolt et al., 2013). The first characteristic refers to the concentration of responsibility and emphasizes the number of parties involved in the policy-making process. The second characteristic pertains to policy unity and focuses on ideological differences among parties in government.

In the field of prime ministerial popularity, the main exception to the literature's tendency to ignore macro-political contexts is a recent study by Bellucci and Lewis-Beck (2011); that sought to establish and test across-national 'popularity function'. Being aware of previous popularity studies' poor specification, the authors include the concentration of responsibility, measured as the absolute number of parties in government, to explore its conditioning effect on the relationship between the economy and popularity. However, while they find a strong independent economic effect, they find no evidence that the concentration of decision making conditions the impact of the economy on popularity ratings. More specifically, the number of parties in government, which has been shown to influence economic voting, has no effect in the context of popularity. An important question is whether the study definitively excludes factors that have been shown to be important in the economic voting literature.

This study views the question as open and argues that the public's ability to hold prime ministers accountable for economic performance will be influenced more by *policy unity* in government, than by the *concentration of responsibility*. Related studies on party-systems have shown that ideological

positions have a stronger impact on voters, than the number of parties in the system (Dalton, 2008; Sartori, 1976). Although the head of the executive is usually perceived as the one who has the most influence on economic policy among all members of government, responsibility for economic conditions can still be shared with other members especially if there are internal disagreements over policies. Economic conditions can then be perceived by the public as the result of the government's policy and not just as the leader's policy, since the decision-making process was shaped by different agendas. Moreover, multiplicity of parties in government does not mean that parties disagree over policies, and when other parties do not challenge the head of the executive, he or she are more likely to be perceived as the one who are responsible for economic conditions.

To investigate whether policy unity rather than concentration of power might illuminate the instability problem, this study focuses on prime ministerial popularity ratings where the head of government – who can generically be termed prime minister although the official title may be premier, chancellor or taoiseach (Lijphart, 2012) – can make decisions with his or her cabinet in a collective or collegial fashion. Six countries are included in the analyses - Australia, Canada, Germany, Ireland, Israel, and United Kingdom - which offer a wide variation of institutional design. To preview the results, I find that policy unity in government, measured as ideological polarization among parties, has an impact on the relationship between economic evaluations and popularity ratings of prime ministers. In fact, as ideological polarization increases, the impact of the economy on popularity is reduced. This suggests it is more difficult to reward and punish prime ministers for economic performances when parties in government have different political agendas.

Studying the popularity of leaders is important for two main reasons. First, the findings of this analysis reinforce the need for cross-national analysis of popularity. Contrary to what earlier studies on popularity have implied, this study shows that the examination of popularity ratings should not be confined within a single country's boundaries, or a particular period of time, nor should it ignore the general political context. Popularity ratings of political leaders can and should be compared, and acknowledging the general political context has the potential to address the instability problem of popularity models. Second, this study reinforces the linkage between the dynamics of mass public

opinion and types of government. Although this linkage has long been explored in the literature on vote (e.g., Duch and Stevenson 2008 investigated the effect of institutions but only for vote), there is very little evidence about it in the literature on popularity. By comparing two dynamic aspects of governmental characteristics, the mechanism of how the public evaluates a leader, when there is more competition in the government may become more explicit.

2.1 The Popularity Function and the Instability Problem

Since John Mueller's (1973) path breaking analysis, a substantial literature has examined the causes and consequences of popularity ratings. Much of the literature has focused on economic influences on the popularity of leaders. While Mueller argued that only economic decline should have an effect on popularity, and not economic improvement (Ibid. p.215), later studies have found evidence that economic improvement is also important and has a positive influence on popularity (Gronke and Newman, 2003). Although most of these studies found significant economic effects, they produced inconsistent results (Berlemann and Enkelmann, 2014) in terms of how to measure economic conditions and how to model their affect on popularity. In the first review of the vote and popularity literature, also known as the VP-function literature, Paldam (1981, p. 194) concludes that "[t]he very existence of the VP-function should no longer be doubted. However, we have also seen that the VP-function is a fairly unstable one." The same conclusion was also reached, more than a decade later, by Nannestad and Paldam (1994, p. 214): "... the VP-function has shown a disappointing lack of stability both over time and across countries." (also see: Lewis-Beck and Paldam 2000).

The fact that "[e]ven after 40 years of empirical research on the determinants of government popularity no clear picture evolved" (Berlemann and Enkelmann, 2014, p. 42) has led Bellucci and Lewis-Beck (2011) to suggest a cross-national model of popularity that can solve the instability problem. They argue that the two main sources of instability are the "sub-optimal measurement of the economic variable and the inevitable idiosyncrasies of modeling just a single country." (2011, p. 191). The first source is related to the notion that objective economic conditions are not

directly related to evaluation of leaders since people might not be interested or affected by these conditions. What ultimately counts is how people interpret the state of the economy (Lewis-Beck and Stegmaier, 2000a). Therefore, the instability problem can be partly addressed by using aggregated survey judgments on the economy in the popularity model, instead of indicators such as unemployment or inflation. The second source is related to the scope of analysis, which traditionally meant country-specific, short-term analysis of popularity ratings. This approach has not only generated a small sample size in many studies, but also restricted the variance of variables on both sides of the popularity equation.

There is, however, a third source of instability, that has been described as the "poor specification" of popularity models (Bellucci and Lewis-Beck, 2011, p. 196): crucial determinants of popularity ratings besides economic indicators might not be measured correctly, or even measured at all. Since the political context in which leaders operate sometimes change, prior studies have used "a series of dummy variables, meant to tap the influence of particular, country-specific, short-term political events" (Ibid.). However, these mechanical fixes cannot capture systematic political processes, which are left unnamed (Paldam, 1991, p. 14). Therefore, a stable model over time and across countries for the popularity ratings of political leaders has to begin with a search for common mechanisms that has the potential to change the dynamic of public support.

2.2 Clarity of Responsibility and Economic Popularity

One potential mechanism that can influence how the head of government is evaluated, is 'clarity of responsibility', which has been used to address the instability problem in the literature on economic voting. At the heart of this research agenda is the notion that political context influences the extent to which, during elections, voters hold incumbents to account for economic performances (Anderson, 2007). Powell and Whitten (1993) presented a particularly large step forward in how political context matter, by showing that 'clarity of responsibility' for public policy moderate the extent of economic voting: higher (lower) clarity of responsibility is associated with higher (lower) economic

vote. Their basic argument is that for economic conditions to have an impact on the government, voters should not only seek to reward and punish office holders for their economic performances, but also be able to assign responsibility for these conditions: "the critical linkage of the voter's assignment of responsibility to the government ... strongly reflect[s] the nature of policymaking in the society and the coherence and control the government can exert over that policy" (1993, p. 398). Most subsequent studies on vote provided further evidence that variation in performance voting can be explained by the clarity of responsibility (e.g., Whitten and Palmer 1999; Anderson 2000; Kiewiet 2000; Hellwig and Samuels 2008) and more broadly it has been shown that clarity of responsibility is related to other aspects of democracy, such as perceptions of corruption (Tavits, 2007).

While some studies focused on the institutional components of clarity, which capture the formal dispersion of power, it has been shown that the main context that influence voters' ability to hold governments to account for economic performances is governmental characteristics (Hobolt et al., 2013). In the context of government clarity, two main explanations have been suggested: concentration of responsibility and policy unity. The first, concentration of responsibility, highlights the importance of government structure. The multiplicity of parties in government means that "as responsibility for policy outcomes spreads over more and more actors, power sharing induces uncertainty in the minds of the electorate about how to use the vote to punish or reward any particular candidate or party in the next election" (Hellwig, 2011, p.154). This explanation has been applied in Bellucci and Lewis-Beck's (2011) study, yet they found that the concentration of responsibility, measured as the absolute number of government parties, do not condition the relationship between economic evaluations and popularity ratings. One of their conclusions was that this context "imperfectly reflects the concept [of clarity and] there may be other political features ... that produce variance in responsibility attribution (Ibid. pp. 204-205). Therefore, the null hypothesis is that the concentration of power has no significant effect on the relationship between economic evaluations and prime ministerial popularity ratings.

The second explanation of government clarity is policy unity and it emphasizes the notion that

parties from different ends of the ideological spectrum often differ on economic policy. Unity can be broadly defined as political agents working together to secure their goals (Chhibber and Kollman 2009, p.4; Stokes 1963, p.1, Hix et al. 2005, p.209). As argued by Nadeau et al. (2002, p.410), policy unity is a crucial component of governments since "parties within the government are likely to have argued both for and against the relevant policies". The literature on vote has showed that when citizens face an ideologically united coalition, they will find it relatively easy to reward or punish a particular party (Hobolt et al., 2013). The same logic should also apply to popularity ratings. Less policy unity in government means that the prime ministers are more frequently challenged by their coalition partners and therefore the public's ability and willingness to hold the prime ministers accountable for economic performances should decrease.

To understand why policy unity, the second explanation of government clarity, should shape economic popularity, while the other explanation, the concentration of responsibility, does not, it is important to understand the mechanism of popularity polls about political leaders. The first aspect of this mechanism is leader identification. When citizens are asked about the leader of the country – a president, prime minister or chancellor – they need to express their opinion about a highly known persona, whose actions are covered by the national media, more than any other political actor (Neustadt, 1980). In addition, the public "attributes the central responsibility for dictating economic policy to the country's ruler" (Bellucci and Lewis-Beck, 2011, p. 205), regardless of political context. Therefore, leader identification, coupled with an inherent culpability, means government' policy is highly associated with the head of the executive.

The literature on party-systems have shown that parties' ideological positions are more important than counting the number of parties in terms of intensifying ideological debates, weakening the legitimacy of the regime, and destabilizing the political system (Sartori, 1976). More recently, it has been shown that voters' preferences and turnout are more strongly influenced by party competition that is driven by ideology, than by the number of parties (Dalton, 2008). Although these studies focused on the entire party-system, the notion that parties' ideological positions have a stronger effect on citizens, compared to other properties on party competition, might also mean that policy

unity has a stronger effect on economic popularity compared to the structure of government.

It is hypothesized here that the association between governmental policy and the prime minister can still be lessened when policy is perceived as an ideological compromise between different parties and not necessarily the result of the prime minister's agenda. In the context of stronger ideological competition between parties in government, the prime minister is more likely to be viewed as being push to adopt a more leftist or rightist policy than he or she intended. It is therefore harder to hold prime ministers accountable for economic outcomes when policy unity is low. The mere fact that power in government is shared with other parties, however, do not reflect the degree of perceived disagreement or competition over policies between parties; which means that the association between government policy and the prime minister can remain stable even when executive power is dispersed over multiple parties that are ideologically united.

2.3 Measurements of Government Clarity

While different ways of measuring government clarity of responsibility have been offered, three main measurements are considered here – the first two evaluates the concentration of power and the last one evaluate policy unity. In the literature on economic voting, the concentration of power in government has been traditionally measured as the absolute number of parties (Michael, 1988) and recently this measurement has been applied in a study on popularity ratings (Bellucci and Lewis-Beck, 2011). With this measurement the assumption is that each party that is taking part in the policy process decreases the perceived responsibility of the prime minister, regardless of parties' size. For example, a government of two parties in which both have equal number of seats, has the same level of clarity as a government of two parties where one party holds almost all seats.

Nevertheless, scholars have long emphasized that the absolute number of parties might be misleading in evaluation of parties' strength. Therefore different methods have been suggested to count the number of parties to give weight to the relative size of parties (e.g., Klingemann 2005; Rae 1967; Sigelman and Yough 1978). Most notably among them, is the fractionalization index,

which is calculated from statistics on the relative size of parties:

$$F = 1 - \sum_{i=1}^{n} p_i^2 \tag{2.1}$$

where F is the fractionalization index that ranges from 0 to 1, and p_i is the fractional share of seats of party i. This index can also be explained as the probability that two deputies picked at random from among all parties will be of different parties, with higher values indicating more fractionalization. Other variants of this index have been shown to be highly correlated with the fractionalization index (Dalton, 2008; Laakso and Taagepera, 1979; Taagepera and Shugart, 1989; Vxyrynen, 1972). This measurement is used here to capture *the concentration of power* and therefore it is calculated only for the parties in government, rather than for all legislative parties[1].

While *the concentration of power* is measured as the absolute or relative number of parties in the government, the context of *policy unity* is measured as ideological polarization. I adapt Dalton's (2008) party-system polarization index[2] to measure polarization in government and by assuming that ideology ranges from 0 (left) to 10 (right) polarization can be measured in the following way:

$$PI = \sum_{i=1}^{n} \left((p_i) \times \left(\frac{I_i - \bar{I}}{5} \right)^2 \right) \tag{2.2}$$

where PI is a polarization index, which ranges from 0, when all parties occupy the same ideological position, to 1, when all parties are split between the two extremes of the Left-Right scale. This index, which is comparable to a measure of the standard deviation of a distribution, is similar to indicators of polarization used by other scholars (Dalton, 2008; Lachat, 2008; Sigelman

[1]Several studies on clarity of responsibility have used variants of this index to measure fractionalization among all legislative parties, but then it refers to voters' ability to identify a clear alternative to the incumbent government (Anderson, 2000; Bengtsson, 2004; Nadeau et al., 2002; Tavits, 2007)

[2]Dalton scale ranges from 0 to 10 since he measures p_i as percentage of vote share for each party, while here for simplicity I use the fractional seat share. The correlation between an index with vote share and seat share is .99, and therefore the two are equivalent. Nevertheless, since a party can split during term of office it is easier to evaluate its changing influence on polarization by counting its number of seats. In addition, unlike Dalton, but similar to Caul and Gray (2000), Pennings (1998), Sigelman and Yough (1978) and others I do not use the square root of differences to influence the impact of scores.

and Yough, 1978; Taylor and Herman, 1971) and is comparable to a measurement of proportional ideological differences used in the literature on economic voting (Hobolt et al., 2013). The two main components of this index are: I_i, the L/R ideological score of party i, and $\bar{I}$ the average L/R ideological score of all parties. For each party i the distance from the ideological mean is weighted by its fractional seat share.

2.4 Data, Model and Operationalization

2.4.1 Case Selection

The focus of this study is prime ministerial popularity ratings. The generic title of prime minister is defined here as the head of the executive, who is selected by a legislature and is dependent on legislative confidence, even if the official title of the leader is different (Lijphart, 2012). Six democracies that has prime ministers as heads of the executive, and where prime ministerial popularity ratings are measured on a relatively regular basis over the last two decades, have been selected: Australia, Canada, Germany, Ireland, Israel, and United Kingdom. In all six countries the prime minister and the cabinet are sharing responsibility, since the decision making process is collective or collegial. As Lijphart (2012, p. 107) note, "[t]he most important decisions in parliamentary systems have to be made by the cabinet as a whole, not just the prime minister". Therefore, in those countries prime ministers can share responsibility with other political actors, though the actual shared responsibility can vary from preeminence to virtual equality with the other government partners.

More broadly, the six counties vary in their institutional design. One of the comprehensive conceptualization of political institutions is Lijphart's (1999; 2012) two-dimensional pattern, formed by the relationships among ten indicators of joint-power and divided-power principles. As can be seen in Figure 2.1, which is based on Lijphart's findings, the six countries are spread across the institutional space both in terms of the executive-parties dimension and the federal-unitary dimension. Therefore, the six countries in this study are representative of the various types of democratic

political systems with collegial executive.

Focusing on prime ministerial popularity ratings from the last two decades enables an examination of an interesting period from an economic perspective in which leaders' ratings swung between extremes. As financial troubles intensified in the last two decades, and economic issues became salient, many felt a need to express dissatisfaction with the state of the economy. Around the world, massive protests took place, such as the "Occupy" movement that swept western democracies in its demand for greater social and economic equality (Guardian 2011). Nevertheless, public pressures and demands did not have the same influence on all democratic governments in general and on government popularity in particular. While in some countries leaders were able to retain public support (e.g., Israel, 2013), in other countries there were dramatic political changes, such as resignation of the Prime Minister (e.g., United Kingdom, 2007) and changes within the ruling party (e.g., Australia, 2010). Such different outcomes were also apparent in national popularity surveys. A Gallup survey (Sonnenschein, 2012) on leaders' popularity across European Union countries in 2011 showed a large variation between the most popular and the least popular leaders.

2.4.2 Data on Popularity of Prime Ministers

The main data I analyze are from regular national surveys conducted in each country, which ask about the popularity of prime ministers. The key terms here are: (1) popularity, which is the level of public support at a given moment; and (2) prime minister, which refers to the current head of government. Following Mueller's (1970) logic, the popularity question needs to be measured as a general question about the incumbent, which means it should be unfocused and unrelated to specific issues. All surveys, which are of a nationally representative sample of voting-age citizens, either follow the British wording of the question, which has been asked by Ipsos-MORI – "*Are you satisfied or dissatisfied with the way (the incumbent) is doing his/her job?*" – or the American wording of the question, which has been suggested by Gallup – "*Do you approve or disapprove of the way (the incumbent) is handling his/her job?*". As prior studies have shown the words 'satisfaction' and 'approval' both refer to the same concept of job evaluation (Pickup, 2010;

Bellucci and Lewis-Beck, 2011; Carlin et al., 2014), and are therefore suitable for comparison. The measurement for each country is the total percentage of people who support the incumbent; In other words, it is an aggregate measurement that sums the number of people who indicate their support for the incumbent, over the total number of people in the survey.

On average the data covers a period of around 16 years, from the late 1990s to 2015 for most countries, and three leaders and in each country.[3] This total to about sixty observations for each country and N is more than 360 observations, which provide a cross-national time-series that is both long and broad. To have a consistent measurement of popularity ratings across countries, a quarterly measurement is used instead of a monthly measurement, and when more than one survey is available in a quarter the average of all popularity ratings is used (see Appendix A.2 for characteristics of the popularity ratings data). Using the Fisher-type test for panel data, specified to perform the augmented Dickey-Fuller test with one lag, the null hypothesis that all panels contain unit-root is rejected.

The overall mean of popularity is 46%, ranging from 9% to 84%. The popularity time-series of each country is presented in Figure 2.2, and it clearly shows the diverse dynamic of popularity ratings across and within countries. In Australia, the average level of popularity was 46%, with Tony Abbot reaching a low of 26% on the first quarter of 2015 and Kevin Rudd getting 65% public support on the first quarter of 2008 after he became prime minister; a difference of 39%. Among Australian prime ministers, Rudd had the highest difference in popularity of 28%, and Julia Gillard had the lowest difference of 15%. The average British popularity ratings was 41%, and the difference between Tony Blair, who received the highest level of popularity of 70% during 1997, and Gordon Brown, whose popularity reached a low of 22% during 2008, was 48%. Blair also had the highest difference in popularity (45%), while Brown has the lowest (18%). In Canada, where the average level of popularity was 39%, the difference between Jean Chrètien, who reached a peak of 50% in late 1999, and Stephen Harper, who reached a low of 30% during 2015, was 20%.

[3]The data form Australia covers the longest period of 19 years, while the data from Israel covers the shortest period of 9 years.

Harper's popularity ratings were much more volatile, a 24% difference during his premiership, than Paul Martin's ratings, a 11% difference. Compared to the other five countries, Germany had the highest mean of popularity (56%). Angela Merkel's popularity ratings were higher than Gerhard Schröder's ratings: her popularity peaked during 2007 with 75% but reach to a low of 44% in late 2010 (33% difference), while his popularity only reach a 66% with a low of 27% (39% difference). Popularity ratings in Ireland swung the most, compared to all other countries, and the average popularity was 46%. Bertie Ahern, had the highest level of popularity among all leaders (84%), and Brian Cowen had the lowest level among all leaders (9%). Finally, Israel had the lowest mean of popularity (38%) compared to all other countries. Ehud Olmert's popularity peaked after his election in early 2006, with 41%. Since then it began to decrease and through most 2007 Olmert's popularity ratings held steady, with 12% public support, a 29% difference. Benjamin Netanyahu's popularity ratings were higher on average: during 2011 his popularity reach 53%, but later in early 2015 it decreased to 34%, a 19% difference.

One of the reasons the study of popularity ratings flourished over the years is its ability to explain and predict other political outcomes. Scholars have long showed that since popularity polls precedes elections, the former can be used as a determinant of the latter (Sigelman, 1979; Brody and Sigelman, 1983; Tufte, 1975): higher popularity ratings lead to higher vote share. I follow this logic to demonstrate the importance and validity of the popularity data included in this study, by regressing popularity ratings on the change in vote share for the leader's party. More specifically, popularity is operationalized as the percentage of public support for a prime minister one quarter before the election; change in vote share is measured as the difference between the percentage of vote for a party in an election and the percentage of vote for the same party in the previous elections. In order to evaluate the effect of change in popularity ratings, only incumbents who were seeking reelection can be included in this analysis, which is the majority of the cases.

As can be seen in Figure 2.3, higher (lower) popularity ratings lead to positive (negative) changes in vote share for the leaders' parties. This effect is substantial and significant even when

popularity is operationalized as the yearly average of public support before the election[4]. Although this analysis is only based on a small number of cases it should give reassurance that popularity ratings data operate as expected and they are important across different political systems.

2.4.3 Estimation of Popularity Ratings

To test the contention that government clarity has an effect on economic popularity, I use a time-series cross-section (TSCS) analysis. With this type of analysis, problems related to omitted variables, multicollinearity, and dynamic adjustment should be of lesser concern (Kennedy 2003: 302). Also, in this study, both the number of cases (number of N) and number of time periods (number of T) are not small, which should improve estimation of equations (Kennedy 2003). Both fixed effects (FE) and maximum-likelihood random effects (RE) models are examined. In all models, popularity is treated as an autoregressive process[5]. The general FE dynamic model, similar to the one suggested by Bellucci and Lewis-Beck (2011), can be presented as follow[6]:

$$P_{i,t} = \alpha + \upsilon_i + \beta_0 P_{i,t-1} + \sum_{k=1}^{K} \beta_k X_{k,i,t} + \varepsilon_{i,t} \tag{2.3}$$

where $P_{i,t}$ is the level of prime ministerial popularity ratings at time t for a particular country; $\alpha + \upsilon_i$ is the country specific intercept; and the first component, $P_{i,t-1}$, is the level of popularity for country i in the previous quarter. The main reason for including this component is that some political determinants that are not included in the model can be captured with popularity at time $t-1$ (Burkhart and Lewis-Beck, 1994, p. 905). Since these determinants have likely also played a role in the previous quarter, they are represented in P_{t-1}. Moreover, when the public as a whole do not notice any environmental factors, government popularity in time t is a function of prior opinion

[4]For full results of this model see Appendix: Table A.1.

[5]For theoretical justifications about modeling public opinion as a dynamic process see: Keele and Kelly (2006); Beck and Katz (2011), yet also see Achen (2000).

[6]The problem of biased coefficients in dynamic models with FE (Nickell 1981) should not be a concern with the rather large number of time periods for each individual country (Beck and Katz 2011), which on average each have more than 40 observations.

in $t-1$ (Ostrom Jr and Simon, 1988). The X's, indexed by k, are the explanatory variables[7]; and ε is a normally distributed stochastic error.

The first main explanatory variable is the public's perception of the economy, which is measured by aggregated economic perceptions. It has been shown that this measurement, though subjective, captures the influence of various objective economic indicators (Bélanger and Lewis-Beck, 2004; Nadeau and Lewis-Beck, 2001). More specifically, it is measured by six national indices of Consumer Confidence (ICC), which is constructed from a battery of both retrospective and prospective items[8] (see Table 1). All national surveys are based on the well known Consumer Sentiment survey by the University of Michigan, and therefore are comparable across countries: the index, which includes at least two questions on household financial situation and two questions on the country's economic situation, is computed as the balance between the percentage of people expressing favorable and unfavorable replies.

Measurements of government clarity – absolute number of parties, fractionalization and ideological polarization – are based on information from the ParlGov[9] database (Döring and Manow, 2010). The information from ParlGov includes all the parties in each cabinet and the number of seats of each party. In addition, there is information on the ideological position of each party, in the form of a score ranging from 0 to 10. The values of each component changed not only after elections, but also between elections after parties join or leave the cabinet. These variables are included in the models to estimate their direct effect on popularity, and more importantly for their interaction effect with economic evaluations.

Two additional variables have been suggested by Bellucci and Lewis-Beck (2011) to account for the typical political cycle of leaders' time in office. Leaders "begin their terms with great popularity, experience parabolic declines, steadily lost popular support ... and then recover some

[7] All variables and their descriptive statistics are listed in Appendix: Table A.3

[8] Retrospective and prospective indicators were not available as separate components in all countries and therefore there was no option to compare their impact, as other studies have done (Lewis-Beck and Stegmaier, 2007).

[9] The data is available at: http://www.parlgov.org/.

at the ends of their terms" (Stimson, 1976, p.1) [10]. The consequences of acting on a variety of issues were described by Mueller (1973, p. 205) as the creation of "intense, unforgiving, opponents of former supporters". In other words, although governments are expected to act, their accomplishments generate a 'coalition-of-minorities' that lowers their popularity. Others have explained it in terms of 'unrealistic expectations' and a regular disillusionment (Stimson, 1976; Stimson and LeGette, 1975). Still, towards the end of the term popularity should be raising again, as parties and politicians get ready for the coming election. Taken together the political cycle should follow a U-shape of high popularity at the beginning of the term when the head of government takes office, then popularity slides downward because of government policies, and finally as the next election approaches popularity rises again. This nonlinear effect can be captured with two variables: 'time-in-office' and 'time-in-office squared'. The time-in-office variable is constructed in the following way: the first quarter after election has a value of 1; each quarter this value increases by 1; the counting resets after an election or when a new prime minister takes office.

2.5 Analysis of Popularity Ratings

In this section the results of all models are presented and explained, with the main finding that ideological polarization conditions the effect of economic popularity. Overall, there is no meaningful difference between the FE and the RE models. Moreover, the interaction terms in all first four models – with either the number of parties or fractionalization in government – are in the expected direction with negative coefficients. However, the interaction effect in these models is insignificant. The results first show that as expected, popularity in the previous quarter can explain the level of popularity in the current quarter. Moreover, popularity is influenced by a political cycle (time-in-office and time-in-office squared) that follows a U-shape of high popularity in the beginning, then lower popularity, and finally popularity ratings improve toward the end of the term.

[10] A few scholars have argued against the usage of time as an explanatory variable, since as Kernell (1978, p. 508) claims: "[t]ime as a variable has no inherent theoretical meaning" and it does not evaluate real-world forces such as the economy.

Table 2.1 Economic popularity and clarity of responsibility 1996-2016 – Australia, Canada, Germany, Ireland, Israel, United Kingdom – fixed effects and random effects models

	Model 1 FE	Model 2 RE	Model 3 FE	Model 4 RE	**Model 5 FE**	**Model 6 RE**
L.Popularity	0.790**	0.807**	0.786**	0.803**	**0.785****	**0.800****
	(0.028)	(0.028)	(0.028)	(0.029)	**(0.027)**	**(0.028)**
Time in Office	-0.384**	-0.362**	-0.374**	-0.355**	**-0.384****	**-0.365****
	(0.094)	(0.094)	(0.094)	(0.094)	**(0.094)**	**(0.093)**
Time in Office^2	0.458**	0.429**	0.440**	0.416**	**0.456****	**0.431****
	(0.110)	(0.110)	(0.110)	(0.109)	**(0.110)**	**(0.109)**
ICC	0.079*	0.072*	0.112**	0.101**	**0.128****	**0.119****
	(0.043)	(0.043)	(0.044)	(0.044)	**(0.043)**	**(0.043)**
No. of Parties	-0.039	-0.027				
	(0.051)	(0.035)				
No. of Parties×ICC	-0.013	-0.012				
	(0.018)	(0.018)				
Fractionalization			0.040	0.029		
			(0.047)	(0.034)		
Fractionalization×ICC			-0.035	-0.034		
			(0.022)	(0.021)		
Polarization					**0.024**	**0.016**
					(0.029)	**(0.027)**
Polarization×ICC					**-0.043****	**-0.041****
					(0.018)	**(0.018)**
Constant	0.010	0.004	0.015	0.000	**0.020**	**0.006**
	(0.024)	(0.051)	(0.024)	(0.051)	**(0.024)**	**(0.053)**
R^2	0.738		0.739		**0.788**	
Log Likelihood		-240.8		-239.9		**-238.8**
Sigma_u	0.143	0.109	0.151	0.109	**0.152**	**0.115**
Sigma_e	0.452	0.449	0.451	0.448	**0.450**	**0.446**
Rho	0.0910	0.0560	0.101	0.0561	**0.103**	**0.0627**
AIC	480.008	499.643	477.759	497.726	**475.298**	**495.613**
BIC	507.626	535.152	505.377	533.235	**502.916**	**531.122**

Standardized regression coefficients, with standard errors in parentheses

N=382. ** p<0.05, * p<0.1

Table 2.1, columns 1 and 2, shows the results of the baseline models, which follows the specification suggested by Bellucci and Lewis-Beck (2011). Both FE and RE models are consistent with what Bellucci and Lewis-Beck have shown: that the number of parties in government has no significant influence on popularity ratings. It is also important to note that the public's economic evaluation (ICC) has a positive impact on popularity, but it is only significant at a 90% confidence interval. Therefore, since the effect of the interaction term is not significant and we barley find evidence that economic evaluations directly shape public opinion, we should continue our search for a better model. The next two models (Table 2.1, columns 3 and 4) shows the results of fractionalization instead of number of parties, as an improved measurement of the concentration of power in government. Nevertheless, this variable, which is based on the effective number of parties, also does not have any significant effect on economic popularity. Still, the coefficient of the interaction between fractionalization and the economic variable has a negative sign, which is consistent with the clarity of responsibility hypothesis. Economic evaluation, however, has a positive influence on popularity that is significant at a 95% confidence level. Taken together, these findings are consistent with the current literature on popularity ratings, although they provide some evidence that the effect of economic evaluations on popularity ratings is dependent on how government clarity is specified in the model.

The results of the models with the polarization index are presented in Table 2.1, columns 5 and 6. Both the FE and the RE models show that all important variables are significant and in the expected direction. Economic evaluation has a positive and significant influence on popularity ratings, which is consistent with the economic popularity hypothesis. The coefficient of the interaction between the economic variable and the polarization index is negative and significant: higher values of ideological polarization among government parties reduce the influence of economic perceptions on popularity ratings. While the previous measurements of government clarity – the absolute number of parties and fractionalization – do not significantly influence popularity ratings, ideological polarization does influence the way the public perceives the prime minister and his or her performances. More broadly, this model demonstrates that the notion of government clarity of

responsibility is relevant to popularity ratings of prime ministers.

To understand the full effect of economic evaluations over different levels of ideological polarization in government, Figure 2.4 shows the marginal effect of consumer confidence by ideological polarization (see Appendix A.1 for the marginal effect by country). The *y* axis shows the marginal effect of the economic variable on standardized values of popularity ratings. Higher values on the *x* axis, which represents ideological polarization values, cause the marginal effect to get closer to zero. With the polarization index, the confidence interval does not overlap with zero and the effect of the interaction term is therefore significant.

Finally, two measurements are used to compare the relative fit of models with different government clarity variables: the Akaiki information criterion (AIC) and the Bayesian information criterion (BIC). The last two models with the polarization index have the lowest AIC and BIC values and therefore have a better fit. The R^2 in the FE models also shows that the model with the polarization index has the highest value (.78), which means this model explain a high percentage of the variation in the dependent variable. Overall, the polarization index as a measurement of policy unity in government, seems to be an important part of the popularity function. Yet, before we can draw conclusions from these models, further statistical analysis in required.

2.5.1 Further Model Estimates

The results from Table 2 show that the polarization index should be preferable over other measurements of government clarity. Yet, two major problems must be resolved before any final conclusions are reached. First, previous studies have raised the problem of simultaneous equation bias in the context of economic evaluations[11]: public opinion about the economy may influence public evaluation of leaders, but the latter may also influence the former (Duch and Stevenson 2008, p.127-128; Bellucci and Lewis-Beck 2011, p.200). To deal with the possibility of biased coefficients given a reciprocal causation, the most common solution has been instrumental variables to exogenise the

[11]Not all scholars consider consumer confidence and popularity ratings to be simultaneously related; for example see: Erikson et al. (2000).

subjective economic variable (Evans and Andersen, 2006; Pickup and Evans, 2013). Consumer confidence is regressed on four lagged exogenous variables (Jansen and Nahuis, 2003; Vuchelen, 2004) – exchange rate, labor cost, share price, and interest rate – that yields an R^2 of about 0.3, which should lend confidence at to the quality of the instrumental variable. Then, the instrumental variable is used, ICC′, instead of the original variable, ICC.

The second problem is related to the possibility of biased standard errors under panel conditions. As a first stage, it is possible to evaluate the FE and RE models with a Hausmann test and determine which one is preferred. When the models with the polarization index are tested, the null is rejected (=30.65;prb=0.00), which means that unobserved individual-level effects are correlated with the other independent variables.[12] Therefore, the FE model is preferred and Table 2.2, columns 1-3, give the regression estimates of FE models, but with robust standard errors. Finally, Beck and Katz (1995) have shown, that panel corrected standard errors (PCSE) estimation can perform better than the OLS standard errors in FE models. Table 2.2, column 4, shows the results of a PCSE model, which assumes that the errors are heteroskedastic and has a panel-specific autocorrelation structure.

The first column in Table 2.2 shows a model without the polarization index. All control variables – lagged values of popularity and the time in office variables – are significant and in the expected direction, which is similar to the results in Table 2.1. The economic variable, however, which has a positive coefficient, is not significant at a .05 level. This model indicates that the relationship between economic perceptions and popularity ratings is not necessarily direct, but rather it is conditioned by government clarity. Model 2 (Table 2.2, column 2) shows a minimal specification, without controlling for time in office. It shows that the interaction effect, of polarization and the economic variable, is negative and significant, which means it is apparent even when we do not control for the time trend effect. As studies on economic voting have found (e.g., Hobolt et al. 2013; Nadeau et al. 2002), when the economic variable is conditioned by a clarity of responsibility indicator, the direct effect of the economy can be less significant (or even insignificant), which

[12]This results is also supported by Mundlak (1978) test, which shows that time-invariant unobservables are related to the regressors and that the fixed-effects model is appropriate.

Table 2.2 Economic popularity and ideological polarization 1996-2016 – Australia, Canada, Germany, Ireland, Israel, United Kingdom – fixed effect and panel-corrected standard errors models

	Model 1 FE	Model 2 FE	Model 3 FE	Model 4 PCSE
L.Popularity	0.798**	0.806**	0.792**	0.860**
	(0.011)	(0.016)	(0.012)	(0.027)
Time in Office	-0.380**		-0.373**	-0.284**
	(0.114)		(0.121)	(0.095)
Time in Office^2	0.451**		0.438**	0.329**
	(0.129)		(0.143)	(0.112)
ICC′	0.071	0.086*	0.089*	0.051*
	(0.046)	(0.034)	(0.036)	(0.029)
Polarization		0.031	0.024	0.010
		(0.027)	(0.034)	(0.024)
Polarization×ICC′		-0.053**	-0.051**	-0.042**
		(0.016)	(0.019)	(0.021)
Constant	0.012*	0.000	0.020*	0.007
	(0.005)	(0.004)	(0.008)	(0.025)
R^2	0.732	0.725	0.737	
Sigma_u	0.161	0.134	0.153	
Sigma_e	0.454	0.460	0.451	
Rho	0.111	0.0782	0.103	
AIC	475.566	485.755	471.392	
BIC	491.326	501.5158	491.093	

Standardized regression coefficients, with robust standard errors and in parentheses
N=382. ** p<0.05, * p<0.1

explains why consumer confidence in this model (as well as in models 3 and 4) is only significant at a 90% confidence interval.

Model 3 (Table 2.2, column 3) has all the suggested explanatory variables and the interaction effect is similar to model 2: when polarization is low it is easier to see the economic popularity effect. Nevertheless, with this specification we see a better model fit. The AIC and BIC values for this model are lower compared to the models 1 and 2. Moreover, the value of R^2 is slightly higher in model 3, than in models 1 and 2. Taken together, we should prefer the specification in model 3, which include the time trend variables, and more importantly, the interaction term of consumer confidence and polarization in government. The results of model 4 (Table 2.2, column 4) that are based on a panel corrected standard errors estimation, are similar to model 3, which give us

confidence that the errors in model 3 are not biased.

2.6 Conclusions

We have learned from this study that when more than one party takes part in the policy process, and those parties are more ideologically polarized, the effect of public perception of the economy on public support for a prime minister decreases. Leaders may not be able to fully control economic conditions, but they can at least be aware of the circumstances that make them more or less politically vulnerable. The findings of this study support the hypothesis that it is easier to hold a prime minister accountable for economic conditions, during the government term of office, when the government is more ideologically united and it is clearer who is responsible for the economic outcomes. By considering two different approaches of government clarity, I found that policy unity in government is better capable of capturing the clarity of responsibility phenomenon, compared to the concentration of power in government. This is consistent with other studies that have compered the two approaches and found that ideological polarization is a more important property of party competition (Dalton, 2008; Sartori, 1976). When government clarity of responsibility is measured as ideological polarization it significantly reduces the effect of economic evaluations on popularity ratings of prime ministers, which is not the case when it is measured by the absolute or relative number of parties in government.

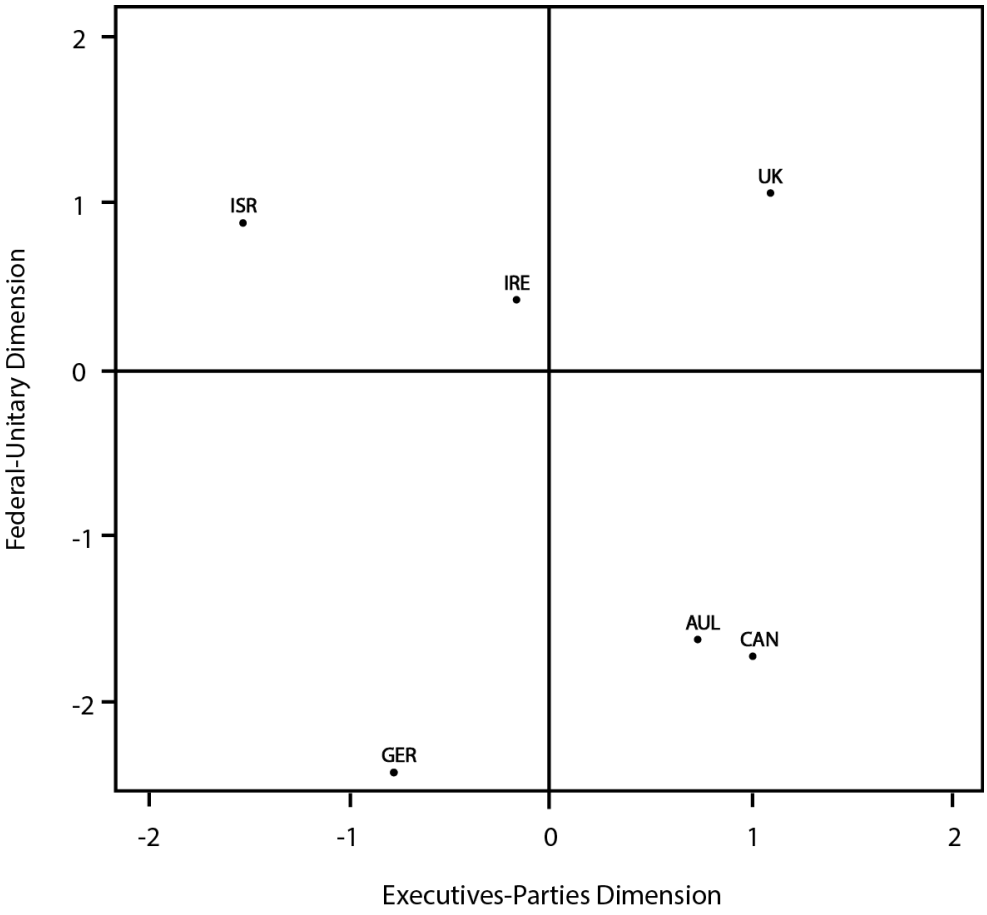
Most of the literature on economic voting has found that 'clarity of responsibility' shapes voters' preferences for parties and can therefore address the instability problem of the vote function (e.g., Powell and Whitten 1993; Nadeau et al. 2002; Whitten and Palmer 1999). The literature on popularity ratings has suffered from a similar instability problem as well. Yet, most of the literature on popularity did not consider characteristics of 'clarity of responsibility' to be part of

the popularity function[13]. The findings of this study, however, show that not acknowledging the importance of governmental characteristics that influence the clarity of responsibility might have contributed to the instability problem, since economic evaluations do not always translate into higher or lower popularity ratings.

This study makes the notion of policy unity relevant to current political developments, by relating it to changes in mass public opinion. The level of policy process' unity in government is important for short-term political processes and its dynamic components can capture the way citizens interpret government performance and frequent changes in the socio-political environment. It is therefore suggested that the influence of other domestic policies and outcomes on public support for prime ministers might also be influenced by policy unity. Overall, this study is a call for students of comparative politics to think about leadership popularity and to use the plenitude of national surveys to explore short-term and long-term mechanisms of support for political leaders. It is not only because popularity is a fertile ground for cross-national studies; but more importantly, it can deepen our understanding of what aspects of accountability democracies have in common vis-à-vis their differences.

[13]One notable exception among single-country studies on popularity ratings is a study by Nicholson, Segura and Woods (2002). They have used the notion of responsibility assignment but only for United States and not as factor that conditions the relationship between the economy and presidential approval ratings.

Figure 2.1 Two-dimensional Institutional Map



Source: based on Lijphart (2012)

Figure 2.2 Percentage of Leaders' Popularity, 1996-2015 in Six Countries

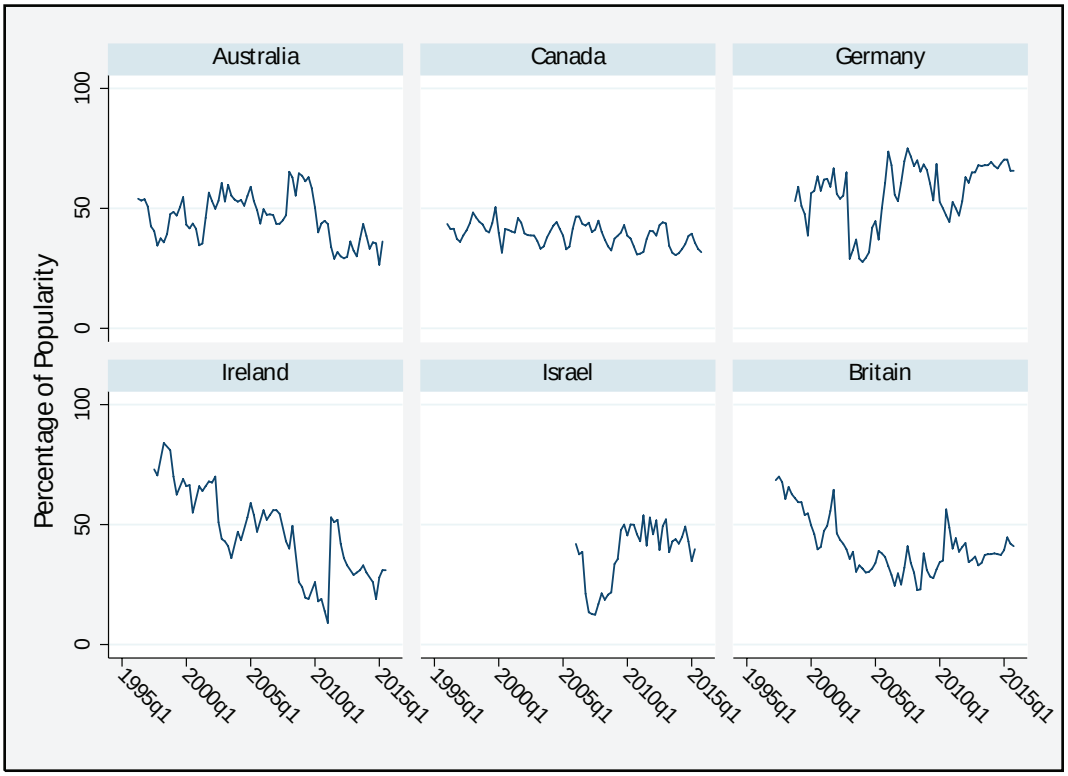


Figure 2.3 The Effect of Popularity Ratings on Vote Share

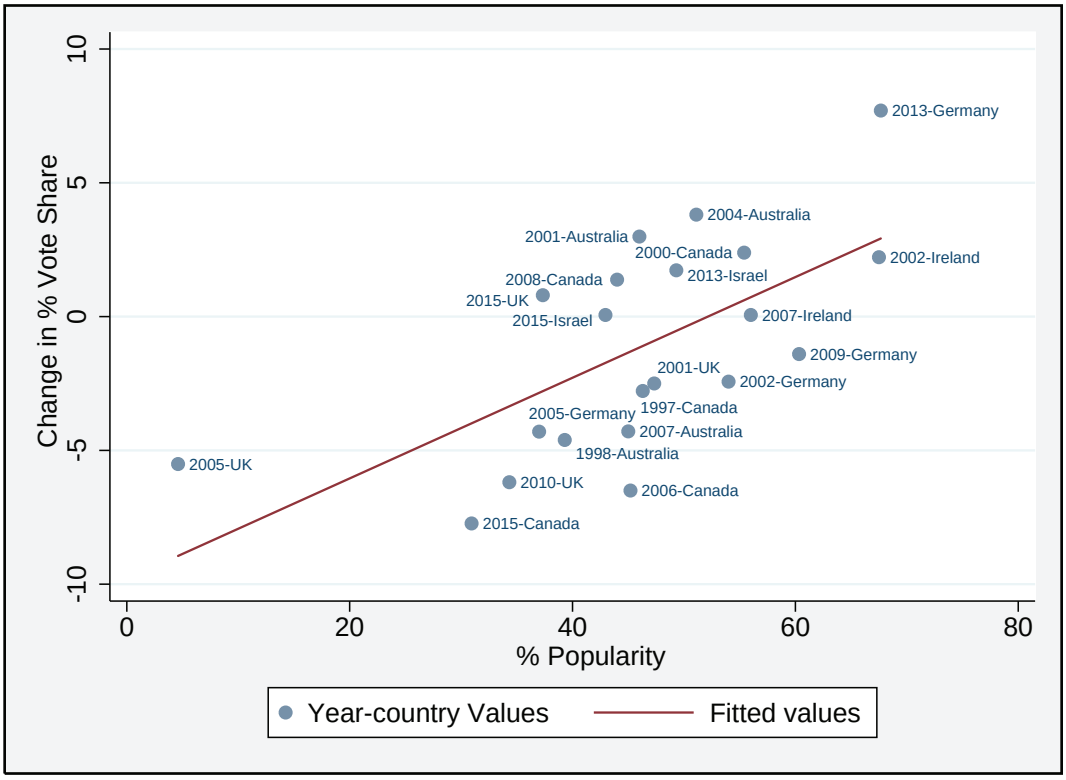
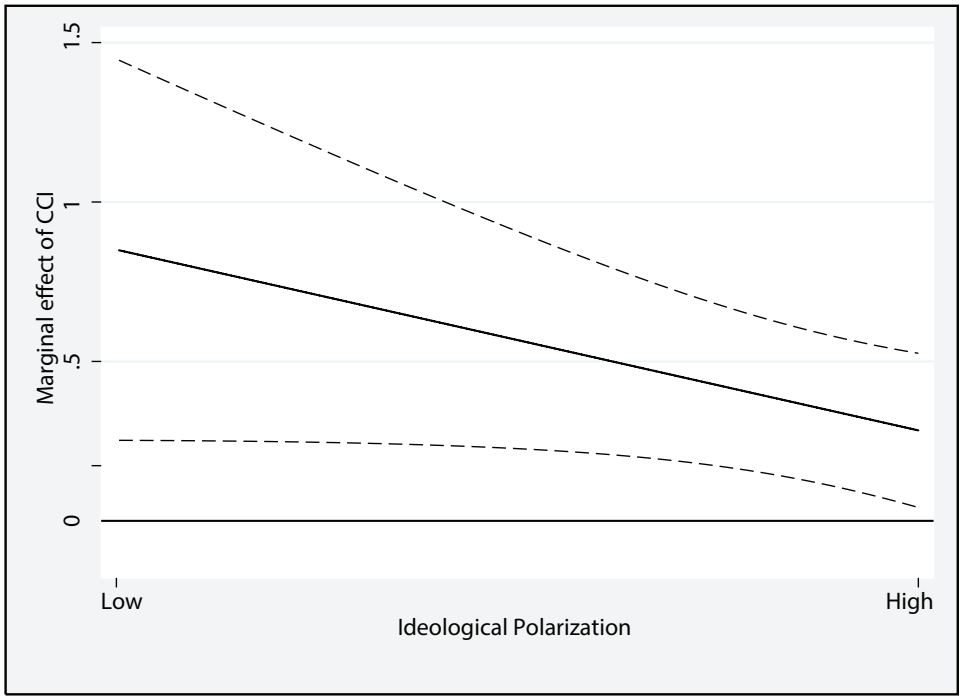


Figure 2.4 The marginal effect of ICC by ideological polarization in government



CHAPTER 3

COALITION GOVERNMENT, COHESIVE ROLL-CALL VOTING AND PRIME MINISTERIAL POPULARITY: EVIDENCE FROM THE ISRAELI PARLIAMENT AND ELECTORATE

Conventional scholarly wisdom holds that the popularity (approval) ratings of political leaders are determined by the outcomes of the government's economic and social policies. This reflects a desirable aspect of democracy: citizens evaluate what the government has done, then reward or punish it (but see: Achen and Bartels 2016). In this way, leaders are held accountable continuously, via opinion polls, during their term in office for the effectiveness of their economic and social policies. It seems clear, then, the results of the opinion polls communicates to officials, across various institutional settings, the degree to which the public approves of their competency and skill in handling economic and social issues (e.g., Bellucci and Lewis-Beck 2011; Lewis-Beck and Stegmaier 2013; Pickup 2010).

While there is disagreement over conceptualizations of government performance in the realm of economic and social policies, most studies share a presumption that the public forms an opinion about the head of government primarily in terms of the *outcomes* of government *policies* (e.g., Edwards III et al. 1995; Iyengar and Kinder 1987; Krosnick and Kinder 1990; Krosnick and Brannon 1993; Miller and Krosnick 2000; Druckman and Holmes 2004). This paper examines the heretofore neglected *impacts* of the policy making *process* on governmental popularity. In other words, in this expanded view of government popularity, it is entirely possible that both processes and outcomes are important, especially in the context of coalition governments.

This expanded view is especially important for coalition governments since, to govern, it is necessary for members of at least two parties to find common ground and work together despite their ideological differences – in these contexts, at least, the process matters. Due to its structure, a coalition government is prone to frequent disagreements and occasionally dissatisfied members refuse to compromise and demonstrate it by not voting with the rest of the coalition. Under these conditions, coalition governments in parliamentary democracies can fall on any given day,

sometimes without warning (Lupia and Strøm, 1995). While in most parliamentary systems the prime minister is dependent on a parliamentary majority to stay in office, it has long been considered an "axiom in politics" that coalition governments are short-lived and weak compared with one-party governments (Lijphart, 2012). When members of the coalition do not support government proposals, the public may question the policy making process which, in turn may bring into question the coalition's political feasibility and, hence the likelihood of getting satisfactory economic and social outcomes.

One country where issues of maintaining a cohesive coalition majority stand out particularly starkly is Israel (Hix and Noury, 2016). The literature shows that coalition governments in Israel tend not to be fully cohesive (Rahat, 2007), and this tendency is a continuous challenge for the prime minister. An interesting theoretical and empirical question is whether this type of policy making process impacts prime ministerial popularity. As such, this provides a fertile case to examine the role of both policy process and outcomes in approval dynamics. This fertility is further enhanced because few have attempted to systematically analyze what causes changes over time in the popularity of Israel's prime ministers (Hadar, 2009; Sapir, 2007; Sheafer, 2007). Even though Israel may be unique in the parliamentary world, these suggested types of influences are clearly relevant to other coalition governments in the world.

In this study I use newly generated time series survey data to explore the dynamic of prime ministers' popularity ratings in Israel. First, I establish a baseline model using the common determinants of popularity polls and apply them to the Israeli political system. Then, I look at how coalition cohesion, which refers to divisions among members of the coalition government[1], can be used to improve the baseline model. Finally, I address the issue of inverse causal mechanism through a variety of statistical analyses, since it might be the case that prime ministerial popularity ratings are the driving force behind intra-government dissent and not vice versa.

To preview the results, I find that coalition cohesion, along with policy outcomes, has an effect

[1]This study focuses on legislative divisions among members of parliament who belong to parties that are part of the coalition government.

on how the public judges the Israeli prime minister. When members of the coalition government do not vote in the same way, citizens become aware of intra-government dissent and they hold the prime minister accountable for it. Common determinants of popularity such as economic conditions, war casualties and different types of events are also important in explaining public support for the prime minister. Yet in comparing models with and without coalition cohesion there is a clear advantage to taking cohesion, and hence the policy making process, into account. In essence, this study demonstrates that information from the parliament flows to citizens, and later, through periodic national polls, from citizens to the entire political system.

3.1 Theory

I propose a theory of intra-government dissent that complements the conventional view of the importance of economic and social determinants of popularity. I postulate that citizens pay attention as well to the policy making process which provides an indication of political feasibility. A policy process will be viewed as politically feasible when all members of the coalition government support it and the entire coalition is working together to execute it. The public connects feasibility to heads of government since they are in a position to persuade and pressure members into working together to generate desired political outcomes. The public may conclude there is lack of feasibility when some members do not vote with the rest of the coalition government and then punish leaders as their management skills are called into question.

3.1.1 Real-world Outcomes and Popularity

Conventional scholarly wisdom has long held that the popularity ratings of political leaders is determined by real world outcomes that have a direct impact on people's lives (Neustadt, 1980; Lewis-Beck and Stegmaier, 2013). The realm of the economy is the most studied component of real-world outcomes. Since the political leadership is expected to provide prosperity to its citizens, better economic conditions, or at least perception of such process, should lead to higher popularity

ratings (yet see: Berlemann and Enkelmann 2014). In Israel, a few studies have found economic influence on voting in some periods (Sheafer, 2008; Shamir, 2015, p. 16) and these might have also shaped prime ministerial popularity. Yet, other studies suggest that economic issues in Israel hardly shape public evaluation, since security issues tend to dominate the public agenda (Arian and Shamir, 2008) and influence news coverage and parties' campaigns (Tsfati et al., 2009)[2]. In light of these assertions, this paper will investigate, as a central hypothesis, whether the Israeli public holds the prime minister accountable for economic performances.

While wars have mostly been discussed in the literature as a reason for a decline in popularity, their initial stages can often lead the public to rally behind leaders (Mueller, 1973; Gelpi and Mueller, 2006; Gronke and Newman, 2003; Treisman, 2011). At the start of war, when the costs are not yet apparent, national security threats facing the country might lead to a surge in popularity. In Israel, military operations tend to last for not more than a few weeks, but they occur frequently (see Appendix B.2). There is some evidence that at the start of military operations in Israel, government parties and the prime minister enjoy a boost of public support when the public favors the prime minister's use of force (The Peace Index, 2014).

While the short-term effect of war on popularity might be positive, the long-term effect can have an opposite impact. Mueller (1973) argues that people's reaction to the cumulative effects of war is negative. Prime Minister Olmert attributed his low popularity to the costs of the 2006 war in Lebanon (Mualem, 2007). It seems clear that war can have two quite difference consequences on a leader's popularity. First, in the short-term, there should be a positive effect on popularity as the citizenry rallies in support of its' military even though there may be casualties. Second, in the long-term, there should be a negative effect as the costs of war mount and the public realizes the negative consequences of the conflict. Taken together, it is expected that war increases popularity in the short run and decreases it in the long run.

[2]A few studies on presidential approval ratings, which focused on George W. Bush's presidency, also found that economic conditions had no effect on public support once the war in Iraq began (Eichenberg et al., 2006; Voeten and Brewer, 2006) or had significantly less impact than earlier presidents (Norpoth and Sidman, 2007). Yet, also see: Ostrom et al. (forthcoming)

In other countries major political events significantly shape popularity ratings (MacKuen, 1983; Ostrom and Simon, 1985; Newman and Forcehimes, 2010). In Israel, it is often argued that a prime minister's public standing is as volatile as the events of the day (Arian, 1998; Maoz and Shayer, 1987). Prior studies have shown that events of political drama, which can have a positive or negative effect, capture the public's attention (Ostrom and Simon, 1985; MacKuen, 1983, p.189-190) and tap deeply held beliefs about leadership authority (Ostrom and Smith, 1992, p.130). I utilized Newman and Forcehimes's (2010) categorization, which differentiate not only between positive and negative events, but also between domestic, international and personal events.

3.1.2 The Role of Coalition Government and Popularity

The effect of economic, social and other policies on public opinion are important factors in explaining how real world outcomes influence public opinion and support for leaders. Nevertheless, variation in public support, at least in coalition governments, cannot be solely explained as a function of policy outcomes – it also depends on the policy making process. It has long been acknowledged in the literature on presidential approval that the legislative arena has a major influence on popularity polls and that the two are related to each other. Although these studies were focused on legislative victory, which represents leadership accomplishment on a particular issue (e.g., Ostrom and Simon 1985; Canes-Wrone and De Marchi 2002), they demonstrate that a valid theory of leadership popularity ratings must also account for legislative behavior, especially if this behavior is likely to receive media and public attention. Recent studies on the significance of American presidents' use of executive orders rather than legislation further show that the policymaking making process affects what the public thinks about its leadership (Christenson and Kriner, 2016, 2017; Reeves and Rogowski, 2016).

This study introduces the possibility of opinions being formed during the policy making process, as the public learns about the degree to which the prime minister can effectively persuade or pressure coalition members to agree on a policy and work together to execute it (Barber, 1966). At that stage, people are looking for indications of feasibility; will the government be able actually to

carry out the proposed policy (Smoke, 1994, p.99)? By using their power and influence to develop a consensus regarding a policy, political leaders will develop a reputation for running a feasible policy making process. For the public it should mean that the leader understands other political actors and the evolving situation well enough "to enable him[/her] to influence the course of events in the desired direction with the means and resources at his[/her] disposal" (George, 1980, p.235).

In the context of a coalition government, if members of the coalition cannot all agree on a policy, how can the prime minister successfully execute that policy and deliver its desired outcomes? When political feasibility is accompanied with the possibility of a prime minister losing his/her parliamentary majority and office, then coalition cohesion becomes especially important. A central hypothesis of this study is that the Israeli public is attentive to the policy-process and is punishing or rewarding prime ministers based on the degree of legislative cohesiveness among coalition members.

It is, however, important to acknowledge the possibility of prime ministerial popularity ratings also influencing coalition cohesion – there could be reciprocal causation. It is not obvious what direction such an effect will be since even under the assumption that members of government decide how to vote based on the level of support for the prime minister and not based on policy and ideology, high popularity might lead some members of government to support the prime minister, while others might identify the prime minister's high popularity as a growing political threat that needs to be addressed by challenging the prime minister. The empirical section of the paper will investigate the issue of causation as well as the possibility that the two effects can also cancel one another producing no effect of popularity on cohesion.

3.2 Analyzing Public Satisfaction with the Prime Minister

The following section is divided into three parts. After the variables are described in the first part, OLS models are presented. I start with a model that does not include coalition cohesion and is comparable to other models of popularity that appear in the literature. Then, coalition cohesion

is incorporated into the equation, as well as other political determinants that can influence public support for the prime minister. Finally, the results of vector autoregressive (VAR) models are presented to evaluate the direction of the relationship between popularity, cohesion and economic evaluation.

3.2.1 Dependent Variable: Prime Ministerial Popularity

Popularity ratings data on the prime minister has been published by several Israeli newspapers and research institutes in the past decade. The main data source is from the daily Israeli newspaper 'Haaretz', which together with the 'Dialogue' institute have been conducting telephone surveys several times a year that include the following popularity question: *"are you satisfied or not satisfied with how (the incumbent) is handling his job as prime minister?"* Respondents then need to choose between three options: satisfied, not satisfied or do not know. The wording of the question is similar to surveys in other parliamentary systems (Bellucci and Lewis-Beck, 2011). To improve estimation of the dependent variable and since this question was not asked every month in the period between 2006 through 2015, I also use data from five other surveys that have used the same question (see Appendix B.1). Overall, each survey is representative of the Israeli voting-age population. To combine results from all sources into a single smoothed series of popularity I use Stimson's (1999) Dyad Ratios Algorithm, which can account for missing data and has been shown to be appropriate for estimating indicators of popularity ratings (Rudolph, 2002)[3].

Figure 3.1 displays the estimated time series of prime minister satisfaction from January 2006 through June 2015. On the left of the figure, Olmert popularity peaked on August 2006, with 44% public satisfaction. Since then it began to decrease and through most of 2007 Olmert's popularity ratings held steady, with 16% public satisfaction. Although his popularity ratings began to increase by the end of 2007, they stayed below 40%. On the right side of Figure 1, Netanyahu's popularity

[3]When more than one survey result is available within the aggregated period, a weighted average is computed, which is weighted by the number of respondents in each survey. If no sample size is listed, it is assumed to be the average sample size of the polling firm.

ratings were more volatile, with a mean of 43%. Except for two months, Netanyahu's ratings stayed above 30% and in a quarter of the observations his popularity was above 47%. For comparison, it is also common for British prime ministers to fall below 40% in the polls - Margaret Thatcher's rating fell as low as 20% in March 1990 and John Major reached even lower ratings with 17% in August 1994. In a cross-national study on popularity ratings (Bellucci and Lewis-Beck, 2011), which mostly included parliamentary democracies, the minimum value of popularity was 10% and the mean was 39.54%. Therefore, there is no reason to consider prime ministerial popularity ratings in Israel to be unusual when compared to other political systems.

3.2.1.1 Operationalizing the Model

Prior studies in other democracies have used a variety of economic measures and presently, as Berlemann and Enkelmann (2014) argue, there is no consensus as to what measure is most appropriate. Nevertheless, since public perceptions of the economy is commonly used in studies of popularity economy (MacKuen et al., 1992; Clarke and Stewart, 1994; Norpoth, 1996; Nadeau et al., 1999; Clarke et al., 2005), I use the "Index of Consumer Confidence" (ICC) as the main economic variable. Higher values mean that more people have positive evaluation of the economy. In Israel, the index is available from both TNS-Bank Hapoalim and Smith-Globes surveys and the first difference transformation of the combined series is stationary[4].

To capture both the short-term and the long-term effect of military operations, I use two variables that measure the number of battle deaths, which prior investigations have shown to be the most fundamental outcome of war. The base 10 logarithm of the number of troops killed in action serves as a clear indicator of the magnitude and intensity of a war as well as the collective pain inflicted on society (Eichenberg et al., 2006; Gelpi et al., 2005; Ostrom and Simon, 1985). The difference

[4]The Smith-Globes monthly surveys were available until 2014 and the TNS-Bank Hapoalim monthly surveys were available for the years 2008-2015. The Dyad Ratios Algorithm is used to build a continuous regular time series from the two sources. According to the augmented Dickey-Fuller test the null hypothesis that the combined series follows a unit-root process cannot be rejected; and therefore the series is transformed to its first-difference.

between the two war variables is that the first (short-term) only measures monthly casualties during a particular military operation; while the second (long-term) measures the accumulation of casualties for an entire term of office, and it starts over after a new government is formed.

Five types of political drama events are included in this study: positive international, negative international, positive domestic, negative domestic and negative personal. For an event – coded 1 during the event and 0 otherwise – to be included it has to appear on the front page of Haaretz newspaper for at least three days. Overall, there are 23 political drama events. For negative personal events, it is important to note that in Israel most scandals that involve the prime minister have been in the context of corruption.

To measure coalition cohesion, I use roll call voting of MPs who belong to parties that are part of the coalition government. Only votes that the prime minister had participated in are included in the cohesion index. The focus on prime minister participation is meant to serve three purposes: first, in these cases the prime minister took a clearly identifiable position; second, the prime minster is more likely to participate in votes that have larger impact on policy; third, when the prime minister participates, the media is more likely to report about the outcome of the vote and the public is more likely to pay attention[5]. The coalition cohesion index is based on the 'Agreement Index' (AI) which has been used to measure party group cohesion (Hix et al., 2005). The index can vary from zero to one and is calculated as follow:

$$AI = \frac{max\{Y_i, N_i, A_i\} - \frac{1}{2}[(Y_i + N_i + A_i) - max\{Y_i, N_i, A_i\}]}{(Y_i + N_i + A_i)} \tag{3.1}$$

where Y_i denotes the number of Yes votes by group i on a given vote, N_i the number of No votes and A_i the number of Abstain votes. When all coalition members vote together AI equals to 1 and it equals 0 when coalition members are equally divided between all three options. Following the Hix et al. (2005, p.219) logic, the level of coalition cohesion should be interpreted differently when in more parties in parliament members do not vote the same way. The coalition government should be perceived as more cohesive when the level of cohesion within all parties is low. Coalition cohesion

[5]The data on roll call voting can be found in the Knesset website: http://www.knesset.gov.il

is therefore calculated for each vote as the ratio of coalition government cohesion to parliamentary cohesion[6]. The minimum level of relative AI the coalition government reached in a month is used as the monthly value, as it is likely to have the most impact on public evaluation[7].

Four control variables, which can influence public support for the prime minister are also included. First, a variable that counts the number of months since a government was formed until a new government is formed after the election, is included in the model to account for a political cycle of leaders' time in office that can shape their popularity ratings (Gronke and Newman, 2003)[8]. Second, in some countries terror events have been shown to have a negative impact on popularity when terrorism is considered as an enduring problem facing the country (Arce, 2003). The terror variable is calculated as the base 10 logarithm of the cumulative monthly sum of people killed from terror attacks during a term of office[9]. Third, the size of the coalition can influence the prime ministers' ability to govern and might influence the prime minister's popularity ratings. Finally, a dummy variable is included for the person in office (0 for Netanyahu and 1 for Olmert).

3.2.2 Basic Model Estimates

The vast majority of popularity studies has been single-equation, OLS models (Bellucci and Lewis-Beck, 2011). Therefore, by way of a baseline, a simple OLS estimated equation is established. The

[6]As a robustness check Appendix B.5 shows the results of two other measurements of cohesion: unadjusted Agrement Index and Rice Index. It is important to note that the Rice Index (e.g., Carey 2008; Tavits 2012) only rely on yes/no votes and do not take the option of abstain into account, which might be an important venue for members to demonstrate disagreement. Yet, even when cohesion is measured without accounting for the level of cohesion in parliament (unadjusted Agrement Index) or with the commonly used Rice Index, the effect on satisfaction ratings is similar.

[7]In a month when no vote takes place and the public has no new information on coalition cohesion, people are assumed to rely on information that was received in the previous month and therefore missing values are filled using previous month values.

[8]The inclusion of a time variable in popularity models has long been debated in the literature (Gronke and Newman, 2003). Most importantly, a time counter can lead us to underestimate the effects of other variables (Monroe, 1978), which represent "real events and conditions" while time "as a variable has no inherent meaning" (Kernell, 1978, 508).

[9]The data for this variable is from the "Global Terrorism Database" (GTD)

general model is:

$$P_t = \beta_0 + \beta_1 P_{t-1} + \sum_k \gamma_k X_{k,t} + \varepsilon_t \tag{3.2}$$

where P_t equals the percentage of satisfaction with the prime minister's performance; the first component, P_{t-1} is the percentage of satisfaction with the prime minister in the previous month. This component is included as a proxy for other determinants not included in the model while also enabling a dynamic modeling (Burkhart and Lewis-Beck, 1994); the X's, indexed by k, are the explanatory variables[10]; and ε is a normally distributed stochastic error[11]. In the baseline model (Table 3.1, column 1) all main variables are included except for coalition cohesion. As expected, the consumer confidence variable has a positive influence on public satisfaction with the prime minister. The short-term impact of war is positive and the long-term impact is negative; although only the long-term effect is significant. All events variables - international, domestic and personal - are in the expected direction and, except for positive domestic events, are statistically significant.

After establishing a baseline model, four additional models (Table 3.1, columns 2-5) are estimated that include the coalition cohesion index. In the second model (Table 3.1, column 2), the results show that more cohesion significantly increases satisfaction ratings, while less cohesion makes the ratings decrease[12]. Moreover, the AIC and BIC values of the model with the cohesion index are lower, which means better fit than the model without a measurement of coalition cohesion. The third model (Table 3.1, column 3), includes two additional variables: time in office and cumulative terror casualties. While satisfaction with the prime minister tend to increase over

[10]All variables and their descriptive statistics are listed in Appendix: B.4. Public evaluation of prosperity, security and cohesion is assumed to be a mediated and complex process, in which the media reports some of the information and the public than interpret it and therefore all three are assumed to have a lagged effect on prime ministerial popularity ratings.

[11]The issue of serial correlation was evaluated with the Breusch-Godfrey LM test and the null hypothesis of no serial correlation cannot be rejected ($p>0.05$) in all models. Stationary conditions were also evaluated with Phillips-Perron (1988) and Robinson (1995) tests. There is no evidence that spurious correlations influenced the results since no two variable are cointegrated or fractionally cointegrated.

[12]To test for a non-linear effect, a cohesion variable and its square (cohesion×cohesion) were included in the model. However, this curvilinear effect was not significant.

Table 3.1 Explaining dynamics in satisfaction as a function of cohesion and real-world outcomes

DV: % Satisfaction	(1)	(2)	(3)	(4)	(5)
Relative Cohesion$_{t-1}$		4.085**	3.625**	3.477**	3.076**
		(1.420)	(1.341)	(1.359)	(1.487)
Δ ICC$_{t-1}$	0.297**	0.336**	0.357**	0.354**	0.337**
	(0.121)	(0.117)	(0.110)	(0.112)	(0.115)
War (short-term)$_{t-1}$	0.698	0.605	1.347**	1.315**	1.415**
	(0.425)	(0.422)	(0.457)	(0.468)	(0.430)
War (long-term)$_{t-1}$	-0.885**	-0.867**	-0.562*	-0.589*	-0.613*
	(0.278)	(0.263)	(0.299)	(0.313)	(0.310)
PI events	4.290**	3.843**	4.103**	4.141**	3.701**
	(1.636)	(1.630)	(1.436)	(1.407)	(1.373)
NI events	-4.673**	-4.821**	-5.637**	-5.593**	-5.689**
	(1.276)	(1.402)	(1.308)	(1.312)	(1.382)
PD events	0.519	0.673	4.663**	4.533**	3.775**
	(1.817)	(1.753)	(2.104)	(2.098)	(1.825)
ND events	-11.320**	-10.794**	-10.864**	-10.880**	-10.823**
	(2.478)	(2.748)	(2.907)	(2.965)	(2.792)
NP events	-3.835**	-4.468**	-3.560**	-3.448*	-3.469**
	(1.819)	(1.863)	(1.787)	(1.858)	(1.719)
Time in Office			0.186**	0.183**	0.146**
			(0.041)	(0.041)	(0.047)
Cum. Terrorism$_{t-1}$			-1.534**	-1.490**	-1.070*
			(0.492)	(0.504)	(0.558)
Coalition Size				-0.022	
				(0.034)	
PM					-2.119
					(1.284)
Lagged D.V.	0.740**	0.721**	0.637**	0.635**	0.598**
	(0.061)	(0.059)	(0.064)	(0.064)	(0.072)
Constant	11.529**	8.643**	11.469**	13.218**	16.015**
	(2.717)	(2.820)	(2.938)	(3.941)	(4.543)
R^2	0.896	0.901	0.915	0.915	0.917
AIC	620.985	617.092	604.477	606.184	604.050
BIC	648.259	647.093	639.933	644.367	642.234
RMSE	3.621	3.545	3.326	3.339	3.307

N=114. Robust standard errors in parentheses. ** indicates $p \leq 0.05$ and * indicates $p \leq 0.1$, two-tailed test.

time, the accumulation of terror casualties reduces it. In addition, the short-term effect of war and positive domestic events, both become significant with the inclusion of a time-in-office and terror variables. Model four (Table 3.1, column 4) shows that the size of the coalition government has no significant impact on prime ministerial satisfaction.[13]. The last model (Table 3.1, column 5) further demonstrates that Olmert had lower popularity levels compared to Netanyahu, yet the difference between the two prime ministers is not significant.

To summarize the results to this point, in all model specifications coalition cohesion, as measured by the agreement index, has a significant impact on public satisfaction. As hypothesized, prime ministers are rewarded with more public support when the policy-making process exhibits more cohesion. The results also support the hypothesis that the Israeli public does pay attention to economic conditions. War's dual effect on popularity demonstrates how public evaluation of military conflicts can change over time. During a militarized conflict the public "rally 'round the flag" and support the prime minister. After the military operation ends, the rally effect dissipates and the cost of war, in terms of casualties, lead to a decrease in public support.

3.2.3 Further model estimates

The models above assume that the causal arrow runs from coalition cohesion and economic evaluation to prime ministerial popularity, without acknowledging the possibility of different causal relationships, which may indicate that the preliminary models are wrong. An alternative explanation is that coalition government members' voting patterns are shaped by prime ministerial popularity ratings. Then, inverse causality might explain the results. Another possibility is of reciprocal causation, when satisfaction with the Prime Minister, may both respond to and cause coalition cohesion and economic evaluation, and the latter may have bidirectional relationships as well. Instead of assuming that coalition cohesion and economic evaluation are exogenous to popularity

[13]The number of parties in government was also tested for its effect on satisfaction ratings, yet similar to coalition size it failed to show statistically significant impact. The two variables were also tested for their lagged effect yet they did not have a significant impact.

ratings, it is possible to treat each relationship as potentially endogenous.

I use vector autoregression (VAR) methods to evaluate the direction of the relationships (Freeman et al., 1989; Sims, 1980). In addition to tracking the dynamics of relationships through time, VAR modeling is preferable over other regression methods in its strong control for history, by including multiple lagged values of the variables in the equation. It is important to note that a VAR model is intended to be a parsimonious approximation of the true data generating process, and therefore should consist of a relatively small number of endogenous variables, each represented by an equation. Therefore, each of the three potentially endogenous variables – popularity, coalition cohesion and economic evaluation – has its own equation that is explained by lagged values of the other two variables. The other variables – war, terror, political events and time in office – are included in each equation as exogenous variables, as they measure plausibly exogenous environmental conditions. The VAR model can be expressed in a matrix form in the following way:

$$y_t = c + \Phi_1 y_{t-1} + \ldots + \Phi_p y_{t-p} \ldots + \Theta X_t + \varepsilon_t \tag{3.3}$$

where y_t is an (3×1) vector holding the endogenous variables; c denotes an (3×1) vector of intercept terms; Φ is an (3×3) matrix of coefficients relating current values of the three endogenous variables to lagged values of each of them; Θ represents an $(3 \times m)$ matrix coefficients linking the endogenous variables to the exogenous variables; finally, ε_t is an $(n \times 1)$ vector of the stochastic error.

As a first step, multiple VARs of varying lag lengths were estimated and almost all test statistics of the selection-order criteria suggested one lag, while the rest suggested two lags. For both number of lags the results of the statistical analysis were similar. Prior literature has suggested that multivariate VAR models estimated with non-stationary data may produce spurious results (Fanchon and Wendel, 1992). It is therefore required that in a VAR model, its first and second moments are independent of t (Becketti et al., 2013). I use an eigenvalue stability condition test based on a VAR model described above. In this test, all eigenvalues are strictly less than 1, which according to Lütkepohl (1993) show that the estimated VAR is stationary.

Table 3.2 Granger causality tests

Independent Variable		Dependent Variable	p-value
Relative Cohesion	→	Satisfaction with Prime Minister	.02
Δ ICC			.00
All			.00
Satisfaction with Prime Minister	→	Relative Cohesion	.77
Δ ICC			.15
All			.33
Satisfaction with Prime Minister	→	Δ ICC	.45
Relative Cohesion			.40
All			.47

Note: The arrows indicate Granger causality from the coefficients for the independent variable to the dependent variable based on .05 significance levels.

3.2.3.1 Causality Tests and Potentially Endogenous Variables

Before exploring the full VAR models, since even a small VAR contains a lot of parameters, I start with one of the common ways to summarize the information contained in these parameters – Granger causality tests, which characterize temporal relationships in terms of predictability. In a Granger causality test, the results can indicate that variable A significantly helps predict variable B, after lagged values of B are considered. The results of the Granger causality tests are reported in Table 4.1. The first panel shows that both coalition cohesion and economic evaluations Granger-cause prime ministerial satisfaction ratings. In the second panel, however, economic evaluations and satisfactions ratings do not Granger-cause the level of coalition cohesion. Moreover, the third panel shows that satisfaction ratings and coalition cohesion do not Granger-cause change in economic evaluation.

The full results of the VAR model are presented in Table 3.3. Consider first the determinants of satisfaction with the prime minister. As shown in column 1, the results indicate support for coalition cohesion hypothesis. The coefficient for coalition cohesion is both positive and statistically significant, indicating that more legislative cohesion among members of the coalition leads to an

increase in public support for the prime minister. The hypothesis that prime ministerial popularity is influenced by prosperity is considered next - positive changes in the consumer confidence index have a positive and significant impact on prime ministerial popularity ratings. Comparing the OLS models (Table 3.1, columns 2-5) to the VAR model of satisfaction (Table 3.3, column 1) shows that the influences of coalition cohesion and consumer confidence are similar in both models. The VAR model further shows in columns 2 and 3 that both coalition cohesion and economic evaluations are not significantly shaped by the endogenous variables. Nevertheless, it is important to note that in the coalition cohesion equation, the coefficient of satisfaction is positive, which shows that more positive public evaluations of the prime minister lead to some increase in coalition cohesion.

In addition to the results of the endogenous variables discussed above, it is also important to examine the impact of the exogenous variables on each of the endogenous variables. As shown in column 1, the results indicate support for the effect of all exogenous variables. War has dual impact on popularity: a significant positive effect in the short term, and a significant negative effect in the long term. As suggested by the literature, terror also have an impact on popularity: the accumulation of terror casualties is related to lower levels of satisfaction with the prime minister. All political drama events are significant and in the expected direction, as well as the time in office variable. None of the exogenous variables is significant in the coalition cohesion (Table 3.3, column 2) or consumer confidence (Table 3.3, column 3) equations.

3.3 Conclusions

Since coalition governments in multiparty parliamentary systems tend to be short-lived and weak compared to one-party governments, one may assume that maintaining a parliamentary majority is the only reason for prime ministers to pay attention to the voting behavior of coalition government members. The results reported herein show that the erosion in parliamentary majority may be even more consequential: it may indicate that the policy making process is not feasible. The lack of feasibility lowers the likelihood that a government's policy will ultimately be enacted. This, in turn,

Table 3.3 VAR estimation of public satisfaction with PM

	(1) Satisfaction	(2) Relative Cohesion	(3) Δ ICC
L.Satisfaction	0.637***	0.001	-0.037
	(0.049)	(0.002)	(0.049)
L.Relative Cohesion	3.625**	0.550***	-1.324
	(1.559)	(0.077)	(1.566)
L.Δ ICC	0.357***	-0.007	0.080
	(0.095)	(0.005)	(0.095)
War (short-term)$_{t-1}$	1.347***	0.005	-0.147
	(0.439)	(0.022)	(0.441)
War (long-term)$_{t-1}$	-0.562**	-0.013	-0.008
	(0.250)	(0.012)	(0.251)
Cum. Terrorism$_{t-1}$	-1.534***	0.010	-0.350
	(0.522)	(0.026)	(0.524)
PI events	4.103***	0.061	1.956
	(1.496)	(0.074)	(1.502)
NI events	-5.637***	0.015	-1.012
	(1.684)	(0.084)	(1.691)
PD events	4.663**	-0.034	1.688
	(1.818)	(0.090)	(1.825)
ND events	-10.864***	0.098	-1.059
	(1.677)	(0.083)	(1.684)
NP events	-3.560**	0.010	-1.070
	(1.587)	(0.079)	(1.593)
Time in Office	0.186***	0.001	-0.012
	(0.045)	(0.002)	(0.045)
Constant	11.469***	0.347***	3.629
	(2.411)	(0.120)	(2.421)

N=113. Standard errors in parentheses

*** $p\leq0.01$, ** $p\leq0.05$, * $p\leq0.1$; two-tailed test

will lower the prime minister's popularity ratings.

In Israeli media, Olmert and Netanyahu's popularity ratings are often linked to military operations (e.g., Mualem 2007, 2009). It has been suggested that Netanyahu's standing with the public has also been influenced by economic issues, especially during the 2011 protests. This study shows that prosperity, military operations, as well as terror and dramatic political events all play part in shaping prime ministerial popularity in Israel. This is consistent with the large literature on popularity ratings in the United States (e.g., Baum and Kernell 2001; Newman 2002) and European countries (e.g., Bosch and Riba 2005; Clarke et al. 1986; Hibbs and Vasilatos 1981). Popularity dynamics in Israel shares the same basic structure as both presidential and parliamentary democracies.

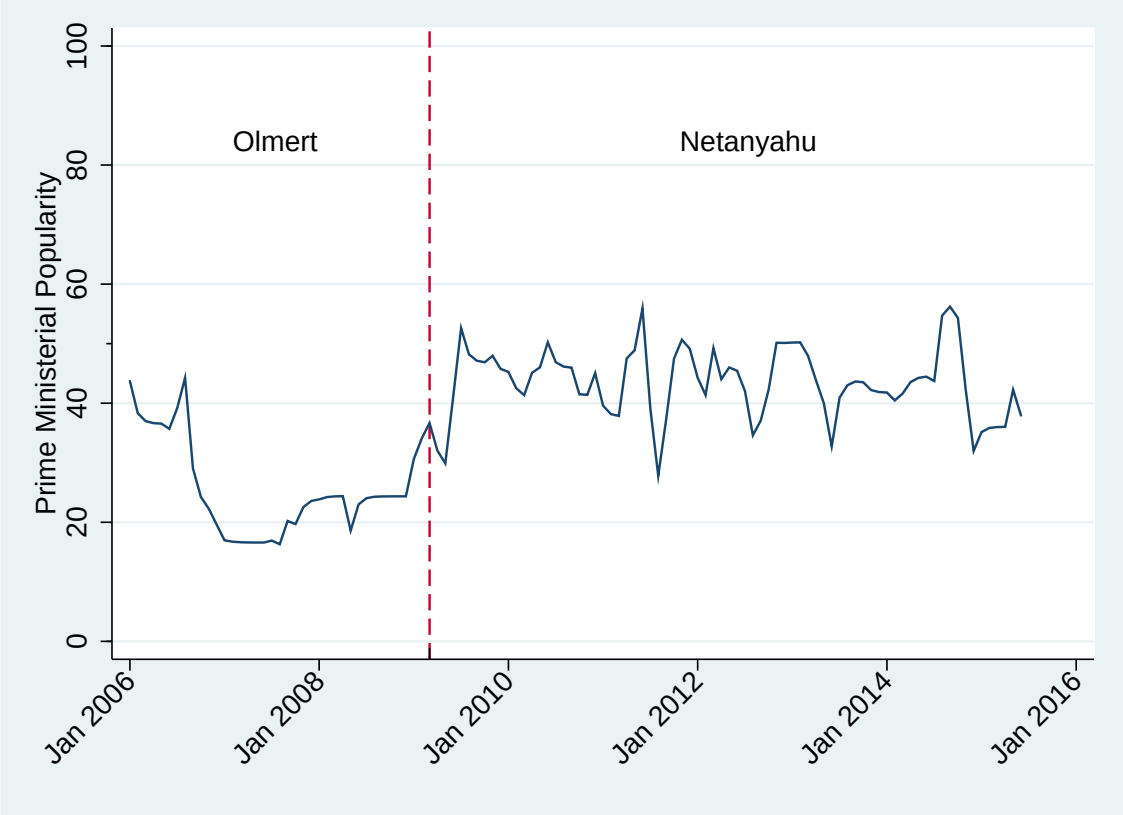
Yet the literature on popularity ratings has overlooked another enduring component of public evaluation. In this study, coalition cohesion is shown to have a significant impact on prime ministers in Israel. As more (less) members of the coalition vote with the government in the Knesset, public support for the prime minister increases (decreases). From this perspective, the fates of Israel's two latest prime ministers appear in new light. Olmert and Netanyahu's popularity ratings were directly influenced by members of government's voting behavior. In reference to Özbudun's (1970) definition of cohesion, there is clear evidence that the public does expect government members "*to work together for the group's goal*". Since prime ministers are held accountable for the degree of coalition cohesion, they should try to minimize the number of government members who do not vote with the government, even when they have a majority in the parliament.

This study reinforces the linkage between legislative politics and public evaluation of leaders that prior studies have established (e.g., Gronke and Newman 2003). Yet, we should acknowledge the possibility that the effect of cohesion might be more complicated. Although there was no evidence that cohesion is an endogenous component in the model, the theoretical framework of this study does not reject that possibility. For example, even if prime ministerial popularity does not have the same influence on all members of the coalition, controlling for different ideological groups might allow us to observe the reciprocal relationship between cohesion and satisfaction. Another

interesting venue for future studies is using data on the popularity of policies among the mass public and parsing the effect of policy popularity and cohesion on prime ministerial popularity in a systematic way.

Overall, this study shows that the dynamic of popularity ratings in Israel is responsive to a wide range of signals about leaders' competence. Public evaluation of prime ministers is a perpetual process that incorporates both the policy making *process* and the *outcomes* of government *policies*. Therefore, both cooperative coalition partners and satisfactory performance can boost public support for the prime minister. The Israeli public seems to perceive a unified government as the first step toward a successful government that meets its own goals. Nevertheless, having a consensus among all coalition partners can also lead to poor government's performances. Assuming that prime ministers are aware of this tradeoff, they have to choose whether to advance a policy that lacks a consensus, which means lower popularity ratings, but they expect that policy will lead to good outcomes, which might mean higher popularity ratings.

Figure 3.1 Olmert/Netanyahu Job Satisfaction – 2006 - 2015



Source: Haaretz/Dialogue and other surveys (see Appendix B.1)

CHAPTER 4

POPULARITY RATINGS, VOTE INTENTIONS AND THEIR MUTUAL DEPENDENCE: PUBLIC EVALUATIONS OF PRIME MINISTERS, THEIR GOVERNMENTS AND PARTIES IN BRITAIN

Do those who are held accountable for economic and security outcomes also depend on each other for their public support? The literatures on vote intentions and popularity ratings, known as VP-functions (Nannestad and Paldam, 1994; Lewis-Beck and Stegmaier, 2013), explain public support as a function of citizens' well-being, with a focus on the economy and security as the two main components. Previous studies on parliamentary democracies, have explored the effect of economic and security conditions on three types of political units: prime ministers, governments and parties. The literature makes the case that citizens punish and reward all three units based on the state of the nation, since the policy making process is most likely to be shaped according to their preferences (Nannestad and Paldam, 2002). To date, the relationships between these three political units in parliamentary systems have not been examined. This study is the first to investigate the possibility of reciprocal relationships between evaluations of prime ministers, governments and incumbent parties.

Why should we be interested in the relationships between those who are held accountable? First, much political thought about representative democracy centers on the notion that the governed can and do hold elected officials accountable, rewarding them in good times and punishing them in bad times. As Walter Lippmann put it, "to support the Ins when things are going well; to support the Outs when they seem to be going badly, this ... is the essence of popular government" (qt. in Powell 2000, p. 10). Along the same lines, Robert Dahl (1971, p. 3) argued that "at a minimum, it seems to me, democratic theory is concerned with processes by which ordinary citizens exert a relatively high degree of control over leaders." The quest for better understanding of how accountability operates is the raison d'être of the VP-functions literature (Anderson, 2007), and we should therefore be able to know, for example, if the entire government and the prime minister's party are influenced by the level of popular support for the prime minister. If they are not, it might mean that the

whole government and the incumbent party should not be concerned with how the prime minister is perceived by the public. Yet, if support for the prime minister influences the level of support for the government and the incumbent party, it means that they are dependent on the prime minister's public image. In addition, the literature on the VP-functions has long manifested a lack of stability, especially at the macro-level (Berlemann and Enkelmann, 2014; Lewis-Beck and Stegmaier, 2013) – the effect of economic and security conditions on popularity ratings and vote intentions is not always significant. One of the main reasons for the lack of stability is related to poor specification (Bellucci and Lewis-Beck, 2011). If prime ministers, governments and parties influence each other, then not taking these relationships into account might influence other parameters in the equations.

To examine the relationships between the three political units of accountability this study focuses on Britain as a case-study for the following reasons. First, Britain is a parliamentary system where the impact of both economic conditions and wars can be investigated simultaneously over a long period of time. The wars in Iraq and Afghanistan, which lasted over a decade, vis-à-vis the changing economic conditions, provide an opportunity to explore the influence of war on public opinion, in parliamentary system. Second, data on public support for the prime minister, the government and the incumbent party is available on almost a monthly base during that time frame. Third, the British parliamentary and governmental institutions are considered by many as a general model of democracy, since they are both the original and the best-known example of the majoritarian model. Moreover, the extent of studies on the VP-functions in Britain, is second only to the United States (Bellucci and Lewis-Beck, 2011).

To address the question of whether reciprocal relationships between prime ministers, governments, and parties exists, this study offers a general account of VP-functions dynamics that takes into consideration 1) the degree to which executive powers are shared within the government for socio-economic versus security issues, 2) the importance of prime ministerial popularity for the government, and 3) the mutual relationship between popular support for the executive and vote intentions. This study contends that since some executive powers are more concentrated with the prime minister while others are more broadly shared among government ministers (Lijphart, 1999),

the public should be able to assign responsibility for issues based on the level of shared responsibility. While both the prime minister and the government should be held accountable for economic outcomes, security conditions are most likely to be attributed to the prime minister who holds the executive authority over the armed forces. In addition, the prominence of the prime ministers in their governments, and prime minister's pivotal role in the decision making process (Foley, 1993; Heffernan, 2005) should cause popular support for the prime minister to shape support for the government, but not necessarily vice versa. Finally, this study argues that just as a government's job performances should influence vote intention for the incumbent party (Clarke et al., 2000), greater support for the incumbent party should increase popular support for the executive.

This study begins with a short review of studies on popularity ratings, of prime ministers and governments, and studies on vote intention for the incumbent party. The review shows that the literature tends to treat those who are responsible as either equivalent to one another, or at least overlooking the possibility for reciprocal relationships between them. Next, the theoretical approach of this study is presented, while highlighting the characteristics of the executive in parliamentary systems in general and in Britain in particular. Then, I explain how the theoretical model is operationalized and show the results of vector autoregression (VAR) models. Finally I discuss the political implications of mutual relationships between prime ministers, governments and parties.

The main findings of this study are that for the government, economic evaluations are more important than public concerns about wars, while for the prime minister public concerns about wars are more important than economic evaluations. In addition, public opinion about the prime minister significantly shapes public opinion for the entire government; yet there is no evidence that public opinion for the government has a similar effect on the prime minister. This study contributes to the literature on popularity ratings by arguing that the public uses different criteria when evaluating the performances of prime ministers and governments. The notion that prosperity and peace are important to the public is more nuanced than previously assumed, since their importance is determined by public perception of who should be held accountable for these environmental outcomes.

4.1 Literature Review

In the same year that Mueller's (1970) seminal work on presidential approval in the United States was published, Goodhart and Bhansali (1970) executed a similar analysis for the British parliamentary political system, with a focus on the economic determinants of vote intention for the incumbent party and for political leaders' popularity ratings. Goodhart and Bhansali's (1970) interest in the impact of economic circumstances is partly explained by what the Prime Minister at that time, Harold Wilson, has reportedly said in 1968 to the parliamentary Labout Party: " All political history shows that the standing of a Government and its ability to hold the confidence of the electorate at a General Election depend on the success of its economic policy" (Lindberg and Maier, 1985). Two main economic variables – unemployment and inflation – were tested and shown to have a significant impact on vote intentions and prime ministerial popularity ratings. Nevertheless, they have found a weak relationships between party leaders and the popular standing of parties: "the results suggest that the relationship may be a lot weaker than many might have imagined. Certainly party standing is much more closely determined by domestic economic events than by a leaders' personal attraction." (Goodhart and Bhansali, 1970, p. 86).

Since Goodhart and Bhansali's (1970) influential analysis, the literature on the VP-functions at the macro-level in Britain continued to explore the effect of economic indicators, but also highlighted the importance of wars and security conditions. In the first wave of studies, until the late 1980s, the common approach to study the V-function and the P-function was to analyze them as separate political units. For example, Norpoth (1987) examined the influence of unemployment and inflation, as well as the Falklands War, on the popularity of Prime minister Margaret Thatcher and vote intention for the Conservative party; yet popularity and vote were not considered to have any relationship. The study found that macroeconomic performance had an asymmetric effect, "with unemployment strongly significant but inflation not significant at all" (p. 949). It further showed that unlike other wars, the Falklands War did not undermine the popularity of the prime minister, but rather had a long lasting positive impact. Until the late 1980s, only a few studies have

considered the relationship between popularity and vote and those studies reported inconsistent findings (Clarke et al. 1986; Mishler et al. 1989; but also see: Clarke and Stewart 1984; Hudson 1984).

Later studies, from the 1990s, found more consistent evidence for the effect of prime ministerial popularity ratings on party support (Clarke and Whiteley, 1990; Lanoue and Headrick, 1994). Nevertheless, none of them examined all three political units – prime ministers, governments, parties – in the same model and treated them as possibly endogenous. Clarke and Stewart (1995) noticed that most "existing analyses of the aggregate dynamics of governing party support in Britain are noteworthy for their neglect of public evaluations of prime ministerial performance" (p. 155). They argued that the assumption that the measures of prime ministerial satisfaction and party support are tapping the 'same thing' (Sanders et al., 1987) cannot explain "the very large increase in prime ministerial approval that occurred immediately after Thatcher's replacement by Major, and the boost in Conservative at this time" (pp. 156-157). In their analysis they found that from 1979 through 1992 prime ministerial popularity ratings had a significant and positive influence on support for the Conservative party. Moreover, personal economic evaluations and the Falklands War also had a positive and significant impact (also see: Clarke et al. 1997). Clarke et al. (2000) found further evidence that "public images of prime ministers deserve prominence in models of the political economy of governing party support in Britain" (p. 269), although they showed that prime ministerial popularity had stronger effect on vote intentions during the Thatcher years, relative to the Major era. Nevertheless, as Lai and Reiter (2005) showed, once prime ministerial popularity is included as an exogenous variable in the vote function, the effect of security crises and economic indicators become insignificant.

While popularity ratings of the prime minister got more scholarly attention, other studies preferred to focus on public evaluation of the government. Bellucci and Lewis-Beck (2011), for example, explored the stability of the relationship between economic evaluations and government popularity in Britain as well as in five other countries. They found that economic evaluations have a consistent and stable effect. Sen and Donduran (2016) showed that in Britain, the public holds the

government accountable for changes in the stock market. More specifically, positive and negative stock market shocks influence the government satisfaction ratings. More recently, Denver and Garnett (2012), argued that "over about 50 years satisfaction with or approval of the record of the government of the day is a better guide to the popularity of parties than reactions to the party leaders." (p. 72) According to their view, voters' reactions to prime ministers are less reliable predictors of party preferences than appraisals of the general competence of the government. Nevertheless, none of these studies have examined the possibility of reciprocal relationships between all three political units.

4.2 Theoretical Foundations

This section presents the theoretical framework of the VP-functions, as depicted in Figure 4.1. While the literatures on vote intentions and popularity ratings did not fully examined the relationships between public evaluations of the prime minister, government and incumbent party; it is possible to derive a theoretical model based on the main findings in the literature. It is expected that prime ministerial popularity ratings should influence governmental popularity ratings, and the latter should influence support for the incumbent party. Moreover, both prime minister and government's popularity ratings are shaped by incumbent party support. Finally, economic and security conditions should also shape popularity ratings and vote intentions; yet within the executive branch, the prime minister is taking more of the blame and the reward for security conditions.

4.2.1 The Environmental Connection

The theory of performance evaluation begins with the well-established "environmental connection" – the link between the two most important elements of the political environment, namely prosperity and peace, and public support for office holders. A great deal of research in the United States (e.g., Mueller 1973; Ostrom and Simon 1985; MacKuen et al. 1992; Hibbs Jr et al. 1982) and Europe (e.g., Bellucci 2006, 2010; Bosch and Riba 2005; Norpoth 1991; Kirchgässner 1986, 1991)

supports the notion that public evaluation is linked to these two outcome types.

In terms of prosperity, while earlier studies mostly focused on objective economic indicators - particularly unemployment and inflation (e.g., Goodhart and Bhansali 1970; Mueller 1973; Kernell 1978; Hibbs Jr et al. 1982; Ostrom and Simon 1985), later studies have showed that subjective evaluations of the economy can better capture voter attitudes about the state of the economy (e.g., Bellucci and Lewis-Beck 2011; Clarke and Stewart 1995; MacKuen et al. 1992; Clarke and Stewart 1994). As argued by Lewis-Beck and Stegmaier (2000b), what ultimately counts for economic voters is "their interpretation of the economy rather than its objective condition" (p. 186).

As for the second environmental element, the public is expected to care about national security (e.g., Norpoth 1987; Clarke and Stewart 1995; Lai and Reiter 2005). It is hypothesized that the effect of security on public evaluation is dependent on the severity of the threat. Two distinct arguments are incorporated here. First, as Tir and Singh (2013) showed, security concerns should have a negative impact on public support for the governments and parties. The negative impact of security is explained by its salience: as the salience of security increases more people are likely to question the government's performance. Yet, a second focuses on the rally 'round the flag phenomenon, which have been shown to increase public support for the incumbent when the threat to national security is high Brody (1991); Cotton (1986); Gronke and Newman (2003); Mueller (1973). Brody (1991) suggested that during national security events, the government has an advantage over the opposition in influencing public opinion since opposition leaders lose their incentive to criticize the government. As the salient of security issues become high, the opposition is more likely to become less vocal in its criticism and even be vaguely supportive of current leadership of the country. Taken together, the two arguments should cause security concerns to have a U-shape effect on public support of high-low-high: low level of security concerns increases public support, as security concerns begin to increase public support decreases due to poor security performances, but with high levels of security concerns the public begins to rally behind the flag and public support increases again.

4.2.1.1 Concentration and Distribution of Responsibility in the Executive

The public may not attribute outcomes of prosperity and security to the prime minister and and the government in the same manner. Unlike presidential systems, in which the presidency is a one-person executive, in parliamentary systems the executive operates as a collegial cabinet (Lijphart, 1999). Therefore, in Britain, as in other parliamentary systems, executive powers are not always concentrated in the prime minister, but rather are distributed among more or less coequal participants. On the one hand, the Prime Minister, who is head of the government, is ultimately responsible for all government decisions. On the other hand, while ministers are chosen by the prime minister, they are accountable for the actions of their departments. Moreover, the Cabinet, which is made up of the senior members of government who meet regularly to discuss the most important issues for the government, is another institution in which executive power is shared.

Some policy-making processes are more collegial than others: social and economic decisions tend to involve more participants than decisions in the realm of national security. Most national security decisions are made by the prime minister, who de facto has the executive authority over the British armed forces, together with the Foreign and Defence Secretaries (Hennessy, 2017). The literature on public opinion has shown that assignment of responsibility can vary in the context of economic versus security issues (Carlin et al., 2015). The public is expected to evaluate economic and security outcomes differently for the prime minister and the government as a whole. It is therefore hypothesized that *the economy will impact both the prime minister and the entire government, and security will have greater impact on the prime minister*.

4.2.2 Reciprocal Relationships

4.2.2.1 Prime Minister and the Government

The prime minister has a special role in the operation and image of the government. As Clarke and Stewart (1995) explain, "prime ministers are pre-eminent figures on the political stage, and a sizeable proportion of the discussion of government and politics that is communicated to the

electorate via the print and electronic media spotlights the activities of the prime minister" (also see: Crewe and King 1994). Public evaluation of the prime minister should influence evaluations of the government since, when people think about government's performance, they are most likely to consider what the prime minister has done.

There is no other political figure among members of government that gets as much political attention as the prime minister. When all paid government posts are considered – which include MPs and peers who are cabinet ministers, non-cabinet ministers, junior ministers and whips – the number of political figures who compose the government has varied from 106 in 1979 to 118 in recent years (Maer and Kelly, 2017). While the performance and public image of each of them should determine public support for the entire government, it is less likely that they can directly and systematically shape public support for the prime minister (Kappe, 2013). It is therefore hypothesized that *while positive (negative) public opinion of the prime minister should lead to greater (less) public support for the government, public opinion about the government should not have the same effect on the prime minister*.

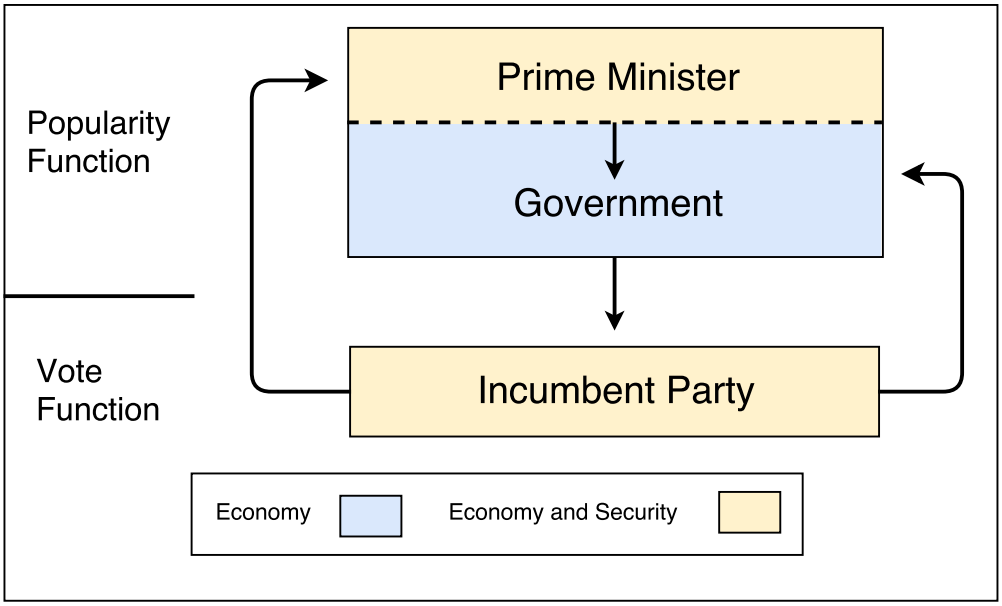
4.2.2.2 Popularity Ratings and Vote

There is a well established connection in the literature between popularity ratings and vote for the incumbent party (Clarke and Whiteley, 1990; Clarke and Stewart, 1995; Lanoue and Headrick, 1994; Clarke et al., 1997, 2000). Yet, as Denver and Garnett (2012) have shown, once we consider both prime ministerial and governmental popularity ratings, it is the government rather than the prime minister that shapes vote intentions. Moreover, the literature on election forecasting has emphasized the importance of public opinion about the entire government in predicting election outcomes (Lewis-Beck and Dassonneville, 2015a). The logic here is that vote is shaped by the broader component of popularity, which is public opinion about the entire government rather than just the prime minister. It is therefore hypothesized that *government popularity ratings should shape vote intention for the incumbent party*.

The final question in these reciprocal relationships, is whether vote also influences popularity

ratings. Studies on presidential approval in the US have shown that partisanship influences public support for the incumbent (Hibbs Jr et al., 1982; Jacobson, 2006): partisanship influences people's willingness to reward or punish the president for his performances. Lebo and Cassino (2007) mention three mechanisms through which support for a party can influence popularity ratings: 1) selective exposure, according to which individuals engage in a biased information search; 2) selective judgment, when individuals think that arguments against their current positions are weaker than those that support tham; and 3) selective perception, in which individuals simply view unfavorable information as actually being in agreement with their existing beliefs. It is therefore hypothesized that *the level of support for the incumbent party should play a role in shaping evaluations of both the prime minister and the government*.

Figure 4.1 Relationships between public support for the prime minister, government and incumbent party



4.3 Operationalizing the Model

The statistical model includes three equations to account for the possibility of reciprocal relationship between prime ministerial popularity, government popularity and vote intention. As noted previously, this study looks at the impact of two key environmental factors on popularity ratings: economic prosperity and national security. I say more about estimation below, but begin by describing the variables.

4.3.1 Endogenous Variables

Popularity ratings of the prime minister and the government are based on data from Ipsos-MORI poll[1]. During the period from May 1997 to July 2016, Ipsos-MORI included two questions "*Are you satisfied or dissatisfied with the way (the incumbent) is doing his job as prime minister?*" and "*Are you satisfied or dissatisfied with the way the Government is running the country?*" at least once a month. In Figure 4.2, the average monthly percentage of people who were satisfied with the job that the prime minister and the government were doing from 1997-2016, are represented by the blue and red lines, respectively.

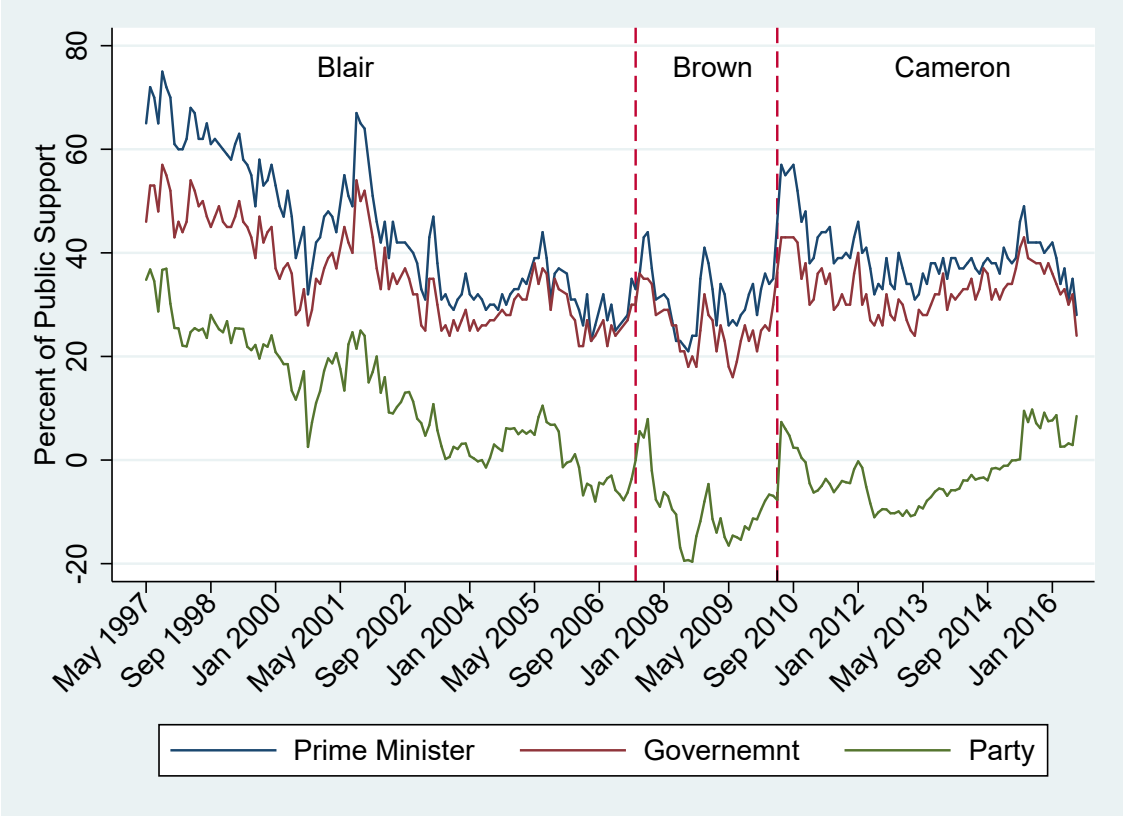
The popularity of the prime minister was on average higher (40.8%) than the popularity of the government (33.5%). The variation of prime ministerial popularity was also higher (see Appendix C.1). Nevertheless, there were only two occasions (July 2006, 2007) that both series had the same value, and only once (April 2008) satisfaction with the government was higher (26%) than with the prime minister (23%). Satisfaction with the prime minister had a peak of 75% on September 1997 during the early months of Tony Blair as prime minister, and it reached its lowest point of 21% on July 2008 during the time of Gordon Brown in office. While the highest value of satisfaction for the government (57%) was also on September 1997, it had the lowest value (16%) on June 2009, also during Brown ministry.

[1]The Ipsos-Mori data is available at: https://www.ipsos-mori.com/researchspecialisms/socialresearch/specareas/politics/trends.aspx, accessed October 10, 2016.

As suggested by previous studies, I use monthly data from PollBase[2] on vote intention (e.g., Lewis-Beck and Dassonneville 2015b; Lewis-Beck et al. 2016; Lewis-Beck and Dassonneville 2015a). The level of party support for the incumbent party is measured as its lead over the main opposition party (vote intention for the main incumbent party minus vote intention for the main opposition party). In Figure 4.2 the measure of party support is displayed by the green line. The lead of the main incumbent party over the main opposition party varied from -20 to 37 points, with a mean of 4 and standard deviation of 13 points.

[2]Data was retrieved from Mark Pack's database, which is available at www.markpack.org.uk/opinion-polls/ (Accessed: October 10, 2016)

Figure 4.2 Dynamics of public support 1997-2016



Vertical lines represent level of public satisfaction with the prime minister (blue), the government (red), or the incumbent party (green)

4.3.2 Environmental Indicators

The theoretical model guides the identification of the key environmental indicators that impinge on public support: prosperity and security.

4.3.2.1 Economy (Prosperity)

To measure the public's interpretation of the economy I follow prior studies on the British electorate (e.g., Lebo and Young 2009; McLaren et al. 2017; Worcester 1996) that included a subjective measure of economic performance collected by Ipsos-MORI and is referred to as the Economic Optimism Index (EOI).[3] It is calculated as the percentage of people responding "improve" minus the percentage responding "get worse" to the question, "Do you think that the general economic condition of the country will improve, stay the same or get worse over the next 12 months?".

4.3.2.2 Security Concerns

Similar to public evaluation of the economy, which can better capture attitudes about the economy compared to objective economic indicators, security threats are measured in this study as public evaluation of security conditions. The literature have showed that while traditionally scholars relied on a survey question that asks about the "most important problem" (MIP) facing the nation, a slightly better indicator of issue importance is a variant that asks about the "most important issue" (MII) (Jennings and Wlezien, 2011). Tir and Singh (2013) used MII to examine impact of foreign policy concerns on public support for incumbent leaders. Therefore, to capture variation in assessments of problem status in the context of security, this study uses the monthly percentage of people who said in Ipsos-MORI surveys[4] that "international terrorism", "foreign affairs" and "defence" are the most important issues facing Britain today.

[3]The Ipsos-Mori data is available at: https://www.ipsos.com/ipsos-mori/en-uk/economic-optimism-index-eoi-state-economy-1997-present, accessed October 10, 2016.

[4]The data is available at:https://www.ipsos.com/ipsos-mori/en-uk/important-issues-facing-britain, accessed October 10, 2016

4.3.3 Person in Office

The literature on VP-functions in Britain has also suggested that public support might be determined by personal characteristics of the prime minister, which is sometimes described as the 'incumbent matters' hypothesis (Clarke et al., 2000): who occupies Number 10, has an impact on public evaluation. In the literature on presidential approval, variation in overall level of public support across administrations is related to individual leaders' attributes, like "their style, integrity, competence, and personal warmth" (Gronke and Newman 2003, p. 503; also see Mueller 1973, p. 233). As can be seen in Figure 4.2, the three premierships of of Tony Blair, Gordon Brown, and David Cameron, exhibit different pattern of support. By including a dummy variable for each of the prime ministers, we allow them to begin at their own particular level. As Mueller (1970) explains, with this formulation, "peculiar effects of personality, style, and party and of differences in the conditions under which the President came into office can be taken into account." (p. 25)

4.3.4 Control Variables: Time in Office and Wartime

Both Mueller (1970) and Goodhart and Bhansali (1970) used the length of time elapsed since the last election as a determinant of popularity ratings. Yet, it was Mueller (1970) who provided a theoretical base for the relationship between time and public opinion, by arguing that as political leaders are forced to act on controversial issues, they are alienating groups of real or potential supporters. This phenomenon, which he termed the "coalition of minorities", can simply be measured as time in office. Following that logic, the models also include a time-in-office variable. In addition, the wars in Iraq and Afghanistan were deeply controversial within domestic politics (Clements, 2013; Lewis, 2004). To control for such effect, which might be an alternative explanation to the security hypothesis, a dummy variable for wartime is included, which has a value of 1 from March 2003 (when Operation Telic in Iraq began) through December 2014 (when Operation Herrick in Afghanistan ended).

4.4 Statistical Model

A Vector autoregression (VAR) approach is used to assess the main hypotheses, while taking into account the possibility of endogeneity and minimizing the likelihood of misspecification (Freeman et al., 1989). Following a strategy similar to that used by Chanley et al. (2000), I estimate a VAR with the set of exogenous variables. Before the model is estimated, a series of tests were conducted to determine the most appropriate lag length. Both the Bayesian information criterion (SBIC), and the Hannan and Quinn information criterion (HQIC) lagorder selection statistics, support the use of one lag. After estimating the parameters of the VAR, two additional tests were executed. First, as noted by Hamilton (1994, p. 258), a "vector process y_t is said to be covariance-stationary if its first and second moments ($E[y_t]$ and $E[y_t y'_{t-j}]$, respectively) are independent of the date t." As suggested by Lütkepohl (2005) and Hamilton (1994), the eigenvalue stability condition was tested and I found that it is strictly less than one. Since all the eigenvalues lie inside the unit circle, the VAR satisfies stability condition[5]. Second, the LM test for autocorrelation in the residuals of a VAR model indicates that there is no residual autocorrelation.

4.4.1 Empirical Results

The full results of the VAR models are displayed in Table 4.2. There are two aspects of the estimated VAR models that deserve special attention: first, whether there is evidence of causality between public support for prime minister, governments and parties; and second, how do the exogenous variables preform in each equation. To address the first issue, Table 4.1 shows the results of Granger causality Wald tests, which are derived from Model 1. As Freeman et al. (1989) notes, Granger causality is based upon "the idea that a variable X causes another variable Y if by incorporating past history of X one can improve a prediction of Y over a prediction based solely on the history of Y alone." As can be seen in the upper set of results, of 4.1, while satisfaction with the government

[5]It should also be noted that the Augmented Dickey-Fuller unit-root test shows that the null hypothesis of a unit root for both prime ministerial popularity and government popularity can be rejected at a 5% critical value, and for vote intention at a 10% critical value

does not Granger cause satisfaction with the prime minister; vote intention for the incumbent party does Granger cause satisfaction with the prime minister. The middle set of results shows that both satisfaction with the prime minister and vote intention for the incumbent party Granger cause satisfaction with the government. Finally, in the lower set of results, we can see that it is only satisfaction with the government that Granger causes vote intention for the incumbent party, and satisfaction with the prime minister does not have a similar effect.

Table 4.1 Granger causality tests

Independent Variable		Dependent Variable	p-value
Government Satisfaction	→	Prime minister Satisfaction	.467
Party Lead	→		.003
All			.010
Prime minister Satisfaction	→	Government Satisfaction	.040
Party Lead	→		.000
All			.000
Prime minister Satisfaction	→	Party Lead	.592
Government Satisfaction	→		.025
All			.014

Note: The arrows indicate Granger causality from the coefficients for the independent variable to the dependent variable based on .05 significance levels.

Another approach for estimating causality is to analyze impulse response functions (IRFs) based upon the VAR estimates (Table 4.2, Model 1). As can be seen in Figure 4.3, there are three graphs of the IRFs, for each of the endogenous variables. The first upper graph shows the response of government's satisfaction to one-standard deviation impulses. First we see the effect of a shock to an governmental satisfaction on itself. This effect is strong and lasts for almost four months. The response of governmental satisfaction to shocks in vote intention or prime ministerial satisfaction is more moderate and gradual; yet it lasts for a longer period of time.

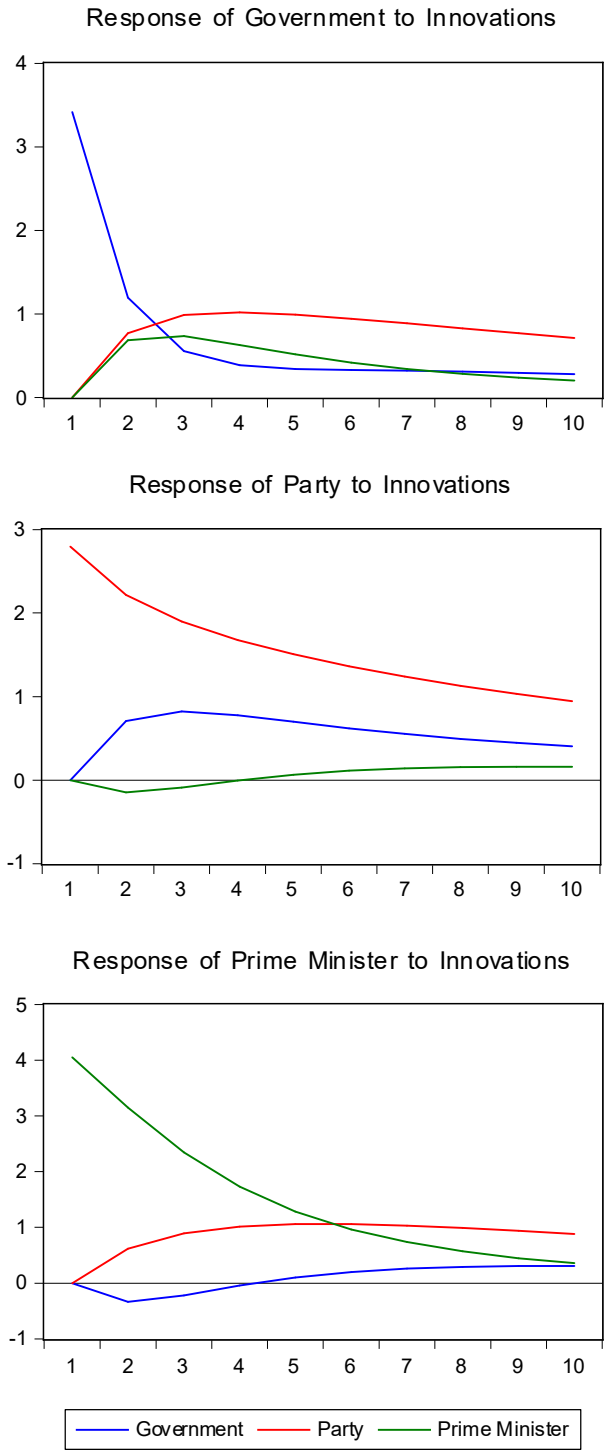
In the middle graph of Figure 4.3, we see the response of vote intention to one-standard

deviation impulses. The effect of a shock to vote intention on itself shows that vote intention has a long memory, which lasts for more than 10 months before it approaches zero. An impulse to government's satisfaction also produces a persistent and significant response in vote intention. There is, however, no indication that a shock to prime ministerial satisfaction has a similar effect on vote intention: its effect is insignificant and remains close to zero.

Finally, the lower graph of Figure 4.3, shows the response of prime ministerial satisfaction to one-standard deviation impulses. As in the previous endogenous variables, the effect of a shock to prime ministerial satisfaction on itself has a strong a immediate response. Of the other two variables, only an impulse to vote intention generates a significant response, while the effect of governmental satisfaction remains close to zero. The results of the IRFs, as well as the Granger causality tests, provide a strong support for the idea that attitudes about the prime minister, government and incumbent party are related to each other.

Having determined the direction of the causal relationship between the three popularity series, I now look to see how the exogenous variables perform, as presented in Table 4.2. In Model 1, which include the main exogenous variables, economic evaluations have a positive and significant effect on all three variables of public support. As expected, higher values of EOI lead to more positive evaluations of the prime minister, the government and stronger support for the incumbent party. Security also has an impact on public support – MII security and its squared values are both significant in their influence on the prime minister and the incumbent party. Together they show that as the value of MII security increases from low to medium, public opinion becomes more negative; yet as the value of MII security move from medium to high, public opinion becomes more positive. These results are consistent with the theoretical expectation that public evaluation is dependent on the severity of the threat to national security. As long as the severity of the threat is not high, the public punishes the prime minister and his or her party for worsening security conditions. Once public perception of the threat becomes high, the public begins to rally 'round the flag and increases it support. Model 1, further shows that the "incumbent matter" hypothesis is at least partly supported by the data. In the governmental satisfaction equation, the dummy variable

Figure 4.3 Impulse Responses for prime minister popularity, government popularity and incumbent party lead



Vertical lines represent level of public satisfaction with the government (blue), the prime minister (green), and incumbent party lead (red).

of Blair is positive and significant, and in the vote intention equation it is negative and significant.

In Model 2, of Table 4.2, two additional control variables are added to the equations: time-in-office and a dummy variable for the time period of the wars in Iraq and Afghanistan. Over time public opinion about the prime minister, the government and the incumbent party becomes more negative. Yet, this effect, which capture the coalition of minorities hypothesis, is only significant for the prime minister ($p \leqslant 0.05$) and to the government ($p \leqslant 0.1$). As expected, the controversial wars in Iraq and Afghanistan, had a negative impact on public support. Nevertheless, this effect was only significant for the incumbent party ($p \leqslant 0.05$). The main effect of these controls is in the vote intention equation, where the MII security variables are significant only at a 10% significance levels. Most importantly, even with these control variables, the reciprocal relationships between the prime minister, government and incumbent party, are still significant and in the same expected direction.

Table 4.2 VAR estimation of Public Support for the Prime Minister, Government and Party

	Model 1			Model 2		
	Prime Minister	Government	Party	Prime Minister	Government	Party
L1.Prime Minister	0.777**	0.169**	-0.036	0.763**	0.168**	0.021
	(0.098)	(0.083)	(0.068)	(0.100)	(0.085)	(0.067)
L1.Government	-0.098	0.349**	0.208**	-0.126	0.328**	0.180**
	(0.134)	(0.113)	(0.093)	(0.133)	(0.113)	(0.090)
L1.Party	0.221**	0.276**	0.794**	0.191**	0.238**	0.657**
	(0.074)	(0.062)	(0.051)	(0.088)	(0.075)	(0.059)
EOI	0.040**	0.034**	0.026**	0.060**	0.047**	0.029**
	(0.015)	(0.012)	(0.010)	(0.017)	(0.014)	(0.011)
MII Security	-0.150**	-0.007	-0.105**	-0.183**	-0.023	-0.072*
	(0.070)	(0.059)	(0.048)	(0.074)	(0.062)	(0.049)
MII Security^2	0.003**	0.001	0.002**	0.003**	0.001	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Blair	-1.632	-3.162**	2.848**	-1.091	-2.706**	3.738**
	(1.145)	(0.966)	(0.790)	(1.176)	(0.996)	(0.790)
Brown	0.412	-0.919	0.252	1.379	-0.287	0.503
	(0.946)	(0.798)	(0.653)	(1.023)	(0.867)	(0.687)
Time				-0.059**	-0.039*	-0.019
				(0.025)	(0.021)	(0.017)
War (dummy)				-0.445	-0.664	-2.839**
				(1.064)	(0.901)	(0.715)
Constant	13.718**	15.426**	-4.832**	17.555**	17.877**	-4.265*
	(3.119)	(2.631)	(2.153)	(3.524)	(2.985)	(2.368)

N=207. Standard errors in parentheses. ** p⩽0.05, * p⩽0.1

4.5 Conclusions

This study showed that in Britain those who are held accountable for economic and security outcomes, also depend on each other for their public support. The prime minister, the government and the incumbent party, are not isolated from each other, but rather reflect on each other's public image. Some of this impact is direct – the effect of prime ministerial on governmental popularity ratings, the effect of governmental popularity ratings on party support, and the impact of party support on prime ministerial and governmental popularity ratings. Yet, we should also acknowledge the indirect relationships between the prime minister and the incumbent party – prime ministerial popularity ratings can shape public support for the incumbent party by influencing the level of public support for the government. The positive relationships between all three political units means that the public image of each one can benefit and harm the others.

As previous studies on the VP-functions have argued, this study also finds that the public response to changes in economic and security conditions and punishes and rewards office holders accordingly. Nevertheless, by taking into account both prime ministerial and governmental popularity ratings this study emphasizes the importance of whether responsibility is divided or shared within the executive branch. Security conditions has stronger effect on the prime minister than on the government as a whole, since the prime minister is perceived by the public as the "commander in chief", while most other government members can hardly influence the decision making process in the realm of security. Economic conditions, however, have similar impact on both the prime minister and the government, since the economic decision making process is more equally shared among most government members.

This study contributes to the literature on public opinion by showing how evaluations and assessments are inherently political. Although the public relies on economic and security conditions to form opinions about the prime minister, the government and the incumbent party; politicians in these three political units should not assume the as long as they are doing the job that the public expects them to do, they will be positively evaluated. As this study showed, there is also a political

context that determines the level of public support and according to which, the image of one political unit influences the others. Most importantly, it means that the public identifies all three units – prime minister, governments, and incumbent party – as belonging to the same political context.

APPENDICES

APPENDIX A

Putting Economic Popularity in Context

Table A.1 The Effect of Popularity on Vote Share

	(1) ΔVote Share	(2) ΔVote Share
Popularity	0.19**	
	(0.05)	
Popularity (mean)		0.24***
		(0.03)
Constant	-9.81**	-12.77***
	(2.64)	(1.59)
Observations	21	21
R^2	0.41	0.39

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A.2 Information on Public Opinion Data

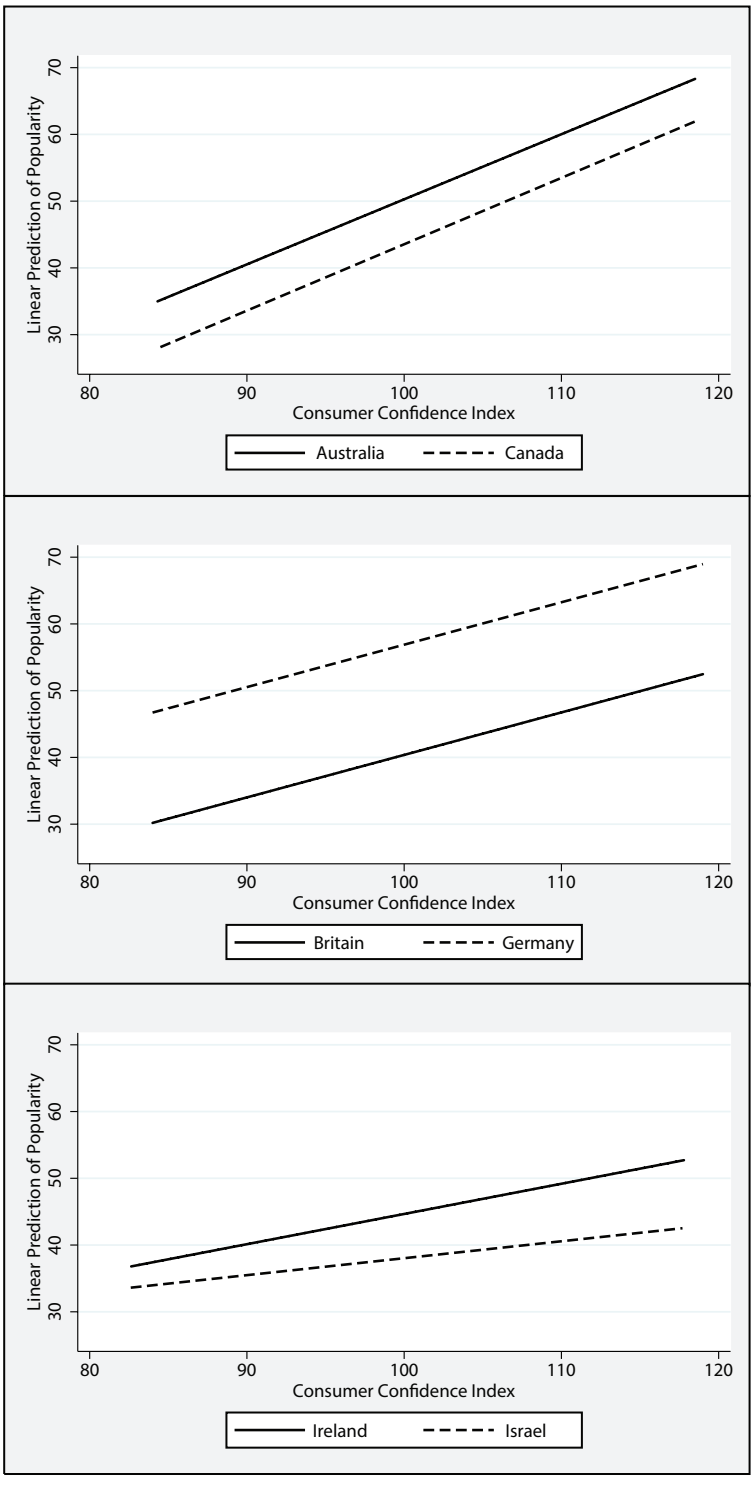
	Country	Source of Popularity Data	Time Period	Popularity Question	Source of ICC data
1	Australia	Newspoll - The Australian	1996-2015	Satisfaction with Prime Minister	OECD.Stat
2	Canada	Environics/EKOS/ AngusReid/Forum Research	1996-2015	Approval of the Prime Minister	OECD.Stat
3	Germany	ARD - DeutschlandTrend	1998-2015	Satisfaction with Chancellor	OECD.Stat
4	Ireland	Irish Times - Ipsos-MRBI	1997-2015	Satisfaction with Taoiseach	OECD.Stat
5	Israel	Haaretz-Dialogue/Panels Politics/ Shiluv-Millward-Brown/Midgam	2006-2015	Satisfaction with Prime Minister	TNS-Bank Hapoalim/ Smith-Globes
6	UK	Ipsos-MORI	1997-2015	Satisfaction with Prime Minister	OECD.Stat

When more than one source is used to have a complete time series, the data is combined into a single measure using Stimson's (1999) Dyad Ratios Algorithm, which has been shown to be appropriate for estimating indicators of popularity ratings and economic evaluations (Rudolph, 2002)

Table A.3 Descriptive Statistics

		Australia	Canada	Germany	Ireland	Israel	UK	Total
Popularity	Mean	46.038	39.205	56.923	46.033	38.006	41.109	44.861
	Std. Dev.	9.873	4.620	12.384	18.267	12.631	11.586	13.340
	Min	26.500	30.525	27.670	9.000	12.449	22.670	9.000
	Max	65.250	50.518	75.000	84.000	53.844	70.000	84.000
CCI	Mean	100.347	100.080	99.991	100.689	103.438	100.440	100.626
	Std. Dev.	0.818	1.009	1.418	2.253	6.922	1.352	2.754
	Min	98.333	96.967	96.367	95.000	84.901	96.767	84.901
	Max	101.833	101.633	102.433	103.900	118.597	102.533	118.597
Number of Parties	Mean	1.883	1.000	2.000	2.203	4.650	1.267	1.945
	Std. Dev.	0.811	0.000	0.000	0.405	0.662	0.445	1.096
	Min	1.000	1.000	2.000	2.000	3.000	1.000	1.000
	Max	4.000	1.000	2.000	3.000	6.000	2.000	6.000
Fractionalization	Mean	0.220	0.000	0.380	0.218	0.709	0.070	0.224
	Std. Dev.	0.161	0.000	0.106	0.135	0.032	0.118	0.231
	Min	0.000	0.000	0.235	0.094	0.640	0.000	0.000
	Max	0.515	0.000	0.500	0.440	0.761	0.264	0.761
Polarization	Mean	0.003	0.000	0.030	0.050	0.080	0.030	0.027
	Std. Dev.	0.005	0.000	0.032	0.018	0.037	0.049	0.037
	Min	0.000	0.000	0.001	0.038	0.023	0.000	0.000
	Max	0.020	0.000	0.068	0.079	0.131	0.111	0.131
Time In Office	Mean	5.896	7.438	7.522	9.378	6.725	8.213	7.583
	Std. Dev.	3.413	4.633	4.213	5.692	4.309	5.134	4.752
	Min	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	Max	13.000	19.000	16.000	20.000	16.000	20.000	20.000

Figure A.1 Predictive Margins by Countries' Average Ideological Polarization



APPENDIX B

Coalition Government, Cohesive Roll-Call Voting and Prime Ministerial Popularity

Table B.1 Polling Firm, Publication, Number of Surveys

Polling Firm	Publication	Number of Surveys
Dialogue	Haaretz	47
Dialogue / Midgam	Channel 10	14
ShiluvMillwardBrown	Channel 2	7
Midgam	The Guttman Center	5
Panels Politics	Channel 2 / The Jerusalem Post	4
Dahaf	Knesset Channel	3

Table B.2 List of Military Operations/War

#	Name of Operation/War	Date
1	Operation Summer Rains	June 28 - November 26, 2006
2	2006 Lebanon War	July 12 - August 14, 2006
3	Operation Hot Winter	February 28 - March 3, 2008
4	Operation Cast Lead	December 27, 2008 - January 18, 2009
5	Operation Pillar of Defense	November 14-21, 2012
6	Operation Protective Edge	July 8 - August 26, 2014

Table B.3 List of Events by Date and Category

Number	Date	Political Event	Category
1	May-06	Olmert forms a new government	PD
2	Sep-06	Olmert interrogated by Comptroller's office	NP
3	Sep-06	Winograd Commission first plenary session	ND
4	Jan-07	Investigation of the Bank Leumi sale	NP
5	Jun-07	Protest in Tel Aviv, calling for the resignation of Olmert	ND
6	Sep-07	Investigation of Olmert's Jerusalem House Affair	NP
7	Oct-07	Olmert investigated for appointments of Likud members	NP
8	Nov-07	The Annapolis Conference	PI
9	May-08	Olmert investigated for bribery	NP
10	Aug-08	Olmert declares intent to step down[a]	PD
11	Mar-09	The second Netanyahu Government is formed	PD
12	May-09	Conflict between Netanyahu and Obama	NI
13	Jun-09	Bar Ilan Speech	PI
14	Mar-10	Conflict between Israel and US during Joe Biden's visit	NI
15	Jan-11	Egyptian Revolution	NI
16	Jan-11	Protest during event for the Mount Carmel fire's victims	ND
17	Feb-11	Mubarak resigned as president of Egypt	NI
18	Jul-11	Israeli social justice protests (through August 2011)	ND
19	Oct-11	Gilad Shalit prisoner exchange	PI
20	Mar-13	The third Netanyahu Government is formed	PD
21	Mar-13	Obama visits Israel	PI
22	Jul-13	Peace talks with Palestinians renewed in US	PI
23	May-15	The fourth Netanyahu Government is formed	PD

[a] See Newman and Forcehimes (2010) for classification of resignation from office

Table B.4 Descriptive Statistics

Variable	Description	Mean	Std Dev	Minimum	Maximum
Satisfaction	Satisfaction with PM	37.452	10.730	16.316	56.226
Relative Cohesion	Relative Agreement Index	0.889	0.205	0.336	1.140
ICC	Index of Consumer Confidence	103.433	7.625	81.470	120.993
PI	Positive International Event	0.044	0.206	0.000	1.000
NI	Negative International Event	0.035	0.185	0.000	1.000
PD	Positive Domestic Event	0.044	0.206	0.000	1.000
ND	Negative Domestic Event	0.035	0.185	0.000	1.000
NP	Negative Personal Event	0.044	0.206	0.000	1.000
War (short-term)	Monthly Battle Deaths	0.213	0.867	0.000	5.130
War (long-term)	Cumulative Battle Deaths	1.658	2.328	0.000	5.231
Time	Time in Office	18.895	12.426	1.000	47.000
Terror	Cumulative Terror Scale	2.386	1.555	0.000	4.511
Coalition	Size of Coalition	68.850	7.542	43.000	94.000
PM	Olmert (1) / Netanyahu (0)	0.342	0.477	0.000	1.000

Table B.5 Explaining satisfaction with PM: unadjusted Agreement Index and Rice Index

	Agreement Index		Rice Index	
DV: % Satisfaction	(1)	(2)	(3)	(4)
Cohesion$_{t-1}$	3.929**	3.390**	30.263**	22.967**
	(1.348)	(1.268)	(8.270)	(7.748)
Δ ICC$_{t-1}$	0.336**	0.354**	0.331**	0.351**
	(0.117)	(0.110)	(0.120)	(0.114)
War (short-term)$_{t-1}$	0.605*	1.348**	0.612*	1.234**
	(0.413)	(0.451)	(0.392)	(0.460)
War (long-term)$_{t-1}$	-0.857**	-0.553*	-1.014**	-0.749**
	(0.262)	(0.299)	(0.268)	(0.308)
Cum. Terrorism$_{t-1}$		-1.532**		-1.254**
		(0.499)		(0.505)
PI events	3.852**	4.116**	3.226**	3.690**
	(1.583)	(1.390)	(1.615)	(1.454)
NI events	-4.910**	-5.712**	-5.538**	-5.994**
	(1.395)	(1.302)	(1.422)	(1.296)
PD events	0.671	4.631**	1.458	4.689**
	(1.692)	(2.108)	(1.681)	(2.032)
ND events	-10.849**	-10.922**	-11.493**	-11.480**
	(2.735)	(2.890)	(2.319)	(2.526)
NP events	-4.536**	-3.611**	-4.495**	-3.594**
	(1.875)	(1.792)	(1.682)	(1.657)
Time in Office		0.184**		0.163**
		(0.041)		(0.042)
Lagged D.V.	0.719**	0.636**	0.685**	0.625**
	(0.058)	(0.063)	(0.062)	(0.066)
Constant	9.015**	11.871**	-15.579**	-7.095
	(2.744)	(2.905)	(7.216)	(7.163)
R^2	0.901	0.915	0.906	0.916
AIC	616.852	604.611	611.890	602.732
BIC	646.853	640.067	641.892	638.288
RMSE	3.541	3.328	3.464	3.302

Robust standard errors in parentheses

N=113. ** indicates p≤0.05, * indicates p≤0.1

APPENDIX C

Popularity Ratings, Vote Intentions and Their Mutual Dependence

Table C.1: Descriptive Statistics

Variables	Description	Mean	Std Dev	Minimum	Maximum
Prime Minister	Satisfaction with Prime Minister	40.739	11.553	21.000	75.000
Government	Satisfaction with Government	33.452	8.342	16.000	57.000
Party	Incumbent party lead over main opposition party	3.981	12.693	-19.625	36.950
EOI	Economic Optimism Index	-15.278	20.722	-64.000	35.000
Time	Time-in-office of prime minister	26.661	16.390	1.000	60.000
MII Security	Salience of national security	17.813	14.102	1.000	69.000
Blair	Tony Blair 1, otherwise 0	0.526	0.500	0.000	1.000
Brown	Gordon Brown 1, otherwise 0	0.152	0.360	0.000	1.000
War (dummy)	Military operations, 1 from 3/2003 - 12/2014, otherwise 0	0.652	0.477	0.000	1.000

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