Discussion Papers
Department of Economics
University of Copenhagen

No. 14-05

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ISSN: 1601-2461 (E)

Partisan Optimism and Political Bargaining

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February 6, 2014

Abstract

Partisan voters are optimistic about electoral outcomes: their estimates of the probability of electoral success for their party or candidate are substantially higher than the average among the electorate. This has large potential implications for political bargaining. Optimism about future electoral outcomes can make costly bargaining delay look more favorable, which may induce partisans to punish their party for agreeing to a compromise rather than waiting, for example by not turning out to vote. Therefore, party decision makers should take optimism among partisans into account when bargaining. In this paper we use game theoretic modeling to explore the implications of partisan optimism for political bargaining. We show that increased optimism among a partisan group leads to a stronger bargaining position for their party, but may hurt its electoral prospects. Another main finding is that even high levels of partisan optimism do not necessarily cause inefficient bargaining delay.

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1 Introduction

Both opinion polls and more solid empirical evidence strongly suggest that voters' beliefs about the likelihood of different electoral outcomes vary systematically with their political preferences. Poll numbers from the last three US presidential campaigns show that partisan voters on either side were much more likely than independents to believe that their party's candidate would win.[1] Delavande and Manski (2012) demonstrate that, during campaigns for US presidential and statewide elections in 2008 and 2010, citizens stating that they were likely to support a particular candidate estimated his or her probability of winning to be twenty to thirty percentage points higher than likely supporters of the opposing candidate. Other empirical studies find the same general phenomenon (Dolan and Holbrook 2001; Ladner and Wlezien 2007; Krizan, Miller, and Johar 2010; Miller et al. 2012).

Systematic divergence of beliefs about electoral outcomes between voters with opposing political preferences could have important effects on political bargaining. When supporters of a party (or candidate) evaluate important political bargaining outcomes, they are likely to take into account the electoral outlook for the next election. A particular outcome will be less well received among partisans the better they believe that their party will do in the next election, because this makes the alternative of delaying the agreement look better (assuming that a better electoral outcome translates into more bargaining power). With the realistic assumption that partisans are less likely to turn out and vote when they are less satisfied with bargaining outcomes, this implies that a party with optimistic supporters will demand more in the bargaining process in order not to hurt its electoral prospects. Thus, partisan optimism about electoral outcomes has the potential to significantly influence political bargaining processes, even if politicians themselves do not have biased expectations.

In this paper we explore the implications of partisan optimism for high stakes political bargaining by setting up and analyzing a simple game theoretic model. Two parties bargain over a major new policy measure. Parties and voters agree that the policy measure should be implemented as soon as possible (delay is costly), but there is disagreement over how it should be financed. One party and its supporters prefer that it is financed by new taxes, the other party and supporters prefer cuts in existing government spending. Independents are indifferent. The bargaining process is simple: In the first period, the incumbent party makes an offer for the other party to accept or reject. At the end of the first period an election is held. If an agreement has already been

[1] See for example the following poll numbers from Gallup.

2012: http://www.gallup.com/poll/154670/Americans-See-Obama-Solid-Favorite-Win-Election.aspx

2008: http://www.gallup.com/poll/107995/Americans-Predict-Obama-Will-Next-US-President.aspx

2004: http://www.gallup.com/poll/12724/Americans-Give-Even-Odds-Presidential-Horse-Race.aspx reached, the election only matters for the distribution of political office rents. Otherwise the winner of the election will be agenda setter in the second period. If an agreement is not reached in period two the policy measure is no longer feasible.

The specific bargaining issue in the model corresponds, in a stylized way, to an important part of the disagreements over fiscal consolidation plans in both the US and Europe after the financial crisis of 2008. The assumption that the policy measure can only be implemented if an agreement between the two parties is reached can simply reflect a situation with some form of divided government. But it can also be relevant for situations without divided government provided the policy measure is much less desirable if not supported by a broad coalition. This is likely to be the case for fiscal consolidation plans because long term credibility is a major concern. While bargaining over fiscal consolidation is the main example we have in mind, the model can easily be reformulated to describe bargaining over other major policy measures.

A key assumption of the model is that, after an agreement in period one, partisans will only turn out and vote in high numbers if they are generally satisfied with the bargaining outcome. More precisely, turnout among a partisan group will only be high if group members' utility from the agreement is at least as high as their estimate of the utility they would have received had no agreement been reached in period one. Since their estimated probability of electoral victory for their party is inflated relative to the true probability, their estimate of their final utility in case of delay is also inflated. Thus, loosely speaking, partisan optimism makes the supporters of each party demand more to turn out than if they had objective beliefs. This implies that the range of period one agreements a party is willing to accept changes. If a particular agreement will make one party's supporters dissatisfied because of partisan optimism, then this party may prefer costly delay because accepting the agreement will worsen its electoral prospects.

While the introduction of partisan optimism makes it harder for each party to satisfy its partisans, our analysis reveals that this does not in itself lead to costly delay. In our main model, there always exist period one agreements that both parties prefer to delay. For high levels of optimism, an agreement necessarily leads to dissatisfied partisans on at least one side. However, since this does not shrink the pie available for the parties to share (policy utility from agreement in period one plus office rents in period two) and the parties themselves have objective beliefs, they are still able to reach an agreement. In an extension of the model we show that partisan optimism can lead to inefficient delay if parties are directly negatively affected by partisan dissatisfaction, for example because they care about financial contributions beyond their effect on electoral outcomes or because low partisan enthusiasm about the party's current representatives makes them more vulnerable to challenges in primaries or internal elections.

Another interesting finding from the model is that while each partisan group always does (weakly) better when it is more optimistic about electoral outcomes, a party can be hurt by increased optimism among its supporters. More precisely, a higher level of optimism among a partisan group will result in a weakly better bargaining agreement for that side, but at the same time may imply worse electoral prospects for the party. So increased optimism among its partisans is a mixed blessing for a party. It benefits from the better bargaining outcome, but will in some cases incur a net utility loss due to lower expected future office rents.

Going a bit beyond the model, the findings have interesting implications for the question of how political leaders should try to manage expectations among partisans. It suggests that expectation management is very much a delicate issue because increased partisan optimism can have both positive and negative consequences. Immediately it seems attractive for a party to boost optimism levels because this leads to a better bargaining position, but such a strategy may backfire and lead to future electoral losses.

Given this paper's focus on the implications of partisan voters' beliefs and behavior for political bargaining, it is clearly related to the literature on bargaining before an audience. Groseclose and McCarty (2001) study a model of veto bargaining where the agenda setter wants the veto player to appear extreme to an incompletely informed moderate electorate (or median voter). The veto player wants to appear moderate. These incentives distort the outcome relative to standard veto bargaining,[2] for example a veto is possible in equilibrium even when there exist agreements that both sides prefer to the status quo. Our model shares with Groseclose and McCarty's the feature that politicians take into account how the bargaining outcomes will be received by the electorate. However, we consider substantially different incentives for the bargainers, namely the incentive for each party to keep their optimistic partisans satisfied to avoid the electoral consequences of low turnout among them.

Cai (2000) studies bargaining situations where one side is represented by a delegate who wants to signal toughness to his constituents. He shows that this can lead to inefficient delay in agreement. The model shares with ours the general incentive for a representative to please her own group. However, our model focuses on the partisan optimism bias and considers the incentives of representatives (parties) on both sides while avoiding asymmetric information issues.

In international relations, models of crisis bargaining before domestic audiences have helped explain how leaders' threats can become credible because of, for example, electoral costs of backing down (e.g., Fearon 1994, 1997; Smith 1998). To our knowledge, the possible effects of audience optimism about conflict outcomes have not been explored (although Fearon 1995 considers optimism among leaders). Further, our main model is also different because partisan dissatisfaction on both sides does not lower the aggregate utility of the parties (one of them will win the election, whereas leaders from different countries might both lose). It is, however, interesting to note that partisan optimism makes higher bargaining demands credible for the parties in much the same way that audience costs make leaders' threats credible.

The research mentioned above is related to our model because of the general assumption that audiences matter for bargaining processes. Other studies are related to

[2] See Cameron and McCarty (2004) for a survey of veto bargaining models.

the central behavioral aspect of our model: that partisans are optimistic about electoral outcomes and that this influences their evaluation of bargaining outcomes and therefore their turnout rates. Ortoleva and Snowberg (2013) study a model of political belief formation and find that underestimation of correlation between experiences (signals) leads to overconfidence in citizens' political beliefs. They do not directly consider beliefs about electoral outcomes, but it seems clear that a similar mechanism for formation of beliefs about the state of political campaigns could generate the type of partisan optimism studied in this paper.

Passarelli and Tabellini (2013) explore formally the role of emotion in political unrest and its implications. Two fundamental assumptions are that individuals are more likely to engage in political unrest if their group is treated unfairly and that a self serving bias influences group members' notion of fairness - they estimate their position in society to be more common than it really is. While the context is different, this resembles the behavior and beliefs of partisans in our model: They are more likely to abstain if they are not satisfied with their share of the cake and their reference point is upward biased because of partisan optimism, which may well originate in the conviction that most independents are really on their side.

Finally, and more broadly, this paper can be seen as a contribution to the growing literature using formal modeling to explore how empirically well documented deviations from standard rationality assumptions influence political outcomes. For example, modelers have studied the implications of expressive voting (Feddersen and Sandroni 2006a, 2006b), fear (Lupia and Menning 2009) and trial and error decision making (Bendor et al. 2011).

2 The Model

Two political parties, L and R, are bargaining over how to finance a major policy measure. It can either be financed by new taxes or by cuts in existing government spending. We let $t \in [0, 1]$ denote the share of costs financed by taxes. There are three types of voters: L-partisans, R-partisans, and independents. They all agree that the policy measure should be implemented as soon as possible, but the two partisan groups disagree on how it should be financed. L-partisans prefer that the policy measure is financed by taxes, R-partisans prefer that it is financed by spending cuts. Independents are indifferent.

The model consists of two periods. If an agreement is reached in period one, the final utilities of the two types of partisans are, respectively,

$$u_L = t \quad \text{and} \quad u_R = 1 - t.$$

The behavior of independents will be exogenously defined, so we will not model their preferences explicitly. The policy measure is less efficient the later it is implemented, so delay is costly. More precisely, if an agreement is not reached until period two, the final utilities of the partisans are discounted by $\delta \in (0, 1)$. If an agreement is not reached in period two, implementation of the policy measure is no longer feasible and all partisans receive a utility of zero.

The bargaining game played by the parties is simple: The agenda setter makes an offer $t \in [0, 1]$ to the follower who can then accept or reject it. In period one, L is the incumbent party and therefore the agenda setter. If R accepts the offer then there is nothing further to bargain over and thus nothing will happen in period two. If R rejects the offer then a new round of bargaining will take place in period two. At the end of period one an election is held. If no agreement was reached in period one then the winner of the election will be agenda setter in period two. Otherwise the outcome of the election only matters for the allocation of political office rents.

The parties have the same preferences over bargaining outcomes as their supporters. On top of this, they also care about office rents. Each party's utility from period two office rents is $r > 0$. So, for example, if a bargaining agreement t is reached in period one and L wins the election, the final utilities of the two of parties are, respectively,

$$U_L = t + r \quad \text{and} \quad U_R = 1 - t.$$

Note that we use lower case u's for partisans' utilities (policy utility) and upper case U's for parties' utilities (policy utility plus utility from office rents).

The outcome of the election at the end of period one depends on the voting behavior of the two groups of partisans and the independents. If the rate of turnout is similar for the opposing partisan groups then the election will be decided by the independents. On the other hand, if there is a substantial difference in turnout rates between the partisan groups, then this decides the election and the independents are irrelevant. For example, if L-partisans are generally more enthusiastic about their party than R-partisans at the time of the election and therefore turn out in higher numbers, then L will win with certainty. As this paper focuses on the consequences of partisan beliefs and behavior, the behavior of independents will be exogenously defined: The independents will, no matter what the period one bargaining outcome is, break for L with probability $p \in (0, 1)$ and for R with the residual probability $1 - p$. So unless there is a substantial difference in turnout between the partisan groups, these are the winning probabilities for the two parties. Since independents are indifferent with respect to the financing of the policy measure, it seems natural to assume that their voting behavior is the same after any agreement. The assumption that their voting behavior in case of delay does not depend on the offer that R rejected is less natural. It could be argued that independents should be less likely to break for L the less it offered to R, because then L is seen as being more responsible for the delay. However, any specific voting behavior depending on the rejected offer would be somewhat arbitrary because of the independents' indifference with respect to the content of the agreement. And since our purpose in this paper is to explore the consequences of partisan optimism, we prefer to keep independents' voting behavior the same no matter what happens in period one.[3]

The partisans are primarily forward looking. If there is anything at stake in the election they will turn out to vote for their party in large numbers. Therefore, if the parties do not reach a bargaining agreement in period one, turnout will be high among both partisan groups and the election will be decided by the independents. If an agreement is reached in period one, all voters are indifferent with respect to the electoral outcome. We assume that partisans will then decide whether to vote or not based on a retrospective evaluation of the bargaining outcome. An outcome that a partisan group generally sees as satisfactory will lead to enthusiasm and a high level of turnout. A non-satisfactory outcome will lead to low turnout. Thus, an agreement that only satisfies one party's partisans will result in that party winning the election with certainty.

How do partisans decide whether an agreement is satisfactory or not? It is natural to assume that they compare their utility from the agreement to their estimated expected utility of delay. If their actual utility is higher than their estimate of what they would have received without a period one agreement, then they are generally satisfied and will turn out to vote in high numbers. Otherwise they will be dissatisfied and turnout among the partisan group will be low. If an agreement is not reached in period one, the winner of the election will take it all in period two (since the policy measure is worthless after period two, the follower cannot credibly decline any offer, which means that L will make the period two offer $t_2 = 1$ and R will make the offer $t_2 = 0$). Thus, a partisan will, after a period one agreement, compare his utility from that agreement to an estimated counterfactual utility equal to δ times the probability of his party winning the election after delay. The objective win probabilities after delay for L and R are, respectively, p and $1 - p$. However, consistent with the findings by Delavande and Manski (2012) and others we assume that partisans' beliefs are biased: L-partisans believe that the true probability of their party winning is $p + x_L > p$, R-partisans believe that their party will win with probability $1 - p + x_R > 1 - p$. Thus, the parameters $x_L \in (0, 1-p]$ and $x_R \in (0, p]$ represent the levels of (over-)optimism about electoral outcomes among the two partisan groups. A plausible reason for the partisan optimism is that members of each partisan group overestimate the likelihood that independents will break for their party. This is consistent with the so-called False Consensus Effect (Ross, Greene, and House 1977), i.e., the tendency of individuals to believe that their own preferences, judgments, and beliefs are more common in the population than they really are.

Because of the partisan optimism L-partisans will, after a period one agreement t, be satisfied with the agreement and therefore turn out to vote in large numbers if

$$t > (p + x_L)\delta.$$

[3] Recent experimental work on responsibility attribution for collective decision makers (Duch, Przepiorka, and Stevenson 2013) find a clear tendency to punish agenda setters rather than veto players. This suggests that independents will punish L if no agreement is reached in period one, meaning that the probability they break for L after delay will be smaller than p. This could easily be incorporated into the model, but would not qualitatively change the results.

Note that the estimated expected utility of delay on the right hand side is higher than the true value $p\delta$. Similarly, R-partisans will turn out in high numbers if

$$1 - t > (1 - p + x_R)\delta.$$

Define

$$t_L^* = (p + x_L)\delta \quad \text{and} \quad t_R^* = 1 - (1 - p + x_R)\delta.$$

Then turnout will be high among L- and R-partisans if, respectively,

$$t > t_L^* \quad \text{and} \quad t < t_R^*,$$

and low if we have the opposite inequalities. In case of equality, we assume that both high and low turnout is possible. Table 1 summarizes how partisan turnout levels and the outcome of the election depend on the period one bargaining outcome.

Table 1: Partisan turnout and electoral outcome

Period 1 outcome	L-partisan turnout	R-partisan turnout	Pr(L wins)
$t < \min\{t_L^*, t_R^*\}$	Low	High	0
$t_L^* < t < t_R^*$	High	High	p
$t_R^* < t < t_L^*$	Low	Low	p
$t > \max\{t_L^*, t_R^*\}$	High	Low	1
Delay	High	High	p

Note: In the first column, t denotes a period one agreement

The parties are completely informed about how voting behavior depends on the period one bargaining outcome. In particular, they are fully aware of the partisan optimism on either side, but they do not themselves have optimistic beliefs. So when they bargain they take into account that partisans are biased and that this is common knowledge among the parties, but they use the objective win probabilities to make their decisions.

Clearly, the way we model voting behavior is not fully micro founded. However, our primary aim is to study how partisan optimism affects high stakes political bargaining and we think that our model is suitable for this purpose, at least as a reasonable first step. It incorporates the well documented empirical regularity that partisans overestimate the probability of electoral success for their party in a model where partisans are forward looking and therefore turn out in high numbers when the stakes are high, while they vote retrospectively based on subjective valuations of past performance when future stakes are low.

A diagram of the model is shown in figure 1. It includes all decision nodes for the two parties, while voting behavior is, for simplicity, black boxed. For all possible outcomes, the utilities for the two parties are specified. The utility for each partisan group is simply the policy part of their party's utility. Note that the period two offer is denoted t_{2L} or t_{2R} depending on which party has won the election.

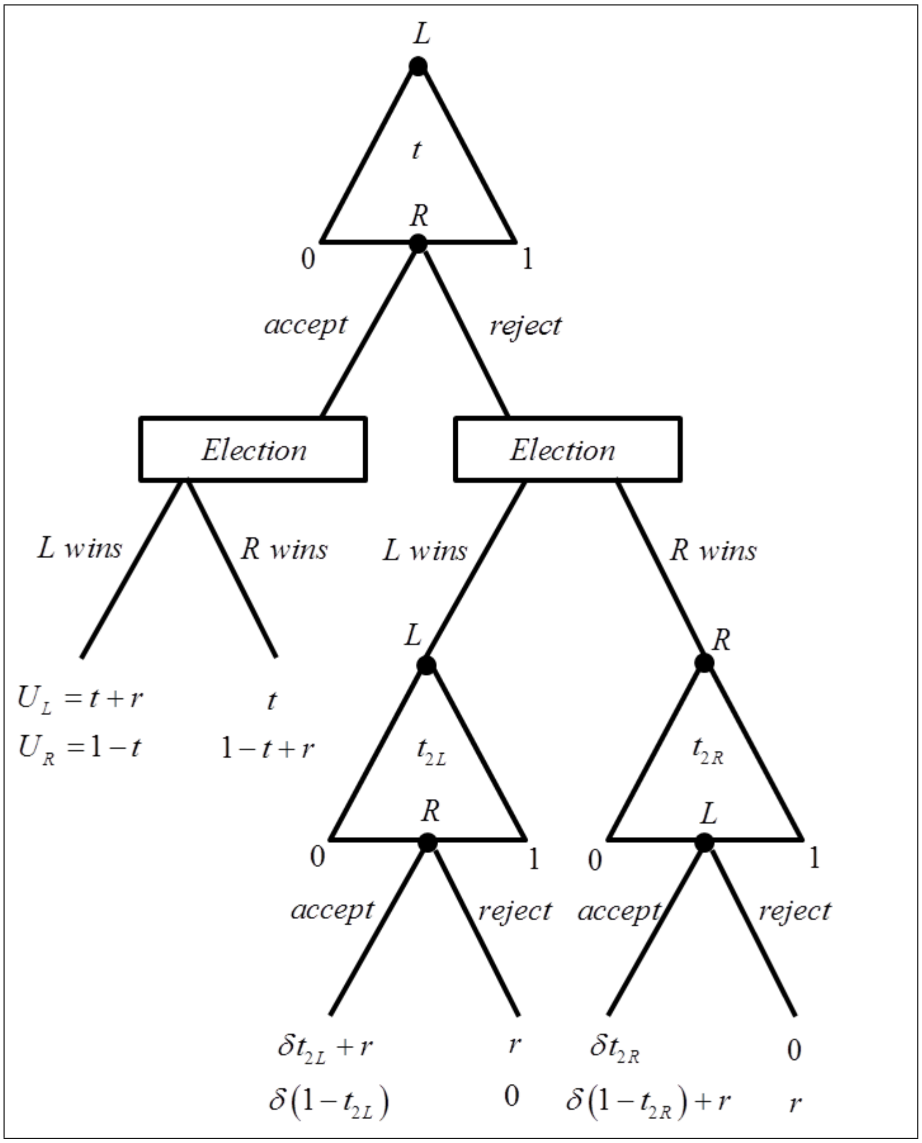

Figure 1: The model

The model presented above is our main model and will be analyzed first. After that we will consider an extended model where dissatisfaction among partisans hurts a party directly, i.e., beyond its negative effect on the probability of electoral success. There are several reasons why this may be the case. For example, it is likely that dissatisfied partisans contribute less financially to their party and the party may well care about financial support beyond the positive effect on its electoral prospects. The negative effect could also come from a higher risk that the party's current leadership or representatives are challenged and potentially defeated in internal elections or primaries. While this will not necessarily hurt the party more broadly, it is clearly a risk for the party decision makers involved in the bargaining and it is their preferences that matter in the bargaining process.

We model the direct negative effect of partisan dissatisfaction by introducing a cost $c > 0$ for each party if, after a period one agreement, its partisans are not satisfied. This corresponds directly to a situation where partisan dissatisfaction reduces financial contributions and parties care about financial support beyond its effect on electoral outcomes. However, it can also be seen as a reduced form way of modelling other direct negative effects of low partisan enthusiasm, or even the sum of all such effects.[4]

Finally, in the main model we assume that party decision makers have objective beliefs. We find this to be a natural assumption. Party elites are typically experienced in electoral politics and have much stronger incentives to be well informed than voters, so they should be able to overcome wishful thinking. Nevertheless, media coverage during and after the 2012 US presidential (and congressional) campaign suggest that unjustified optimism about the outcome was widespread among top republicans.[5] If optimistic beliefs among party elites are possible so late in highly polled campaigns, it is clearly also possible earlier in the electoral cycle. Thus, while we believe that severe unjustified optimism among party elites is closer to being the exception than the rule,[6] it does make sense to explore what happens in the model if party decision makers happen to be as optimistic as their partisans. We will do so in the final part of our analysis. This also serves to illustrate the fundamental importance of the assumption from the main model that partisan voters are optimistic about electoral outcome while parties (party leaders) have objective beliefs.

3 Equilibrium Behavior and Implications

3.1 The Main Model

Since we have already specified voting behavior, we can consider the model as a dynamic game of complete information with only the two parties as players. We solve the model for all subgame perfect Nash equilibria.

First, as already noted, the stage two subgames are easy to solve. The follower's utility of rejecting the agenda setter's offer is zero, so the follower will accept any offer (we assume that the follower accepts if indifferent). Thus, the unique outcome of each

[4] We have also considered a model where partisan dissatisfaction is not directly costly, but instead increases the probability that the current party leadership is challenged before the election, which may reduce its expected future office rents. This model leads to qualitatively similar results. In particular, inefficient delay is possible in equilibrium. Details on this alternative extended model are available from the authors on request.

[5] See for example "Adviser: Romney "shellshocked" by loss" (CBS News, November 8, 2012, *www.cbsnews.com/news/adviser-romney-shellshocked-by-loss/*) and "The GOP polling debacle" (Politico, November 11, 2012, *www.politico.com/news/stories/1112/83672.html*).

[6] According to media reports, the Republican Party is very actively working to improve the polling operation that lead to unjustified optimism about 2012 electoral outcomes. See for example "GOP looks for answers on polling" (Politico, March 10, 2013, *www.politico.com/story/2013/03/gop-embarks-on-polling-reboot-88641.html*).

stage two subgame is that the agenda setter offers nothing to the follower (i.e., $t_{2L} = 1$ and $t_{2R} = 0$) and that the follower accepts. Therefore, if R rejects the offer in period one, the expected utilities of the two parties will be, respectively,

$$U_L^{Delay} = p(\delta + r) \quad \text{and} \quad U_R^{Delay} = (1 - p)(\delta + r).$$

So the parties will reach an agreement in period one precisely if L makes an offer that provides R with an expected utility of at least $(1 - p)(\delta + r)$. Clearly, whether R will accept a particular offer or not depends on the implied partisan voting behavior. For example, R may accept a particular offer t if this will satisfy R-partisans, but reject the same offer if it will not since its expected future office rents depends on whether R-partisans will turn out in high numbers or not. The range of agreements that R-partisans find satisfactory depends, of course, on their level of optimism. The higher x_R is, the lower t has to be in order to make them turn out in high numbers.

Had we not assumed that partisans are optimistic about the probability that independents will break for their party, the outcome of the model would be straightforward. Then L would simply make the offer that provides R with the same policy utility as it would get from delay. More precisely, L would offer $t = 1 - (1 - p)\delta$, R would accept, and turnout among both partisan groups would be high. With optimistic partisans, this is no longer the outcome. Because if R accepts the offer considered above, turnout among R-partisans will be low and L will win the election with certainty. This leaves R with a utility of only $U_R = (1 - p)\delta$, which implies that R would rather reject the offer. So optimistic R-partisans makes it possible for R to credibly threaten to reject offers that it would otherwise accept. We formulate this important, albeit simple, finding as an observation.

Observation 1 *Having an optimistic partisan group makes it possible for the follower (R) to credibly threaten to reject a wider range of offers in period one.*

Thus, partisan optimism clearly changes the outcome of the bargaining game. However, for low levels of optimism (measured by x_L and x_R) the outcome is quite similar to the one with unbiased partisans. More precisely, L will offer just enough to keep R-partisans satisfied ($t = 1 - (1 - p + x_R)\delta$), R will accept, and turnout will be high among both groups of partisans. For higher levels of optimism, this is not necessarily the equilibrium outcome. For example, for sufficiently high levels of optimism, offering enough to keep R-partisans satisfied will make L-partisans dissatisfied, which makes this option unattractive for L. So a more extensive analysis is needed to find the equilibrium outcome for all possible parameter constellations.

We split the analysis into two cases, $t_L^* < t_R^*$ and $t_L^* > t_R^*$ (for simplicity we ignore the boundary case $t_L^* = t_R^*$). In the former case there exist a range of agreements that satisfies both partisan groups (the interval from t_L^* to t_R^*), in the latter no such agreements exist. Before we analyze these two cases in depth we make an important observation: No matter how optimistic partisans are, an agreement will always be reached in period one. If $t_L^* < t_R^*$ then the offer $t = t_R^*$ (or slightly below) leads to agreement and high turnout among both partisan groups. This option provides L with the expected utility $U_L = t_R^* + pr > t_L^* + pr > U_L^{Delay}$ and thus it is better than making an offer that R will reject ($t = 1$, for example). If $t_L^* > t_R^*$ then an agreement that makes both partisan groups satisfied is no longer possible. However, the parties can still reach an agreement that each of them prefer to costly delay. An offer $t \in (t_R^*, t_L^*)$ will, if accepted, make both partisan groups dissatisfied. This means that the win probabilities for the parties will be the same as if no agreement is reached (p and $1-p$). Therefore, R will accept such an offer if it provides at least as much policy utility as delay, i.e., if $1-t \geq (1-p)\delta$. Thus L can simply offer $t = 1-(1-p)\delta$ if this is below t_L^* and $t = t_L^*$ (or slightly below) otherwise. Then both parties will be better off than with delay. Thus, again, the parties will reach an agreement in period one.

Observation 2 *No matter how optimistic the partisan groups are, costly delay is not possible in equilibrium.*

We now begin the full equilibrium analysis. Consider first the case $t_L^* < t_R^*$. This inequality is equivalent to

$$x_L + x_R < \frac{1-\delta}{\delta}.$$

From above we know that L obtains the expected utility $U_L = t_R^* + pr$ by offering $t = t_R^*$. The question then is if there are other offers that will make L better (or equally well) off? First note that any offer $t < t_R^*$ will make L worse off because it will be accepted and make R-partisans satisfied. Thus the offer will result in a strictly lower policy utility and weakly lower expected office utility for L. Offers $t > t_R^*$ will, if accepted, make L better off. If R accepts such an offer it will lose the election with certainty because R-partisans will turn out in lower numbers than L-partisans. So R will only accept if its policy utility is higher than its total expected utility from delay:

$$1 - t \geq (1-p)(\delta + r),$$

which is equivalent to

$$t \leq 1 - (1-p)(\delta + r).$$

So there are offers above t_R^* that R will accept precisely if

$$1 - (1-p)(\delta + r) > t_R^*,$$

which is equivalent to

$$x_R > \frac{r(1-p)}{\delta}.$$

Clearly, if there are offers above t_R^* that R will accept, L will make the highest such offer:

$$t = 1 - (1-p)(\delta + r).$$

We summarize our results for the case $t_L^* < t_R^*$ in the proposition below.

Proposition 1 (Equilibrium outcomes for the case $t_L^* < t_R^*$)

1. *Suppose $x_R < \frac{r(1-p)}{\delta}$. Then L will offer $t = t_R^*$, R will accept, and turnout will be high among both partisan groups. Thus L wins the election with probability p.*

2. *Suppose $x_R > \frac{r(1-p)}{\delta}$. Then L will offer $t = 1 - (1-p)(\delta + r)$, R will accept, and turnout will be high among L-partisans and low among R-partisans. Thus L wins the election with certainty.*

(In the boundary case $x_R = \frac{r(1-p)}{\delta}$, both types of equilibria exist.)

We now move on to the case $t_L^* > t_R^*$. Suppose first that $1 - (1-p)\delta < t_L^*$, which is equivalent to $x_L > \frac{1-\delta}{\delta}$. Then, if L offers

$$t = 1 - (1-p)\delta,$$

R will accept and turnout will be low among both partisan groups. This provides L with more utility than delay, so it is better for L than any higher offer, because such an offer will make R reject. Further, any lower offer will clearly make L worse off, so the offer above is indeed optimal.

Then suppose $1 - (1-p)\delta \geq t_L^*$. If L offers $t = t_L^*$ and we assume that such an agreement will make L-partisans dissatisfied (which is admissible behavior because we are exactly at the cut-off point) then R will accept and L will win with probability p. This is better for L than delay, so the question is if there are other offers that are acceptable for R and will make L better (or equally well) off? Clearly, lower offers will be worse for L. Higher offers will make L better off if accepted. So are there acceptable offers above t_L^*? If R accepts a $t > t_L^*$, it will lose the election with certainty. So R will only accept if $1 - t \geq U_R^{Delay}$. Thus there exist offers $t > t_L^*$ that R will accept precisely if $1 - U_R^{Delay} > t_L^*$, which is equivalent to

$$x_L < \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}.$$

In this case, L will clearly make the highest acceptable offer:

$$t = 1 - U_R^{Delay} = 1 - (1-p)(r + \delta).$$

Our results for the case $t_L^* > t_R^*$ are summarized in the proposition below.

Proposition 2 (Equilibrium outcomes for the case $t_L^* > t_R^*$)

1. *Suppose $x_L < \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$. Then L will offer $t = 1 - (1-p)(r + \delta)$, R will accept, and turnout will be high among L-partisans and low among R-partisans. Thus L wins the election with certainty.*

2. *Suppose* $\frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta} < x_L \leq \frac{1-\delta}{\delta}$. *Then L will offer* $t = t_L^*$, *R will accept, and turnout will be low among both partisan groups. Thus L wins the election with probability* p.

3. *Suppose* $x_L > \frac{1-\delta}{\delta}$. *Then L will offer* $t = 1-(1-p)\delta$, *R will accept, and turnout will be low among both partisan groups. Thus L wins the election with probability* p.

(In the boundary case $x_L = \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$, *the equilibria from part one and two both exist.)*

Figure 2 shows how the equilibrium outcome depends on the optimism parameters x_L and x_R. It is assumed that the other parameters of the model satisfy

$$\frac{(1-p)r}{\delta} < \frac{1-\delta}{\delta} < \min\{p, 1-p\}.$$

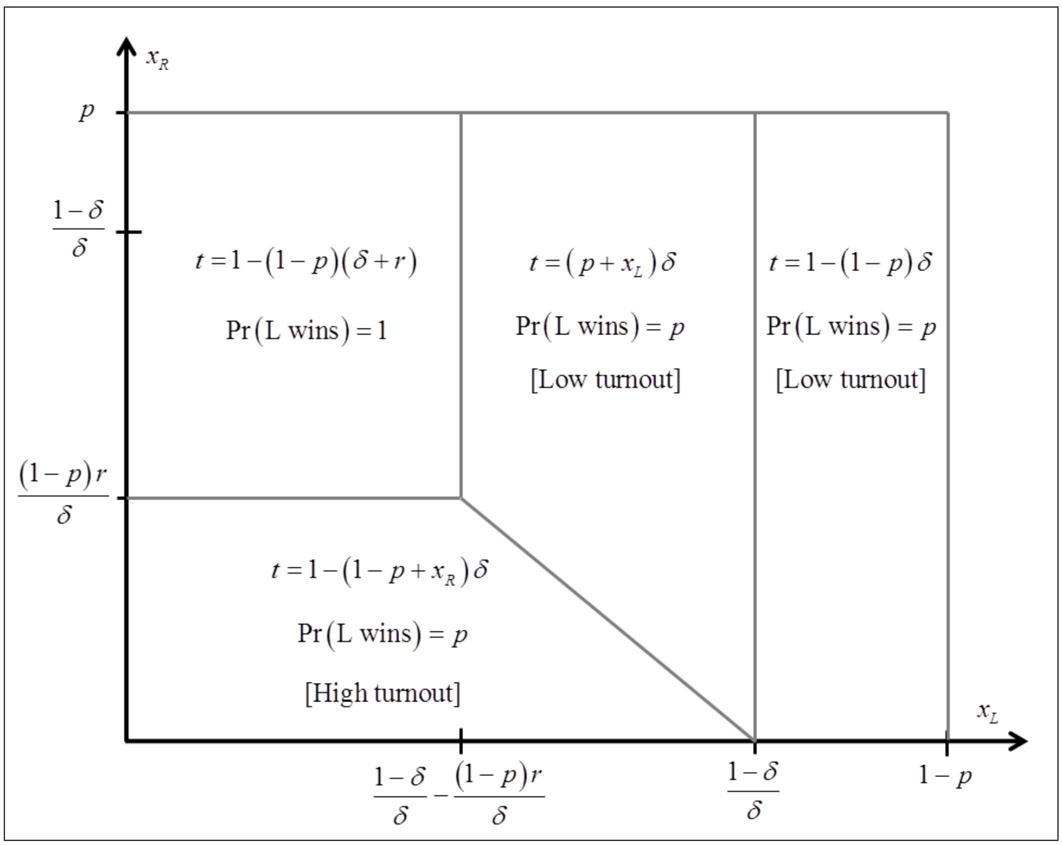

Figure 2: Equilibrium outcomes for the main model under the parameter restriction $\frac{(1-p)r}{\delta} < \frac{1-\delta}{\delta} < \min\{p, 1-p\}$

These equilibrium results lead to an interesting observation. Intuitively, it seems reasonable to expect R to do better the more optimistic its partisan group is. It requires a higher policy utility to make a more optimistic partisan group turn out, and R should be able to use this to credibly demand more from L. Further, we know from Observation 2 that increased optimism will not lead to costly delay. However, counter to intuition, an increase in x_R can make R worse off. Suppose $x_L < \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$ and consider the equilibrium outcome as we increase x_R. As long as $x_R < \frac{r(1-p)}{\delta}$, L will offer $t = t_R^*$, R will accept, and both partisan groups will turn out to vote. Thus R's expected utility in equilibrium will be

$$U_R = (1 - p + x_R)\delta + (1 - p)r.$$

So for relatively low levels of optimism for R-partisans, the effect of an increase in x_R is straightforward: R can credibly threaten to reject a wider range of offers, and this forces L to make a better offer. However, at $x_R = \frac{r(1-p)}{\delta}$ there is a discontinuity in the equilibrium utility of R. When $x_R > \frac{r(1-p)}{\delta}$ it is possible for L to achieve the same utility as if R-supporters were not optimistic at all ($x_R = 0$). This is done by offering R a policy utility equal to its total expected utility after delay, i.e., $t = 1 - U_R^{Delay}$. R will accept this offer even though it will lead to a certain electoral loss and thus no period two office rents. The offer is only optimal for L when R-partisans are very optimistic, because otherwise the offer that compensates R for a certain electoral loss will satisfy R-partisans. So it is the severe optimism of R-partisans that makes it possible for L to extract the maximum amount of agenda setter rents by giving up policy utility in return for a certain electoral win. Figures 3 and 4 illustrate, respectively, the equilibrium offer t and the resulting expected utility for R as a function of x_R for $x_L < \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$. Note that, since the equilibrium offer is decreasing in x_R (constant for $x_R > \frac{r(1-p)}{\delta}$), R-partisans themselves benefit (weakly) from being more optimistic. It is easy to check that the equilibrium utilities of both R and R-partisans are weakly increasing in x_R for any $x_L > \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$.

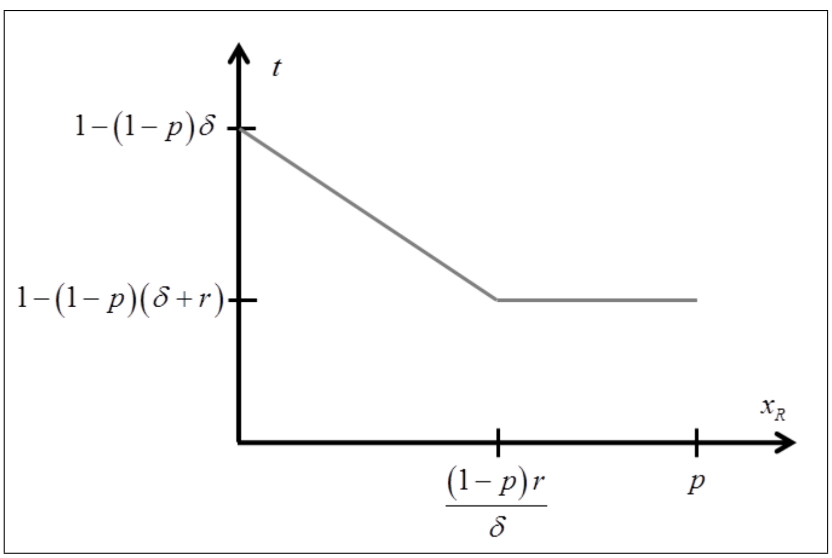

Figure 3: Equilibrium offer t as a function of x_R for $x_L < \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$

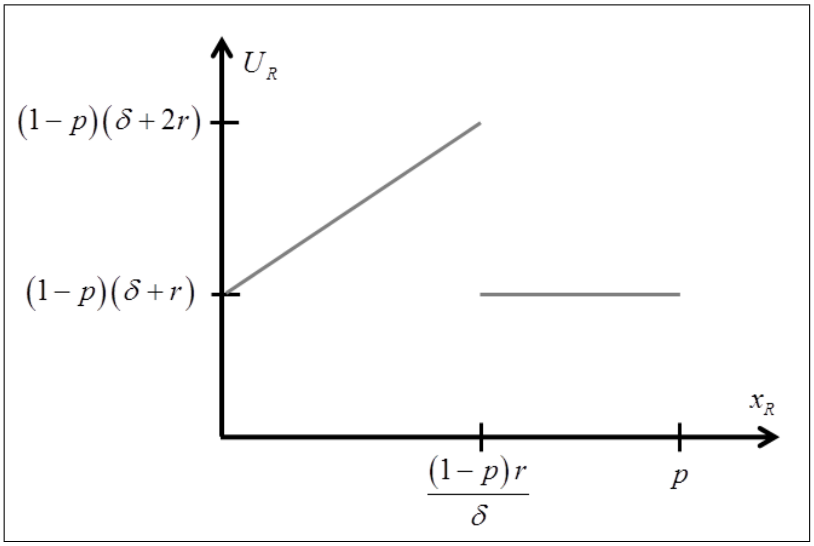

Figure 4: ***R*'s expected utility in equilibrium as a function of x_R for** $x_L < \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$

For L it is also the case that an increase in optimism among its partisans can lead to a decrease in equilibrium utility. For any fixed $x_R > \frac{r(1-p)}{\delta}$ there is a downward discontinuity in L's equilibrium utility at $x_L = \frac{1-\delta}{\delta} - \frac{(1-p)r}{\delta}$. At this point the equilibrium changes from one where L wins the election with certainty to one where it only wins with probability p. Since the equilibrium offer is a continuous function of x_L, this leads to a downward jump in L's utility. As with R-partisans, the group of L-partisans benefits from being more optimistic (the equilibrium offer is weakly increasing in x_L for all values of x_R). Figures 5 and 6 show how, respectively, the equilibrium offer and L's expected utility in equilibrium depend on x_L for $x_R > \frac{r(1-p)}{\delta}$. Observation 3 sums up our findings about the dependence of equilibrium utilities on partisan optimism.

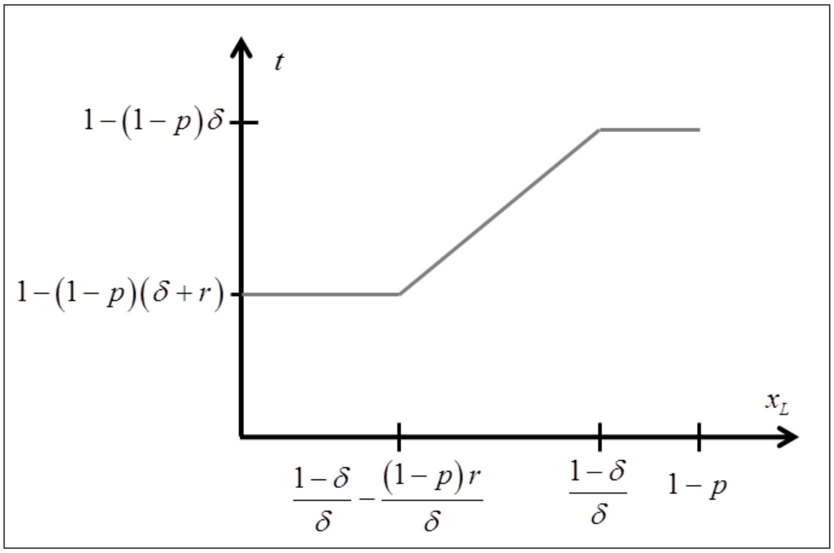

Figure 5: Equilibrium offer t as a function of x_L for $x_R > \frac{r(1-p)}{\delta}$

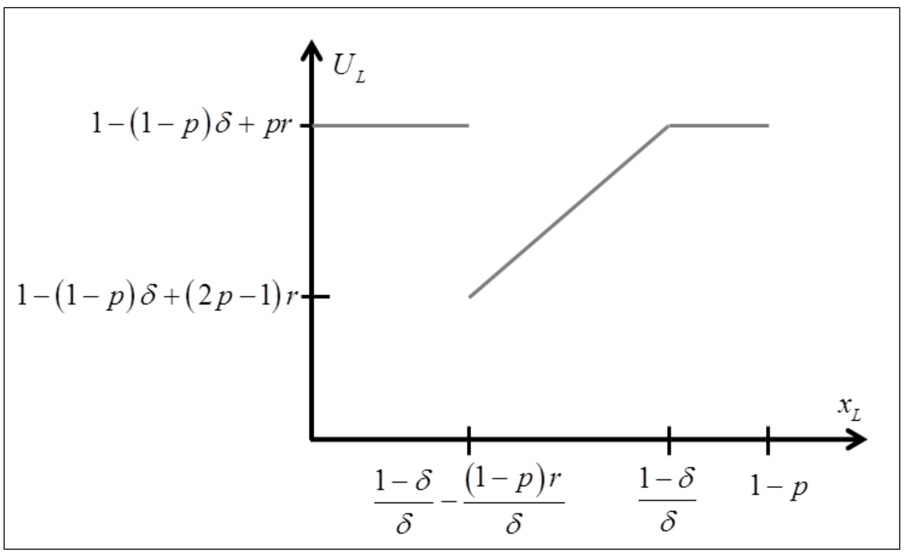

Figure 6: L's expected utility in equilibrium as a function of x_L for $x_R > \frac{r(1-p)}{\delta}$

Observation 3 *For each party, increased optimism among its partisans can result in a lower expected utility in equilibrium. This happens when an increase in partisan optimism changes the equilibrium agreement in a way that makes the party less likely to win the election. The equilibrium utility of each partisan group is weakly increasing in its level of optimism.*

3.2 Direct Costs of Partisan Dissatisfaction

In the main model, whether partisans are satisfied or not with a bargaining agreement matters for the electoral outcome, but does not directly affect parties' utilities. However, as explained earlier, parties may well care about partisan (dis-)satisfaction beyond its effect on their electoral prospects. Therefore, we now consider an extended model where it is directly costly for a party if its partisans are not satisfied. The cost is assumed to be the same for the two parties and is denoted c.

The extended model can be analyzed similarly to the original model, the analysis is only slightly more complicated. Here we focus on the most important results, the complete equilibrium results can be found in the appendix.

First note that if $2c > 1-\delta$ then the aggregate cost (for the parties) of dissatisfaction among both partisan groups is higher than the aggregate cost of delay. Thus it is not surprising that when this inequality is satisfied and the other parameters are such that the outcome of the original model involves low turnout among both partisan groups, then the outcome of the extended model is delayed agreement. Therefore, in the rest of this section we focus on the more interesting case where

$$2c < 1 - \delta.$$

Thus, delay is always inefficient for the parties in the sense that their aggregate utility after a period one agreement is higher than after delay, even if the agreement makes both partisan groups dissatisfied.

Figure 7 shows the equilibrium outcomes of the extended model under the following parameter restrictions:

$$\frac{(1-p)r + c}{\delta} < \frac{1-\delta}{\delta} < \min\{p, 1-p\} \quad \text{and} \tag{1}$$

$$2c > 1 - \delta - (1-p)r. \tag{2}$$

The double inequality (1) is primarily chosen to facilitate easy comparison with the outcomes of the main model as depicted in figure 2 (the first inequality is stronger than the one used for figure 2, but for $c = 0$ they are identical). It is not necessary for our main result: that delay is possible in equilibrium.[7] The inequality (2) gives a lower bound on c (relative to the other parameters δ, p, and r). This lower bound is necessary for equilibrium delay.

[7] More precisely, for the purpose of getting delay as a possible equilibrium outcome (1) can be replaced by the weaker condition

$$c > 1 - \delta - p\delta.$$

This inequality is satisfied if the second inequality in (1) is satisfied, because (1) implies $1 - \delta - p\delta < 0$.

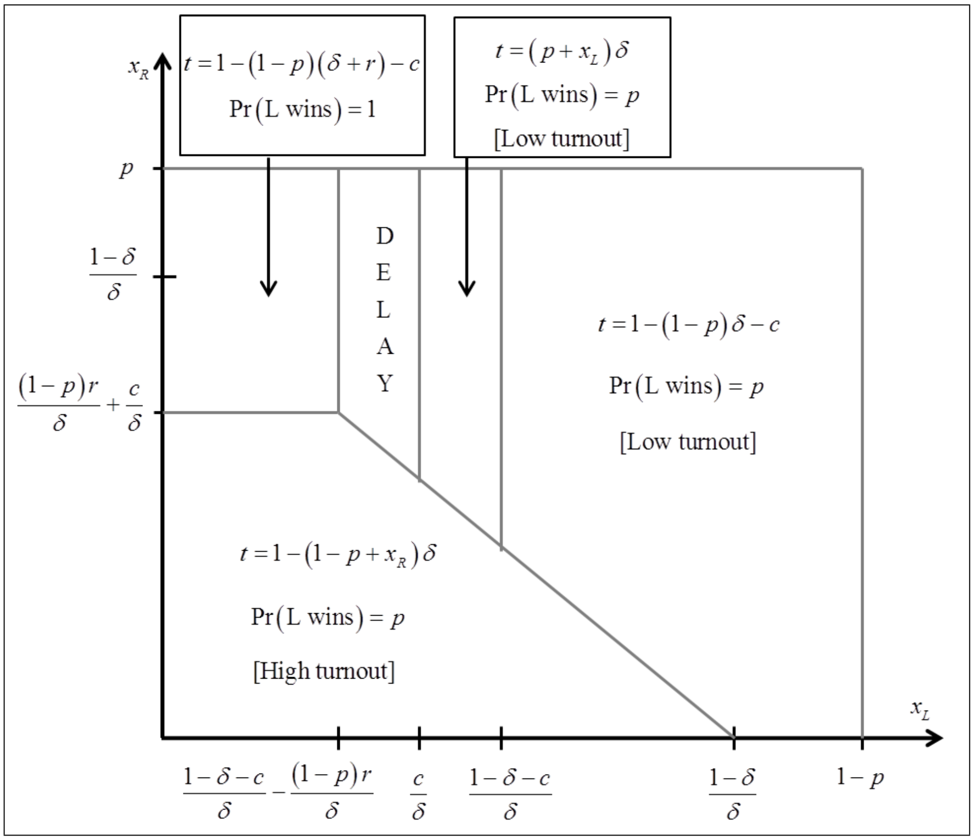

Figure 7: Equilibrium outcomes for the extended model under the parameter restrictions (1) and (2)

To a large extent, the figure looks qualitatively similar to figure 2. However, there is delay in equilibrium when

$$x_L + x_R > \frac{1-\delta}{\delta} \quad \text{and} \quad \frac{1-\delta}{\delta} - \frac{(1-p)r+c}{\delta} < x_L < \frac{c}{\delta}.$$

In words, this means that there will be delay when the following three conditions (one for each of the inequalities) are satisfied. First, there are no agreements that satisfy both partisan groups. Second, L-partisans have to be sufficiently optimistic that it is not possible for L to make an offer that R will accept and only L-partisans will be satisfied with. Third, L-partisans cannot be so optimistic that the best possible offer for L that makes R accept and both partisan groups dissatisfied provides more expected utility for L than the outside option of delay. We formulate the possiblity of inefficient delay in the extended model as an observation.

Observation 4 *When partisan dissatisfaction is directly costly for the parties, delay is possible in equilibrium. This is the case even for aggregate costs of partisan dissatisfaction on both sides that are lower than the aggregate cost of delay ($2c < 1-\delta$).*

The underlying reason why inefficient delay is possible in equilibrium is that the partisan optimism on either side restricts the possibilities for sharing the parties' aggregate utility from a period one agreement. In part of the parameter space there are no agreements that provide each party with at least its expected utility of delay. In the main model ($c = 0$) the sharing possibilities are also restricted, but never in a way that makes a mutually acceptable period one agreement impossible. With the introduction of direct costs of partisan dissatisfaction, the aggregate utility available for sharing is lower when it is not possible to satisfy both partisan groups ($x_L + x_R > \frac{1-\delta}{\delta}$). When the costs are sufficiently high, this implies that some of the equilibrium agreements from the main model are no longer better for each party than delay.

Finally, a more minor consequence of the extension of the model is that the parameter area where only R-partisans are dissatisfied (which implies that L wins the election with certainty) shrinks, which also means that the area where a period one agreement is reached and both partisan groups are satisfied grows. This happens because a direct cost of partisan disappointment makes R demand more to accept an offer that will only satisfy L-partisans.

3.3 Optimistic Parties

We now go back to a setup without any direct costs of partisan dissatisfaction and introduce the assumption that parties (i.e., party decision makers) are, like partisans, optimistic about electoral outcomes. More precisely, we assume that each party has exactly the same belief about independents' voting behavior as its partisans. Thus, L (R) believes that independents will break its way with probability $p + x_L$ ($1 - p + x_R$).

First, behavior in the stage two subgames are clearly not affected by parties' optimistic beliefs, so as in the main model we get $t_{2L} = 1$ and $t_{2R} = 0$. Thus, in period one the perceived expected utilities of delay for the two parties are, respectively,

$$\tilde{U}_L^{Delay} = (p + x_L)(\delta + r) \quad \text{and} \quad \tilde{U}_R^{Delay} = (1 - p + x_R)(\delta + r).$$

This implies that L will prefer delay to any period one agreement $t < t_L^*$ and that R will prefer delay to any $t > t_R^*$. To see this, first note that L-partisans will be dissatisfied after an agreement $t < t_L^*$, so L's perceived probability of winning the election conditional on such an agreement is at most $p + x_L$ (0 if $t < t_R^*$, $p + x_L$ if $t > t_R^*$). Thus L's total perceived expected utility if such an agreement is reached is at most

$$t + (p + x_L)r < t_L^* + (p + x_L)r = (p + x_L)(\delta + r) = \tilde{U}_L^{Delay},$$

which implies that L prefers delay. Similarly it follows that R will prefer delay to any period one agreement $t > t_R^*$.

From these observations it immediately follows that there will be delay in agreement when $t_L^* > t_R^*$ ($x_L + x_R > \frac{1-\delta}{\delta}$). It also follows that when $t_L^* < t_R^*$ then only period one agreements in the interval $[t_L^*, t_R^*]$ are possible. And since L is the agenda setter, it is easy to see that the unique equilibrium outcome is that L offers $t = t_R^*$, R accepts, and both partisan groups are satisfied and thus turn out to vote in high numbers. We formulate the possibility of delay with optimistic parties as an observation and display the equilibrium outcomes in figure 8 (we again use the parameter restriction $\frac{1-\delta}{\delta} < \min\{p, 1-p\}$).

Observation 5 *When parties are as optimistic as their partisans about electoral outcomes there will be delay in equilibrium when the aggregate level of optimism is sufficiently high ($x_L + x_R > \frac{1-\delta}{\delta}$). Note that the higher the aggregate cost of delay ($1-\delta$) is, the more optimism is required to cause delay.*

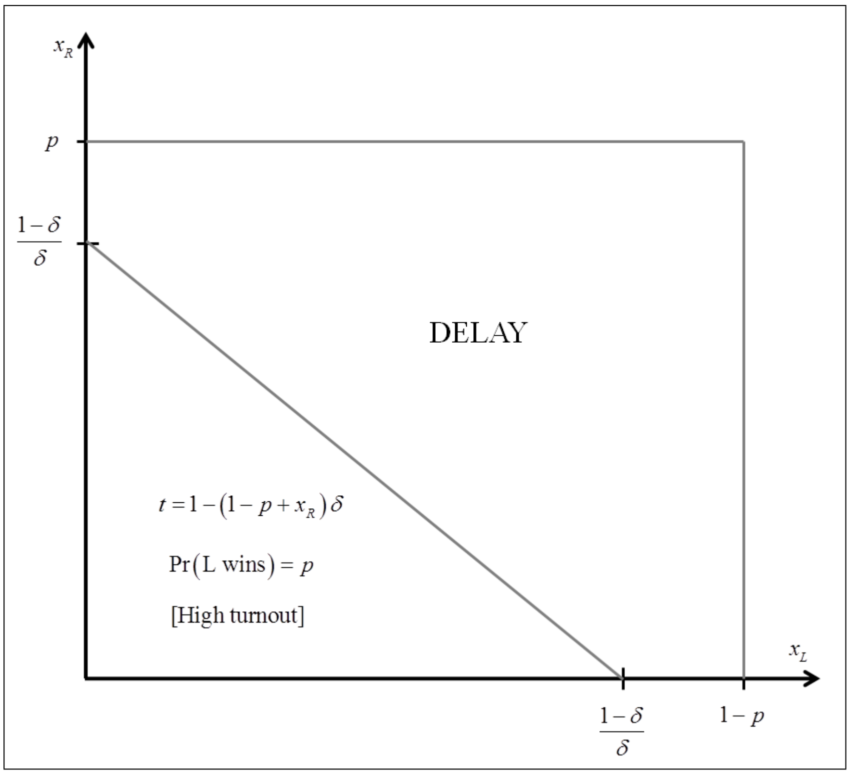

Figure 8: Equilibrium outcomes with optimistic parties under the parameter restriction $\frac{1-\delta}{\delta} < \max\{p, 1-p\}$

Inefficient equilibrium delay when parties are sufficiently optimistic is not a very surprising result. Optimism about electoral outcomes implies that each party is optimistic about its outside option (expected utility from delay), and when the perceived outside options are high enough then there are simply no agreements that are acceptable to both parties. This basic insight is also well known from the literature, see for example Fearon (1995). So this brief section primarily serves to illustrate how our modeling relates to standard insights on bargaining and optimism. Especially, it highlights the fundamental difference between situations where party decision makers with correct beliefs about electoral outcomes bargain before an audience of optimistic partisans and bargaining situations where the decision makers themselves are optimistic.

4 Conclusion

We have demonstrated that partisan optimism about electoral outcomes can significantly influence political bargaining processes. While the model is evidently stylized, we think that our results provide a solid first step in understanding how this well documented bias among partisan voters influences the behavior of politicians and how this translates into policy- and electoral outcomes. Particularly interesting findings were that increased optimism among a partisan group leads to a stronger bargaining position for the party and therefore better policy outcomes, but may hurt the party's electoral prospects. Another important observation was that, in the main model, costly delay of agreement is not possible in equilibrium, even with high levels of partisan optimism. When optimism is high on both sides of the political spectrum, the parties can reach an agreement that leads to low partisan enthusiasm on both sides and therefore does not change the electoral prospects of the parties relative to a situation with delay. However, in the extended model where partisan dissatisfaction is directly costly (beyond its electoral effect) for each party, inefficient delay in reaching a bargaining agreement is possible as an equilibrium outcome. Finally, we also demonstrated how the situation from our main model where fully rational parties bargain while taking into account that partisan voters have optimistic beliefs about electoral outcomes leads to fundamentally different outcomes than if party decision makers themselves are optimistic.

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Appendix

The two propositions below contain the formal equilibrium results for the extended model where each party suffers a cost $c > 0$ if its partisans are dissatisfied after a period one bargaining agreement. We omit the proofs since they are similar to those of the equilibrium results for the main model. For simplicity we disregard the boundaries between the parameter areas with different types of equilibria.

Proposition 3 (Extended model: Equilibrium outcomes for the case $t_L^* < t_R^*$)

1. *Suppose $x_R < \frac{r(1-p)+c}{\delta}$. Then L will offer $t = t_R^*$, R will accept, and turnout will be high among both partisan groups. Thus L wins the election with probability p.*

2. *Suppose $x_R > \frac{r(1-p)+c}{\delta}$. Then L will offer $t = 1-(1-p)(\delta+r)-c$, R will accept, and turnout will be high among L-partisans and low among R-partisans. Thus L wins the election with certainty.*

Proposition 4 (Extended model: Equilibrium outcomes for the case $t_L^* > t_R^*$)

1. *Suppose $x_L < \frac{1-\delta}{\delta} - \frac{(1-p)r+c}{\delta}$. Then L will offer $t = 1-(1-p)(r+\delta)-c$, R will accept, and turnout will be high among L-partisans and low among R-partisans. Thus L wins the election with certainty.*

2. *Suppose $\frac{1-\delta}{\delta} - \frac{(1-p)r+c}{\delta} < x_L < \frac{c}{\delta}$. Then L will make an offer that makes R reject. Thus there will be delay and L wins the election with probability p.*

3. *Suppose $\frac{c}{\delta} < x_L < \frac{1-\delta}{\delta} - \frac{c}{\delta}$. Then L will offer $t = t_L^*$, R will accept, and turnout will be low among both partisan groups. Thus L wins the election with probability p.*

4. *Suppose $x_L > \frac{1-\delta}{\delta} - \frac{c}{\delta}$. Then L will offer $t = 1-(1-p)\delta-c$, R will accept, and turnout will be low among both partisan groups. Thus L wins the election with probability p.*