War and the Transition Away from Absolutism

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Very Preliminary

June 5, 2011

Abstract

We propose a model to explain the transition from Absolutism to rule by Parliament. Our model gives a rationale for why absolutism ended in England by 1688 but not in France. The Citizens face a trade-off between the loss of a war today with the future benefits under an alternative King. The threat of losing a war and being replaced may lead the King to compromise with the Citizens. The model has two key parameters. One is the fraction of the country’s wealth that is nonverifiable (and therefore hard for the King to tax or expropriate). The second is how likely the country is to be attacked.

1 Introduction

Between the years 1500 and 1600 the economies of France an England were similar: mostly agrarian and with similar income per capita (see Table 1). Their institutions were also similar, as in both countries a monarch ruled and

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led the country into war, which accounted for a very large part of government expenditure. In both countries, most of the government’s revenue was under direct control of the monarch. In both countries a parliament could be summoned if the king required resources beyond ordinary revenues.\footnote{The English parliament was relatively stronger than the French. This is so because the French King could play the national assembly against their provincial counterparts. See Hoffman (1994) for a discussion of the role of provincial assemblies in France between 1450-1700.} In Elisabeth’s reign (1558-1603), for example, 73% of the English government’s revenue came from sources that did not require the approval of parliament.\footnote{See Braddick (1996) Figure 1.3, pg.13.}

By the year 1700 the institutional differences between England and France were striking. France had become the model of an absolutist state, whereas in England the parliament effectively ruled the country (97% of the government’s revenue in the years 1688-1714 depended on the consent of parliament\footnote{See Braddick (1996) Figure 1.3, pg.13.}).

In this paper we propose a theoretical model that attempts to explain why the political transition away from absolutism took place in England and not in France. In the appendix we discuss the example of the Netherlands and Spain, which also provide a motivation for our model.

The research on political transitions has recently received a lot of attention in the political economy literature. The term political transition means a considerable extension (or reduction) of the suffrage. See for example Acemoglu and Robinson (2001), Lizzeri and Persico (2004), and Ticchi and Vindigni (2009). The common element that explains political transitions in these papers is a dispute between agents on how to redistribute income. The contentious element is whether the threat of popular revolts is a necessary condition for the extension of the suffrage.

The focus on redistribution may be appropriate for the 19\textsuperscript{th} century onwards but significant political transitions took place before redistribution became a significant governmental policy (the two key examples are the Nether-
Table 1: England and France

<table>
<thead>
<tr>
<th>Country</th>
<th>year</th>
<th>agric(%)</th>
<th>wages</th>
<th>income</th>
<th>prince</th>
<th>polity-IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>1500</td>
<td>74</td>
<td>9.3</td>
<td>714</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>69</td>
<td>5.5</td>
<td>974</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1700</td>
<td>55</td>
<td>6.9</td>
<td>1250</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>France</td>
<td>1500</td>
<td>73</td>
<td>8.7</td>
<td>727</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>68</td>
<td>6.8</td>
<td>841</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1700</td>
<td>63</td>
<td>6.3</td>
<td>910</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>


lands in the 16th century and England in the late 17th century). Up to the early 19th century government expenditure was almost exclusively dedicated to warfare.4

Our main contribution is to propose a model of political transitions in which redistribution does not play a main role. Instead of the threat of revolution, we focus on the threat of a war as the driving force for a regime change. Specifically, in our model, the King chooses which wars to fight, and the Citizens choose whether to financially support the King. We assume there are three types of war: aligned wars bring a positive return to both the King and the Citizens. Misaligned wars, on the other hand, are specially beneficial to the King and particularly costly to the Citizens.5 An absolutist King with all resources at his disposal will always choose misaligned wars. Finally, defensive wars imply that the within period interests of Citizens and King are aligned, but the Citizens may nevertheless choose not to assist the King in order to have him substituted by another monarch.

4See Brewer (1989).
5An example of a misaligned war is a war led by a catholic King with protestant subjects against a protestant country. Other examples of misaligned wars are costly dynastic wars that benefit the King but not the Citizens. Examples of aligned wars are defensive wars and trade wars, which expand the markets for the Citizens products.
We assume that both the Citizens and the King prefer winning to losing whichever war is being fought, but even though losing a defensive war is costly to the Citizens today, they may be willing to pay that cost in order to have the King replaced by a potentially better (more aligned) ruler in the future. At the same time, if the fraction of resources the King has at his disposal is high enough, he is able to wage his wars alone and without making concessions to the Citizens. If however, the threat of losing a defensive war is high enough and the fraction of resources the King has at his disposal is low enough, he may have to break a deal with the citizens. In some cases, this will entail making monetary transfers to the Citizens. When the threats he is facing are particularly strong he will have to hand power over to the Citizens because he cannot commit to choosing aligned wars in the future.

We use our model to interpret the history of England and France between 1600 and 1700.

During the 17th century the English economy went through rapid changes, with the commercial and financial sector increasing its relative stand in the economy. The change in relative wealth of each sector led to changes on how revenues were raised – as this sort of wealth is non verifiable. In England, indirect taxation (sales taxes and tariffs) contributed to around 23% of total revenues in the reign of Elizabeth (1558-1603) while in the reign of James II (1686-1688) indirect taxation became 80% of total revenues. France, on the other hand, continued to have a dominant agricultural sector and direct taxation (poll and property taxes) contributed to above 50% of revenues well into the 18th century.

As the wealth of merchants and financiers increased so did their bargaining power. This ideas is not new: Mitchell (1951) describes how in the 12th and 13th century the English crown became dependent on the taxation of movable property and revenues in order to raise extraordinary revenue.

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6 See Braddick (1996) Figure 1.1, pg.10.
7 See Hoffman (1994) table 2, pg. 239
(called aid). The crucial point here is that even though these taxes provided substantial sums, they were more easily avoidable and had to be bargained for. One of the demands of the barons when establishing the Magna Carta in 1213 was that aid and scutage\(^8\) be subject to approval by their council. This council of barons and clergy would eventually lead to the first parliaments.

North and Weingast (1989) argue that the institutional arrangements designed by the winners of the Glorious Revolution generated an equilibrium in which it was optimal for the King to pay back his debts instead of reneging on them - as was widespread up to then. This view implies that had France, or Spain, adopted the same institutions as England did after the Glorious Revolutions, their kings would have found it optimal to pay back their loans. And as a consequence, France and Spain would also have had access to the sort of credit England had after 1688.

We depart from North and Weingast (1989) significantly. In our model the driving force of the political transition that took place in England in 1688 was the change in the economy. Bates and Lien (1985) formalize the idea that the tax elasticity of a sector increases its bargaining power. They show that the most elastic sector will be taxed less and that the equilibrium policy will be closest to the preferred policy position of the most elastic sector. Our contribution is to formalize their argument in the framework of Acemoglu and Robinson (2001).

Our argument is that the increased importance of the trade sector in England increased parliament’s bargaining power to the extent that the crown needed its cooperation. The issue is that simple promises to parliament to choose policies that would be agreeable to it would not suffice, because the crown could not make such promises credible. Thus, an institutional framework was set up so that Parliament was guaranteed power while the crown received the resources necessary to wage war.

\(^8\)Scutage gave the choice for the individual to pay a tax or serve in the military. Aid were mainly extraordinary taxes on movables and revenues. See Mitchell (1951) pg.6, pg 179.
The institution innovations of the Glorious Revolutions proved stable because the King could - if he paid back his debts and chose the wars preferred by parliament - access a significant fraction of the country’s wealth to finance the war effort. Had the English King reverted to the old regime of consistently defaulting on loans, he would have had access only to the verifiable fraction of the country’s wealth - the fraction of the wealth that he could summon by force. The French King on the other hand, did not have to make concessions to the Citizen in order gain access to most of France’s resources.

2 The Model

2.1 Setup

We consider a setting with a player King (K) and a player Citizen (C). The two players represent the whole of society with total resources equal to $1 + \gamma$ where $\gamma > 0$. We interpret $\gamma$ as the share of resources in society available to C that cannot be made available for war, but must be consumed by the citizen. The remaining resources are shared between K and C in proportion $k$ and $1 - k$ respectively. We interpret these as the resources that are available for a war investment, with the proviso that $k \in (0, 1)$ represents the fraction that is available to the King through ownership, taxation or loans from outside the country while the fraction $1 - k$ is invested only if C decides to participate in a war.

We will assume an infinite number of periods, which can be of two kinds, high ($h$) or low ($l$), with $\pi$ representing the probability of a high period. Utility for both players is discounted at a rate $\beta \in (0, 1)$. The two kinds of period differ in the threats and opportunities faced by the two players. In a high period, there are opportunities for war available to K and C, which may, however, also choose not to be involved in a war. We assume that wars can be aligned, when both K and C stand to gain from the war or disaligned, when K stands to gain even more but C would rather have peace. One example of
the latter are dynastic wars, where K pursues her own dynastic interests in a war that has little benefit for C while one example of the former would be colonial wars where C also stands to gain from a new colonial presence. In both types of war, we assume the probability of winning to be one if both players participate and $k$ (resp. $1 - k$) if only K (resp. C) participates.

We will assume that under absolutism K chooses whether to go to war and if so, which war to engage in while in a constitutional monarchy this decision belongs to the citizens. This means that under absolutism, K can decide whether to go to an aligned war, a disaligned war or peace, while C can only decide between the war chosen by K (if any) and peace; under constitutional monarchy the role of the two players are reversed. We will also assume that absolutism is the default state and can only be changed voluntarily by K, but once constitutional monarchy is instituted at some time $t$, it cannot be reversed at any future time. Given this, the payoff matrix for K and C, under absolutism is

$$
\begin{array}{ccc}
\text{K/C} & \text{aligned war} & \text{disaligned war} & \text{no war} \\
\text{aligned war} & kR; (1 - k)R + \gamma & \emptyset & k^2R; 1 - k + \gamma \\
\text{disaligned war} & \emptyset & kr + \alpha; (1 - k)r + \gamma & k(kr + \alpha); 1 - k + \gamma \\
\text{no war} & \emptyset & \emptyset & k; 1 - k + \gamma \\
\end{array}
$$

The payoff table emphasizes the main characteristic of absolutism: if K decides not to go to war, then C cannot go to war either while if K chooses a particular type of war, C can only join that war or not join that war. To interpret the remaining payoffs, suppose for example that both K and C participate in an aligned war. Then, the war is won for sure and $R$ represents the returns on the resources ($k$ and $1 - k$ respectively) invested by K and C. If only K participates, on the other hand, the war is only won with probability $k$. In case of win returns are equal to $kR$ as before, but if the war is lost, then so are the invested resources and total returns are equal to zero. We assume that both K and C are risk neutral so that the expected return to K from
going alone to an aligned war is $k^2R$. On the other hand, we assume that non-participation in a war guarantees a return equal to one on investable resources so that the payoff in this case for C would be equal to $1 - k + \gamma$. We assume $R > 1$ so that an aligned war, if won, is (equally) more profitable than non-participation for both K and C. In the case of a disaligned war, returns on investment are now equal to $r$ for both K and C while K gets an additional ego-rent equal to $\alpha$ in case the war is won. Compatibly with the assumption we made above, we assume that $r < 1$ and that $\alpha \geq 0$.

The corresponding payoff matrix under constitutional monarchy, when C decides which war, if any, to go to is

<table>
<thead>
<tr>
<th></th>
<th>aligned war</th>
<th>disaligned war</th>
<th>no war</th>
</tr>
</thead>
<tbody>
<tr>
<td>aligned war</td>
<td>$kR; (1 - k)R + \gamma$</td>
<td>$\emptyset$</td>
<td>$\emptyset$</td>
</tr>
<tr>
<td>disaligned war</td>
<td>$\emptyset$</td>
<td>$kr + \alpha; (1 - k)r + \gamma$</td>
<td>$\emptyset$</td>
</tr>
<tr>
<td>no war</td>
<td>$k; (1 - k)^2R + \gamma$</td>
<td>$k; (1 - k)^2r + \gamma$</td>
<td>$k; 1 - k + \gamma$</td>
</tr>
</tbody>
</table>

It is important to emphasize three assumption here. The first is that we assume that investable resources are fully transferable, so that each player can costlessly commit to transferring any fraction of their investable returns in order to get the other player to change their strategy in a given period. The second is that, on the contrary, ego-rents are not transferable at all. Our favorite interpretation is that K can sell posts, titles or tax-farming rights in order to get C to participate in a disaligned war (with the proviso that these can be revoked in the following period), but this ability is limited by the resources at her disposal while the prestige or reputation she gets from winning a dynastic war cannot be transferred to C.\(^9\) Finally, and most importantly for our purposes, we assume that $k$ and $\gamma$ are given characteristics of a

\(^9\)As we shall see, in equilibrium C never needs to make transfers to K, but one can easily conceive of concessions that C could make to K that could be interpreted as transfers.

Also, discuss issue of not allowing commitment over more periods as a way to motivate Perfect Markov Equilibria.
specific country, given by its economic and institutional fundamentals while \( \alpha \) is specific to a particular K so that if the latter is replaced by someone else, the new king will have a different value for \( \alpha \) and a different propensity for disaligned wars while \( k \) and \( \gamma \) will remain the same.

We now introduce low periods. In a low period, there is a war that cannot be avoided: either side can decide not to help fight this war but this only means that the probability of winning is reduced, not that the player is not involved. Also, in case of loss K will be replaced while C would loses all his resources, including \( \gamma \). We interpret these as high-stakes wars that cannot be avoided and where everything is on the line for both players and so an example could be one where there is an invasion and where the opponent will loot away the consumption goods for citizens in case of loss. Specifically, the payoff table is now

<table>
<thead>
<tr>
<th>K/C</th>
<th>war</th>
<th>no war</th>
</tr>
</thead>
<tbody>
<tr>
<td>war</td>
<td>( k \rho; (1-k) \rho + \gamma )</td>
<td>( k^2 \rho; k(1-k) \rho + k \gamma )</td>
</tr>
<tr>
<td>no war</td>
<td>( k(1-k) \rho; (1-k)^2 \rho + (1-k) \gamma )</td>
<td>0; 0</td>
</tr>
</tbody>
</table>

where again we assume that the war is won with probability one if both players participate and \( k \) (resp. \( 1-k \)) if only K (resp. C) participates, but now losses are incurred even if one doesn’t participate and, for citizens, they also involve \( \gamma \).\(^{10}\) The parameter \( \rho > 0 \) represents returns in case of a win in these wars.\(^{11}\) As mentioned above, if the war is lost, K is replaced and we assume that the new K has a new ego-rents parameter \( \mu \simeq 0 \), which is equivalent to assuming that if the current K is replaced, it will be with a

\(^{10}\)Obviously, if neither participate, the probability of a win is zero.

\(^{11}\)Strictly speaking, one should expect returns in case of a win when the player participates to be lower to those where the country wins but the player did not participate because in the latter case the player did not involve his or her resources. We keep them equal for simplicity and to follow on the interpretation that these are wars where everything is at stake. \textit{This needs to be defended better.}
benevolent K who shares C’s preferences. We will explore the implications of this assumption below.

Given these payoffs and the discussion above, at each time $t$ we can define a state $\omega_t$ as vector $(s_t, p_t, e_t)$ that describes whether $t$ is a high or a low period, whether there was absolutism or constitutional monarchy in the previous period $t - 1$ and whether K’s ego-rents are represented by $\alpha$ or $\mu$. Formally, let $s_t \in \{h, l\}$ denote the type of period $t$, $p_t \in \{a, c\}$ denote the regime at the end of period $t - 1$ and $e_t \in \{\alpha, \mu\}$ denote the type of King at the end of period $t - 1$, with, following on from assumptions stated above, the proviso that $p_0 = a, e_0 = \alpha$ and that $p_t = c$ whenever $p_\tau = c$ for any $\tau < t$ and $e_t = \mu$ whenever $e_\tau = \mu$ for any $\tau < t$. This setting allows to define a timeline for each period $t$; at the beginning of each period, $(p_t, e_t)$ are already defined, and the

1. Nature determines the period type $s_t \in \{h, l\}$ using a Bernoulli distribution where $\Pr(s = h) = \pi$.

2. If $p_t = a$ then

   (a) K decides whether to continue with absolutism $D_t = a$ or to promote a constitutional monarchy $D_t = c$.

   (b) If $s_t = h$ then

      i. K (whenever $D_t = a$) or C (whenever $D_t = c$) decide whether to go to war and if so, which war. Formally, $W_t \in \{y^a, y^d, n\}$ represents the decision to go to an aligned war, disaligned war and no war respectively. It can also decide to make a costless transfer $T_t$ of some transferable resources to the other player.

      ii. The remaining player C (whenever $D_t = a$) or K (whenever $D_t = c$) decides whether to join the chosen war ($w_t = y$) or not ($w_t = n$).\footnote{We abuse notation by defining $W_t, w_t$ and $T_t$ not in terms of K or C but in terms}
(c) If $s_t = l$ then

i. K (whenever $D_t = a$) or C (whenever $D_t = c$) decide whether whether to join the war ($W_t = y$) or not ($W_t = n$). Again, it can also decide to make a costless transfer $T_t$ of some transferable resources to the other player.

ii. The remaining player C (whenever $D_t = a$) or K (whenever $D_t = c$) decides whether to join the war ($w_t = y$) or not ($w_t = n$).

3. If $p_t = c$ then stage 2a above does not apply but the rest of the game proceeds as if $D_t = c$.

4. If a war happens it is either won ($\chi_t = 1$) with probability one if both players participate and with probability $k$ (resp. $1 - k$) if K alone (resp. C alone) participates. Otherwise it is lost ($\chi_t = 0$).

5. Payoffs are generated according to the payoff tables above. Also, formalizing the discussion regarding $p_t$ and $e_t$ we have

$$
p_{t+1} = \begin{cases} 
  c & \text{if } p_t = c \text{ or } (p_t, D_t) = (a, c) \\
  a & \text{otherwise}
\end{cases}
$$

$$
e_{t+1} = \begin{cases} 
  \mu & \text{if } e_t = \mu \text{ or } (s_t, e_t, \chi_t) = (l, \alpha, 0) \\
  \alpha & \text{otherwise}
\end{cases}
$$

To reiterate in words, we have constitutional monarchy at time $t+1$ when we already had a constitutional monarchy at time $t$ or when K decided to move from absolutism to constitutional monarchy at time $t$; we have the K with bias $\mu$ at time $t+1$ when we already had such K at time $t$ or when period $t$ is a low period and the resulting war is lost. In this way, both $p = c$ and $e = \mu$ are absorbing states: we will discuss these assumptions later on.
2.2 Static Model

Before moving to the proper analysis of the dynamic model, it is worth looking first at the benchmark case where the game consists of a single period where we have absolutism at the beginning of the period. This allows us to better understand the impact of dynamics on the relationship between K and C. We look for the unique pure-strategy subgame perfect equilibrium of the stage game, under the selection criteria that K always chooses aligned wars if indifferent between them and disaligned wars, that it does not make transfers if indifferent between making them or not and that C always participates in a war whenever it is indifferent participating and not. Under these conditions, we provide an informal statement of our result, while a more formal statement is detailed in the appendix.

**Proposition 2.1** In any subgame-perfect pure strategy equilibrium of the static model

1. K chooses absolutism.

2. In a low period, both players choose to participate in the war.

3. In a high period, K chooses an aligned war whenever \( k > 1 - r \) and \( \alpha \leq \alpha_1^S = 1 - r + k(R - 1) \) or \( k \leq 1 - r \) and \( \alpha \leq \alpha_2^S = R - kr \). In all other cases, she chooses a disaligned war. When she chooses a disaligned war and when \( k > 1 - r \) then she will pay a transfer \( T = (1 - k)(1 - r) \) to get C’s participation in the disaligned war, while in all other cases \( T = 0 \). C always participates in aligned wars and participates in a disaligned war iff \( T \geq (1 - k)(1 - r) \).\(^{13}\)

**Proof** See appendix.

\(^{13}\)For completeness, we should add that in the off-equilibrium path case where \( D = c \) then in a low period both C and K would participate, while in a high period, C would always choose aligned wars with no transfers and K would always participate.
In a static version of our model, K never has an incentive to propose a constitutional monarchy because whenever in a low period C has every incentive to participate in the war while in a high period K would either do equally well (when C and K would both choose aligned wars) or strictly worse (when K would choose a disaligned war and C an aligned one). As we shall see, in the dynamic model, C may no longer be willing to participate in wars in low periods because he may be willing to trade off present losses for possible future gains from replacing the current king. This threat on the current king opens the possibility for constitutional monarchy because then she may be willing to concede power to C in order to get the latter’s participation and protection.

Nevertheless, the static model, has other interesting features that can be represented in figure 1 below.

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Nevertheless, the static model, has other interesting features that can be represented in figure 1 below.

One important feature is that when $k$ is sufficiently high, then K has the resources to buy C’s cooperation if she chooses a disaligned war. This makes it easier for her to choose a disaligned war in the sense that when $k$ is high enough that K has the resources to buy C’s cooperation, then a disaligned war is chosen for lower values of $\alpha$ than when buying C’s cooperation is
impossible ($\alpha_2^S > \alpha_1^S$ for any value of $k$). The incentives to do so, however, are decreasing in $k$. To see this note that the condition that defines $\alpha_1^S$ is that for any $\alpha > \alpha_1^S$ we have

$$kr + \alpha - (1 - k)(1 - r) > kR$$

which clarifies that the marginal benefit of choosing an aligned war is equal to $R$ while the marginal benefit of choosing a disaligned war is 1 because the latter captures the marginal benefit from a disaligned war ($r$) plus the reduced marginal cost $(1 - r)$ of compensating $C$. Since $R > 1$, we have that when $K$ has the opportunity of buying $C$’s cooperation, the incentive to do so and choose a disaligned war is decreasing in $k$. On the other hand, when $K$ cannot buy $C$’s cooperation, the relevant condition that defines $\alpha_2^S$ is that for any $\alpha > \alpha_2^S$ we have

$$k (kr + \alpha) > kR$$
$$\iff kr + \alpha > R$$

which is to say that an increase in $k$ in a disaligned war affects the probability of getting $\alpha$ and so the incentive to go to a disaligned war increases in $\alpha$. The whole analysis implies that incentives to go to a disaligned war are not monotonic in $k$ as they first increase in $k$ and then (as soon as $k > 1 - r$) start decreasing again, although they are always greater when $K$ can buy $C$’s cooperation for a disaligned war.

A final feature worth noting is that while the static model does not allow for constitutional monarchy, it does imply different behaviors from an absolutism king. If $\alpha > \alpha_1^S$ and $k > 1 - r$ then $K$ will choose disaligned wars but will be able to compensate $C$ and thus built a strong absolutism because the

\[\text{[As the proof in the appendix makes clear, whenever $K$ prefers a disaligned war buying $C$’s cooperation to an aligned war, she also strictly prefers buying cooperation than going alone.]}\]
country will put all its resources in fighting wars. If $\alpha > \alpha_S^2$ and $k \leq 1 - r$ then K will still choose disaligned wars but now it will not be able to buy C’s cooperation. This will lead to a weak absolutism where in high periods the king chooses wars where a fraction of the country’s resources are not invested in fighting. Finally, in all other cases, we could talk of a benevolent absolutism because $\alpha$ is not high enough and K chooses aligned wars in high periods, as C would.

2.3 Dynamic Model

While the static model provides a useful benchmark where some of the salient features of the model can be highlighted, it is clear that incentives to create a constitutional monarch, if any, must come from a dynamic setting where C may decide to not participate in the war in order to get K replaced. In analyzing the dynamic game, we will maintain our selection assumptions of the static game and also focus on Markov Perfect Equilibria (MPE).\(^{15}\) MPEs are subgame perfect equilibria with the additional requirement that equilibrium strategies can only be dependent on the current state of the world and not on past histories. In our context, this requirement means that in period $t$ both players can only condition their strategies on $\omega_t = (s_t, p_t, e_t)$. We also make the simplifying assumption that $r = 1$ so that K can always buy C’s cooperation as returns from participation in disaligned wars for C are the same as those from non participation. We will discuss this assumption and the consequences of having $r < 1$ later on but in the meantime we will point out that this assumption does not affect our results qualitatively but does simplify the exposition a great deal. It will be useful to present the unique MPE of the dynamic game by following the analysis step by the step, we will collect out results in proposition 2 at the end of the analysis.

\(^{15}\)That is, we consider pure strategy MPE where K always chooses aligned wars if indifferent between them and disaligned wars, that the player that chooses participation first does not make transfers if indifferent between making them or not and that C always participates in a war whenever it is indifferent between participating and not participating.
We begin by noting that whenever $\omega_t$ is such that $e_t = \mu$ or $p_t = c$ then the unique MPE follows immediately from our static analysis. In the former case, the king’s preferences are perfectly aligned with C’s so that she will always choose aligned wars in a high period. Given that, there is no incentive for C not to participate in wars in low or high periods and there will never be a constitutional monarchy. In the latter case, it is easy to see that C always chooses aligned wars in high periods and it is always a dominant strategy for K to participate in wars in low or high periods. Therefore, the only interesting states are $\omega_t = (h, a, \alpha)$ or $\omega_t = (l, a, \alpha)$. Thus, w.l.o.g. from now on, we will only discuss the case $s_t = h$ and $s_t = l$ assuming that $p_t = a$ and $e_t = \alpha$.

Consider C’s behavior in those states first. It is clear that if $\alpha \leq \alpha^S_1 = k(R - 1)$ then C has no incentive to avoid participation in a low or a high period because, again, preferences between K and C are aligned. Equally, if $D_t = c$ then C is now in charge and again both C and K would choose participation in high periods (where C would choose aligned wars) and low periods. So assume that $D_t = a$, and that $\alpha > k(R - 1)$. The incentives for a high period are clear because K faces no threat and would propose a disaligned war that C would accept participation in. In a low period, though, C might decide to participate or not. In the first case we have

$$V_C^h(y, y) = (1 - k) + \gamma + \beta \left[ \pi V_C^h(y, y) + (1 - \pi) V_C^l(y, y) \right]$$

$$V_C^l(y, y) = \rho(1 - k) + \gamma + \beta \left[ \pi V_C^h(y, y) + (1 - \pi) V_C^l(y, y) \right]$$

where $V_C^s(y, y)$ indicates the value for player C at any state $s \in \{h, l\}$ of participating in a disaligned war in a high period and participating in war in
a low period. In the second case we have

\[ V_h^C (y, n) = (1 - k) + \gamma + \beta \left[ \pi V_h^C (y, n) + (1 - \pi) V_l^C (y, n) \right] \]
\[ V_l^C (y, n) = k \left[ \rho (1 - k) + \gamma + \beta \left[ \pi V_h^C (y, n) + (1 - \pi) V_l^C (y, n) \right] \right] + (1 - k) \frac{\beta}{1 - \beta} \left[ (1 - k) (\pi R + (1 - \pi)) \right] \]

where \( V_s^C (y, n) \) indicates the value for player C at any state \( s \in \{h, l\} \) of participating in a disaligned war in a high period and not participating in war in a low period. Note that the latter decision has important consequences because if C doesn’t participate in war in a low period, then with probability \( k \) the war is won anyway, but with probability \( 1 - k \) the war is lost. In that case C loses his endowment \( 1 - k + \gamma \) but gets a new king that will always choose aligned wars in a high period. With such new king, as discussed above, C would always be willing to participate in wars, which are then always won. The expected return from time \( t + 1 \) onwards would then be \( \gamma \) plus return \( R (1 - k) \) in high periods (which happen with probability \( \pi \)) and \( \rho (1 - k) \) in low periods (which happen with probability \( 1 - \pi \)). Rearranging terms, it is easy to see that we can define the expected gain for C from not participating in a war in a low period as

\[ V_l^C (y, n) - V_l^C (y, y) = \theta = (1 - k) (1 - \beta \pi) \frac{\beta \pi (1 - k) (R - 1) - (1 - \beta) (\gamma + (1 - k) \rho)}{(1 - \beta) (k \beta \pi - \beta \pi - k \beta + 1)} \]

which has zeros at \( k = 1 \) and

\[ \hat{k} = 1 - \frac{\gamma (1 - \beta)}{\beta \pi (R - 1) - (1 - \beta) \rho} \]

Now, it is easy to see that \( \hat{k} \in (0, 1) \) iff

\[ \beta > \tilde{\beta} = \frac{\rho + \gamma}{(R - 1) \pi + \rho + \gamma} \]

\(^{16}\)Conditional on \((p_t, e_t) = (a, \alpha)\), \( \alpha > k(R - 1) \) and \( D_t = a \), of course, but we omit this for notational simplicity.
and if this condition doesn’t hold, then \( \theta < 0 \) for all \( k \in (0, 1) \). Thus, \( \beta > \hat{\beta} \) provides an additional necessary condition for constitutional monarchy: if the condition doesn’t hold, \( C \) is always willing to participate in wars in low periods and there is no effective threat against the king that would make her want to concede constitutional monarchy. We can also show that conditional on \( \beta > \hat{\beta} \), \( \theta \) is strictly positive for \( k \approx 0 \) and strictly decreasing in \( k \) in the \( (0, \hat{k}] \) interval. This means that if \( k \in (\hat{k}, 1) \) then \( \theta < 0 \) and again constitutional monarchy cannot obtain for \( k \geq \hat{k} \).

Thus, suppose that \( \alpha > k(R - 1), \beta > \hat{\beta} \) and \( k < \hat{k} \) where the latter implies \( \theta > 0 \). In this case, \( C \) would prefer to avoid participation in a low period war in order to replace \( K \). However, in these cases, \( K \) has (expected) resources \( k\rho \) which he can transfer to \( C \) in order to compensate him for his loss \( \theta \) get his participation in the war. This will be possible whenever \( \rho k \geq \theta \). Since \( \rho k \) is a strictly increasing continuous function of \( k \) and is zero for \( k = 0 \) and positive for \( k = \hat{k} \) while \( \theta \) is continuous, strictly decreasing in \( k \), positive for \( k = 0 \) and zero for \( k = \hat{k} \), it follows that there must be a unique \( k^* \in (0, \hat{k}) \) such that

\[
\theta(k^*) = \rho k^*
\]

where for \( k < k^* \), \( C \) cannot be compensated while for \( k \in [k^*, \hat{k}] \) such compensation is possible.

Therefore, if \( p_t = a, c_t = \alpha, D_t = a, \alpha > k(R - 1) \) and \( \beta > \hat{\beta} \), then \( C \) will participate in a disaligned war in a high period, while in a low period it depends on the value of \( k \). For \( k < k^* \) \( C \) will not participate in the war, for \( k \in [k^*, \hat{k}] \) he will participate if he gets compensation \( \theta \) but not otherwise while for \( k \in [\hat{k}, 1) \) he will participate even without compensation. In all other cases, \( C \) will always voluntarily participate in all wars. We now focus our analysis on \( K \).

Our analysis so far clearly shows that for \( \alpha \leq k(R - 1), \beta = \hat{\beta} \) or \( k \in [\hat{k}, 1) \) \( K \) does not face any threat that \( C \) will not participate in war in a low period.
and so it is optimal for her to choose absolutism, whichever war she prefers in a high period and not make any transfers in a low period. Therefore, we only need to focus on the two cases where $\alpha > k(R - 1)$, $\beta > \hat{\beta}$ and either $k \in (0, k^*)$ or $k \in [k^*, \hat{k})$. We begin with the former case, where it is clear that while in a high period K will optimally choose absolutism and a disaligned war, in a low period the only choices available to her are doing nothing or constitutional monarchy since she cannot compensate C for $\theta$. In the first case we have

\[
V^h_K(a,a) = k + \alpha + \beta \left[ \pi V^h_K(a,a) + (1 - \pi) V^l_K(a,a) \right]
\]

\[
V^l_K(a,a) = k \left[ \rho k + \beta \left[ \pi V^h_K(a,a) + (1 - \pi) V^l_K(a,a) \right] \right]
\]

where $V^s_K(a,a)$ indicates the value for player K at any state $s \in \{h, l\}$ of choosing absolutism in both a high and a low period. Notice that in a low period this strategy implies that C will not participate in the war and so K survives only if the war is won, which happens with probability $k$. In the
second case we have

\[ V_K^h(a,c) = k + \alpha + \beta \left[ \pi V_K^h(a,c) + (1 - \pi) V_K^l(a,c) \right] \]

\[ V_K^l(a,c) = \rho k + \frac{\beta}{1 - \beta} k \left[ \pi R + (1 - \pi) \rho \right] \]

So, we can show that a constitutional monarchy will be better for K whenever

\[ V_K^l(a,c) > V_K^l(a,a) \]

\[ \Leftrightarrow \alpha < \alpha^* = (1 - k) (1 - \beta \pi) \frac{\beta \pi (R - \rho) + \rho}{\beta \pi (1 - \beta)} + k(R - 1) \]

It is immediate to check that \( \alpha^* > k(R - 1) \) so that for \( k \in (0, k^*) \) we will have in low periods K chooses absolutism whenever \( \alpha \geq \alpha^* \), constitutional monarchy whenever \( k(R - 1) < \alpha < \alpha^* \) and absolutism again whenever \( \alpha \leq k(R - 1) \).

Suppose now that \( k \in [k^*, \hat{k}] \) so that K can also contemplate the possibility of compensating C in a low period in order to guarantee his participation in the war. This strategy gives

\[ V_K^h(a,a,T) = k + \alpha + \beta \left[ \pi V_K^h(a,a,T) + (1 - \pi) V_K^l(a,a,T) \right] \]

\[ V_K^l(a,a,T) = \rho k - \theta + \beta \left[ \pi V_K^h(a,a,T) + (1 - \pi) V_K^l(a,a,T) \right] \]

where now \( T \) emphasizes the K chooses absolutism but compensates C in a low period. We can show that

\[ V_K^l(a,c) > V_K^l(a,a,T) \]

\[ \Leftrightarrow \alpha < \hat{\alpha} = \frac{1 - \beta \pi}{\beta \pi} \theta + k(R - 1) \]

\[ = (1 - k)^2 (1 - \beta \pi)^2 \frac{\beta \pi (R - 1) - \rho (1 - \beta)}{\beta \pi (1 - \beta) (1 - \beta \pi - \beta k(1 - \pi))} + k(R - 1) \]

Since \( \hat{\alpha} - k(R - 1) = \frac{1 - \beta \pi}{\beta \pi} \theta \) then it is strictly positive and strictly decreasing
in $k$. We can also show that

\[
\Leftrightarrow \alpha > \alpha^{**} = \frac{1 - \pi \beta - k\beta + k\beta \pi}{\beta \pi (1 - k)} \theta - \frac{k (R\beta \pi + \rho - \pi \beta \rho)}{\beta \pi} + k(R - 1)
\]

\[
= (1 - k)(1 - \beta \pi) \frac{\beta \pi (R - 1) - (1 - \beta) \rho}{\beta \pi (1 - \beta)} - \frac{k (\beta \pi (R - \rho) + \rho)}{\beta \pi} + k(R - 1)
\]

with, crucially, $\alpha^* > \hat{\alpha} > \alpha^{**}$ for $\beta > \hat{\beta}$.\textsuperscript{17} We therefore have the following possibilities:

- If $\alpha > \alpha^*$ then $(a, a, T) \succ_K (a, a) \succ_K (a, c)$
- If $\alpha^* > \alpha > \hat{\alpha}$ then $(a, a, T) \succ_K (a, c) \succ_K (a, a)$
- If $\hat{\alpha} > \alpha > \alpha^{**}$ then $(a, c) \succ_K (a, a, T) \succ_K (a, a, T)$
- If $\alpha^{**} > \alpha > k(R - 1)$ then $(a, c) \succ_K (a, a) \succ_K (a, a, T)$

which tells us that whenever $k \in [k^*, \hat{k}]$ then K will choose absolutism with compensation to C whenever $\alpha \geq \hat{\alpha}$ and constitutional monarchy whenever $\hat{\alpha} > \alpha > k(R - 1)$.\textsuperscript{18} Also, an important feature of the model is that since $\alpha^* - \hat{\alpha} > 0$ for any $k$, necessarily

\[
\alpha^* (k^*) > \hat{\alpha} (k^*)
\]

which implies a discontinuous jump downwards in the values of $\alpha$ for which

\[
\alpha^* - \hat{\alpha} = (1 - k)(1 - \pi \beta) \frac{k \beta \pi (1 - \beta) R + \rho (1 - \beta \pi)(2 - k - \beta (1 + \pi (1 - k))) + \beta \pi (1 - \beta \pi)(1 - k)}{k \beta \pi (1 - \beta)(1 - \pi \beta - k\beta + k\beta \pi)}
\]

\[
\hat{\alpha} - \alpha^{**} = \frac{k [k \beta \pi (1 - \beta) R + \rho (1 - \beta \pi)(2 - k - \beta (1 + \pi (1 - k))) + \beta \pi (1 - \beta \pi)(1 - k)]}{(1 - \beta \pi - k\beta + k\beta \pi) \beta \pi}
\]

and simple inspection shows both of the above to be positive. Note that the two expressions share the same term in brackets.

\textsuperscript{17}One can show that $\alpha^{**}$ may be smaller than $k(R - 1)$ for certain realizations of $k$ so that it is not possible that $(a, a) \succ_K (a, a, T)$. This is irrelevant, however, as in all such cases constitutional monarchy is preferred by K anyway.
constitutional monarchy obtains when $k$ crosses $k^*$. Our analysis can therefore be summarized in

**Proposition 2.2** In the unique MPE pure strategy equilibrium of the dynamic model

1. Whenever $p_t = c$, $C$ chooses aligned wars in high periods and participates in the war in low periods, never making any transfers. $K$ always participates in wars.

2. Whenever $e_t = \mu$, $K$ chooses absolutism, aligned wars in high periods and participates in the war in low periods, never making any transfers. $C$ always participates in wars.

3. If $\omega_t = (h,a,\alpha)$, $K$ chooses absolutism and if $\alpha \leq k(R-1)$ (resp. $\alpha > k(R-1)$) then $K$ chooses aligned (resp. disaligned) wars with no transfers while $C$ always participates in war.

4. If $\omega_t = (l,a,\alpha)$ then
(a) K chooses constitutional monarchy when $\beta > \hat{\beta}$ and either $k \in (0, k^*)$ plus $\alpha \in (k(r - 1), \alpha^*)$ or $k \in [k^*, \hat{k})$ plus $\alpha \in (k(r - 1), \alpha)$. In all other cases, K chooses absolutism.

(b) If K chooses constitutional monarchy, then both C and K participate in the war.

(c) If K chooses absolutism, then

i. K participates in the war and makes no transfer to C, while C participates in the war whenever $\beta \leq \hat{\beta}$ or $\beta > \hat{\beta}$ and $k \geq \hat{k}$ or $\beta > \hat{\beta}$, $k < \hat{k}$ and $\alpha \leq k(R - 1)$

ii. K participates in the war and makes a transfer $\theta$ to C, while C participates in the war for any transfer no smaller than $\theta$ whenever $\beta > \hat{\beta}$, $k \in [k^*, \hat{k})$ and $\alpha \geq \hat{\alpha}$

iii. K participates in the war and makes no transfer to C, while C participates in the war for any transfer no smaller than $\theta$ whenever $\beta > \hat{\beta}$, $k \in (0, k^*)$ and $\alpha \geq \alpha^*$

Whenever $p_t = c$, or $e_t = \mu$ we are in absorbing states. In the first case, power to choose wars in high periods is now with C and there is no longer any conflict as K has no means of removing C and C has no need to remove K as is first best has now been achieved. In the second case, there still is absolutism but now we have a king that chooses aligned wars in high periods so there is no need, from C’s perspective, for constitutional monarchy.

From the perspective of a time $t$ where absorbing states have no been reached, things are not particularly interesting whenever $\alpha \leq k(R - 1)$ because this means that the current king always chooses aligned wars in high periods, so again C has no interest in constitutional monarchy.

If $\alpha > k(R - 1)$ then, under absolutism, K will choose disaligned wars in high periods and this would be improved, from C’s perspective, by constitutional monarchy. However, this may not happen and we have several possibilities. If $\beta \leq \hat{\beta}$ constitutional monarchy cannot happen because C
is not patient enough to able to credibly threaten the incumbent king with non-participation in war in a low period. The threat is only credible if C is willing to bear the cost of losing a war today for the gains from replacing the current king with someone that will choose aligned wars in the future: that is, if $\theta > 0$. If $\beta > \hat{\beta}$ but $k \geq \hat{k}$ then C also cannot get K to select a constitutional monarchy through the threat of non-participation in war in a low period, but not because he is too impatient. Now the issue is that the threat is not credible because the gains from replacing a king who chooses disalignes wars in high periods with one who chooses aligned wars are too small compared with the costs. To see that, note that the expected cost, in a low period from not participating in the war (which is the only way of replacing K) is $k(\rho(1 - k + \gamma)$ while the per-period expected benefit is $\pi (1 - k)(R - 1)$. It is easy to see that for any $\gamma > 0$ the benefit is smaller than the cost for sufficiently high values of $k$. Thus, constitutional monarchy relies on the credibility of C’s threat to not help the king in a low period and this cannot happen for low enough $\beta$ or high enough $k$.

If $\beta > \hat{\beta}$ and $k < \hat{k}$ then $\theta > 0$ and the threat of non participation in a low period is credible. Thus, whether constitutional monarchy obtains or not depends on K’s decision. If $k \in [k^*, \hat{k}]$ then K, besides constitutional monarchy, has the option of sticking with absolutism and compensating C with $\theta$ in order to get the latter’s participation in the war or the option of just choosing absolutism without any compensation to C. In the last case, C would not participate in the war and we have shown above that this strategy is always dominated by either constitutional monarchy or absolutism with compensation $\theta$. Focusing on those two strategies, then shows that constitutional monarchy would be chosen if $\alpha < \hat{\alpha}$: if such cases then ego rents are not so high for K and she prefers constitutional monarchy (which leads to aligned wars in high periods) to having to compensate C with $\theta$ for the right to be able to choose disaligned wars in a high period. If $k < k^*$ then a similar logic applies except that the option of compensating C is no longer
available to K because $k$ is small and the resources at her disposal are too small. Now K faces the choice between constitutional monarchy which would guarantee her survival at the cost of forgoing disaligned wars in high periods versus an unstable absolutism where she could still choose disaligned wars in high periods but risk being replaced whenever a low period occurs. Not surprisingly, then, constitutional monarchy will obtain for much higher values of $\alpha$ than before.\footnote{Indeed, it is easy to see that } Thus, whereas absolutism in all other cases would survive because C would always guarantee her cooperation in wars in low periods, when $\alpha > k(R - 1), \beta > \hat{\beta}$ and $k < k^*$, absolutism would be inherently unstable and the incumbent king would be eventually replaced.

### 2.4 Comparative Statics

One issue we left unresolved in the analysis of the general is whether assuming $r < 1$ would change matters considerably. If $r < 1$, the issue is whether K can compensate C or not for participating in disaligned wars in high periods and the smaller $r$ is the harder it is for K to do so. This has two effects. The first is that when K would like to participate in disaligned wars, then whether K can afford to compensate C for participation or cannot, the return from disaligned wars is smaller so that K will choose constitutional monarchy for higher values of $\alpha$, which formally means that $\alpha^*$ and $\hat{\alpha}$ would increase as $r$ decreases. At the same time, for the same reasons, K will be less willing to choose disaligned over aligned wars to begin with and so there will be values of $\alpha$ for which benevolent absolutism would obtain rather than constitutional monarchy. Thus, a decrease in $r$ will unambiguously improve C’s welfare because, for a given $k$, either constitutional monarchy or benevolent absolutism will obtain for higher values of $\alpha$.

\begin{equation}
\lim_{k \to 0^+} \alpha^* = \infty
\end{equation}

which means that as $k$ becomes arbitrarily small, $\alpha$ needs to become arbitrarily large for absolutism to survive.

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We now consider the comparative statics of the model as it is. We do this on a parameter by parameter basis and describe the results in terms of corollaries:

**Corollary 2.3** In the unique MPE pure strategy equilibrium of the dynamic model,

1. \( \hat{k}, k^*, \alpha^* - k(R - 1) \) and \( \hat{\alpha} - k(R - 1) \) are increasing functions of \( R \).

2. \( \hat{k} \) and \( k^* \) are decreasing functions of \( \rho \), while \( \alpha^* - k(R - 1) \) is an increasing and \( \hat{\alpha} - k(R - 1) \) a decreasing function of \( \rho \).

3. \( \hat{k} \) and \( k^* \) are decreasing functions of \( \gamma \), while \( \alpha^* - k(R - 1) \) and \( \hat{\alpha} - k(R - 1) \) are unaffected by a change in \( \gamma \).

4. \( \hat{k} \) and \( k^* \) are increasing functions of \( \beta \), while \( \alpha^* - k(R - 1) \) and \( \hat{\alpha} - k(R - 1) \) ........

5. \( \hat{k} \) is always an increasing function of \( \pi \), while \( k^* \) is an increasing function of \( \pi \) whenever \( \beta \) is not too large. If not, then there is a \( \pi^* \) such that \( k^* \) is an increasing function of \( \pi \) for \( \pi < \pi^* \) and decreasing for \( \pi > \pi^* \). Finally, \( \alpha^* - k(R - 1) \) is a decreasing function of \( \pi \) while \( \hat{\alpha} - k(R - 1) \) ........

3 **Appendix**

**Proposition 1** In any subgame-perfect pure strategy equilibrium of the static model:

1. \( D = a \)

2. If \( s = l \) then for any \( D, W = w = y \),
3. If \( s = h \) and \( D = a \) then

\[
W = \begin{cases}
y^a & \text{if } k > 1 - r \text{ and } \alpha \leq \alpha_1^a = 1 - r + k(R - 1) \\
y^a & \text{or } k \leq 1 - r \text{ and } \alpha \leq \alpha_2^a = R - kr \\
y^d & \text{otherwise}
\end{cases}
\]

\[
w = \begin{cases}
y^a & \text{if } W = y^a \\
y^a & \text{or } W = y^d \text{ and } T \geq (1 - k)(1 - r) \\
y^d & \text{otherwise}
\end{cases}
\]

\[
T = \begin{cases}
(1 - k)(1 - r) & \text{if } k > 1 - r \text{ and } \alpha > \alpha_1^a \\
0 & \text{otherwise}
\end{cases}
\]

4. If \( s = h \) and \( D = c \) then \( W = y^a, w = y \) and \( T = 0 \).

**Proof** If \( s = l \), whatever the situation with regard to \( D \), we have that

\[
(1 - k)\rho + \gamma > \max \left\{ k(1 - k)\rho + k\gamma, (1 - k)^2 \rho + (1 - k)\gamma \right\} > 0
\]

\[
k\rho > \max \left\{ k^2 \rho, (1 - k)k\rho \right\} > 0
\]

so that necessarily \( W = w = y \). Consider now the \( s = h \) case. Clearly if the first player has chosen an aligned war, then the other player also has an incentive to participate without any need for transfers. If \( D = c \) and C chooses a disaligned war, then K will also always participate and C will not need transfers. The only issue arises if \( D = a \) and \( W = y^d \). In order to participate, it must be that C gets transfers that give him at least as much utility as non participation. Formally,

\[
(1 - k)r + T \geq (1 - k) \iff T \geq (1 - k)(1 - r)
\]

For K to be willing to do this, it must be that a) she has enough resources and b) that she gains from doing so. The first constraint is formally (recalling
that $\alpha$ is non-transferable)

$$kr > (1 - k) (1 - r) \iff k > 1 - r$$

and the second is

$$kr + \alpha - (1 - k) (1 - r) > k (kr + \alpha)$$

$$\iff \alpha > 1 - r (1 + k)$$

We have two cases.

a. In the first case $k > 1 - r$. Now, if K wants to go to a disaligned war, she can afford to compensate C for her participation. The alternative is to choose an aligned war. So, K will prefer a disaligned war when

$$kr + \alpha - (1 - k) (1 - r) \geq kR$$

$$\iff \alpha \geq \alpha_1^S = 1 - r + k(R - 1)$$

Note that $\alpha_1^S > 1 - r (1 + k)$ since $R > 1$ which means that if K could compensate C for a disaligned war but did not want to, she would prefer an aligned war.

b. In the second case, $k \leq 1 - r$ and in a disaligned war, K cannot compensate C. Now the choice for K is between a disaligned war on her own and an aligned war. That is, K prefers disaligned wars whenever

$$k (kr + \alpha) > kR$$

$$\alpha > \alpha_2^S = R - kr$$

Given all of the above, it is easy to see that K will not have a positive incentive to choose $D = c$ since she would either get the same result (when K would choose an aligned war anyway) or a strictly worse one (when K would
choose a disaligned war).
References


