Bargaining over State Building in the Shadow of War

Daniel A. N. Goldstein* Yusuf Magiya‡

January 30, 2025

Abstract

Does war always make the state? Bellicist theory posits that external conflict promotes state development, yet it often overlooks the complexities involved in financing the state. This study presents a formal model to examine how external conflict reshapes bargaining over fiscal control between a central state and peripheral elite. We find an inverted U-shaped relationship between pressures related to war and the state's fiscal control. Low to moderate war pressure enhances state fiscal control by strengthening the state's bargaining power. Excessive pressure, however, undermines state control. This occurs because elites are reluctant to invest in probable losing causes. Further, the relative insulation of elites from conflict and the diminishing returns of war investments begin to come into play. We also uncover the conditions under which capacity gains are sustained long-term or when states fall into a "capacity trap," where those with very low initial fiscal control forfeit future revenues to finance ongoing conflict. We test the predictions with historical cross-country fiscal revenue data from Europe and a case study of the Ottoman Empire, and find supporting evidence. These findings refine bellicist theory by highlighting the contingent effects of conflict on state development and the interplay between elite bargaining and war.

*University of Oslo

†New York University Abu Dhabi

‡For their feedback, we would like to thank Ipek Çineli, Terence Teo, Miriam Golden, Korhan Koçak, Christopher Paik, Barton Lee, Vilde Lunnan Djuve, Allison Hartnett, and audiences at the Zurich Political Economy Seminar Series, APSA, MPSA, SIOE, MWIEDC, VWHPE, London School of Economics, University of Oslo, European University Institute, and NYU Abu Dhabi.

1 Introduction

It is hard to build a state, especially quickly (Soifer 2015). A central hypothesis in the state capacity literature is that interstate wars generate incentives to invest in fiscal capacity to finance war efforts, thereby contributing to rapid state strengthening (Hintze 1975; Tilly 1992; Besley and Persson 2010; Dincecco and Wang 2018; Cederman et al. 2023). However, this relationship is often assumed to be monotonic: wars strengthen states by default. Yet war is a risky and destructive force that can alter the incentives of key state and non-state actors in ways that complicate this narrative. How do external conflicts, especially under conditions of indirect rule, shape the development of state fiscal capacity?

This question lies at the intersection of political science, economics, and historical institutional development. While a robust literature has linked war to state capacity in general (Besley and Persson 2010) and fiscal capacity in particular (Johnson and Koyama 2014; Dincecco 2015; Dincecco 2017; Queralt 2019), the precise dynamics through which wars shape fiscal institutions remain contested, especially in states with decentralized fiscal systems. We challenge conventional bellicist theory by uncovering an inverted U-shaped relationship between war pressure and fiscal capacity.

Our central claim is that wars strengthen fiscal capacity only when war pressure is moderate and the state's initial control over revenue is sufficiently high. We argue that this pattern emerges from the interplay of elite bargaining and the incentives created by war pressure.[1] Beyond the central state, the key actors we consider are "magnates," local elites who managed tax collection and local governance. At low to medium levels of war pressure, the state and magnates have aligned incentives due to the shared downside of losing the conflict, which encourages cooperation to finance the war effort. At high levels of pressure, however, divergent incentives emerge. Because the state's chances of winning the war are

[1]We follow Karaman and Pamuk (2013) in focusing on "war pressure" as a measure of war. This is intended to capture related factors such as the relative threat of war, the intensity of fighting, and the strength of an external military opponent.

low, elites seek to retain resources under heightened uncertainty, thereby undermining state control.

To make this argument, we embed elite-state bargaining in a formal model of endogenous fiscal capacity under the threat of war. Specifically, bargaining over tax revenues between a central state and a magnate is followed by conflict with an external state in a contest model framework.[2] This model yields novel predictions about the thresholds at which war promotes or undermines fiscal capacity. This result is shown to be augmented by factors such as the rate at which war investments translate into an increased probability of victory and the magnate's relative insulation from the war.

In addition, an extension of the model highlights a scope condition related to when war-enhanced fiscal capacity is durable and when it can actually fall below pre-war levels. The driving force centers on a sufficient level of initial fiscal control. While the baseline model reveals that higher initial control dampens the benefits of war pressures on fiscal control because elite contributions are less necessary, the extension uncovers a "low-capacity trap" for states with very low initial fiscal control. To raise revenue immediately, such states are willing to make costly concessions on future tax revenues, undermining long-term control. However, states with even moderate initial levels of fiscal control are unwilling to make such costly trade-offs. Moreover, the extension details how the state's ability to enforce its will within its borders can both make wartime gains sustainable but also nullify its ability to raise future revenues quickly because it is likely to renege on promised future concessions to magnates.

Overall, our theoretical results serve to set lower and upper bounds on bellicist theory, suggesting that war "makes the state" only when initial fiscal control is sufficient to prevent costly concessions to elites and when war pressures remain within a manageable intermediate range. This theoretical contribution argues that contributions to bellicist theory need to take

[2]Our research connects to the game theoretic literature that uses contest functions to understand conflict (Banks 1990; Garfinkel and Skaperdas 2000) and how third parties to conflict affect war outcomes (Arena and Pechenkina 2016; Spaniel 2020).

more careful account of the magnitude of the threat of war when considering how war affects state-building.

We then empirically test these predictions using both a cross-sectional historical dataset of European countries and a case study of the Ottoman Empire, highlighting the contingent nature of war-induced state-building. Using total tax revenues as a proxy for state fiscal control, we uncover an inverted U-shaped relationship between war pressure and total fiscal revenues. We also uncover empirical evidence in support of the "low capacity trap." Next, we test the implications of our model with a case study of the late Ottoman Empire, both to detail how bargains between the state and magnates played out and to provide qualitative evidence in support of how the Ottoman state fell into the low-capacity trap.

A number of studies have examined how war and its relationship to institutional development have altered fiscal capacity, for example by supporting the development of permanent tax administrations (Cantoni, Mohr, and Weigand 2024) and parliaments (Kenkel and Paine 2023; De Magalhaes and Giovannoni 2022; Cox, Dincecco, and Onorato 2024). Moreover, related studies consider how the nature of external wars alters development (Ko, Koyama, and Sng 2018), including factors such as the number of threatened borders and the size of the state-building nation (Koyama, Moriguchi, and Sng 2018) or differences across regions (Schenoni 2021). While related studies have criticized the assumed monotonic relationship (Gennaioli and Voth 2015; Spruyt 2017; Grzymala-Busse 2020), our approach not only refines bellicist theory but also addresses two critical gaps in the literature: First, the under-theorization of the early stages of state development compounded by war as a risky contest, and second, the lack of attention to the dynamics of fiscal capacity in decentralized systems that rely on local intermediaries (Levi 1988).[3]

In this latter sense, our analysis contributes to broader debates about elite bargaining and center-periphery dynamics (Garfias and Sellars 2022b; Gibilisco 2021). Specifically,

[3]The study most similar to ours is Gennaioli and Voth (2015), which also considers how the threat of war and internal dynamics affect state capacity. However, they focus on the degree of internal political fragmentation and military development, and do not consider a bargaining model between the state and local elites.

our study relates to those that examine why some elites contribute to state-building while others hinder it (Centeno 2002; Soifer 2015; Garfias 2018), particularly with respect to fiscal institutions (Mares and Queralt 2015; Beramendi, Dincecco, and Rogers 2019).[4]

Finally, our study introduces further qualifications to the research on historical state formation and fiscal capacity by clarifying when the threat of war actually translates into further state development (Levi 1988; Acemoglu and Robinson 2006; Besley and Persson 2011; Garfias and Sellars 2022a). In a related sense, our findings offer broader insights into understanding the persistence of weak states in conflict-prone regions where decentralized fiscal systems endure.

The article proceeds as follows. Next, we further delineate the key actors we consider. We then describe the formal model. Turning to the empirical evidence, we test several of the model's predictions. We first use historical cross-national data from several European countries, and then detail qualitative evidence from the Ottoman Empire before concluding.

2 Magnates, War, and Fiscal Control

Magnates were indispensable to the state's indirect governance, which can be defined as rule through intermediaries who are not hired government agents (Tilly 1992; Hechter 2000). The magnates were responsible for many aspects of governance in their area of influence. Their duties often included administration, justice, and tax collection. A common form of tax collection under indirect rule was tax farming, and such local elites often leveraged their position to retain a significant share of resources (Levi 1988). In particular, local elites gained regional monopolies over tax collection in exchange for support of a centralized government (Johnson and Koyama 2014). This contrasts with modernized tax regimes in which a centralized administration directly collects revenue for the state.

[4]By examining when fiscal capacity can increase and then collapse, we add to a limited literature that examines how state capacity can reverse across time (Suryanarayan and White 2021; Goldstein 2023).

In this context, we examine “fiscal control,” defined as the state’s extraction of potential tax resources at the expense of the magnates involved in tax collection. This is a direct measure of the fiscal capacity of a centralized government, i.e., higher fiscal capacity would require greater fiscal control. The more the central administration can reduce the involvement of the intermediaries in tax collection, the less of the total revenue they have to share and the more they can keep for themselves (White 2004; Johnson and Koyama 2014). Thus, fiscal control is a key component of state-building and the formation of high state capacity.

Wars have often been a critical point in the renegotiation of fiscal control in decentralized fiscal systems. As will be discussed in further detail later, during periods of high war pressure, magnates took advantage of this time to exploit an Ottoman state with initially low fiscal control, further reducing the state’s control through long-term concessions. The initial weakness of the center and its heavy initial dependence on elites in the periphery necessitated the magnates’ contribution to the war effort, in return for which the state had to relinquish further future fiscal control.

While elite bargaining under the threat of conflict has long been a focus of the state formation literature (Levi 1988; North and Weingast 1989; Tilly 1992; Besley and Persson 2010; Kenkel and Paine 2023), we still lack a tractable bargaining theory that links the strategic incentives of local elites under indirect rule to war and state formation. In the following, we develop such a model.

3 Model

We consider bargaining between two unitary strategic players, a central state (S) and a magnate (M), under the shadow of an imminent war with a non-strategic, external state (E).

First, the state and the magnate bargain over the fiscal control of the tax revenues. There is an initial (or status quo) level of fiscal control $x_0 \in [0, 1]$, which corresponds to the state receiving x_0 of the tax revenue collected by the magnate, while the magnate receives the remainder, $1 - x_0$. However, this contract can be renegotiated. The state offers the magnate a new contract in which the state receives x and the magnate keeps $1 - x$. The magnate can accept the offer of $1 - x$ or reject it and receive $1 - x_0$. We define an offer that the magnate would accept as $\hat{x}$, which must necessarily exceed the status quo agreement $(1 - \hat{x} \geq 1 - x_0)$.

After the bargaining phase, the state may invest its collected taxes in its war capacity, $w \geq 0$.[5] The probability that the state wins the war is determined by the contest function:

$$p(w, \varepsilon, r). \tag{1}$$

Beyond the choice variable w, the contest function is characterized by two parameters that are exogenous and common knowledge at the outset of the game. First, there is war pressure, captured by $\varepsilon \in (0, 1)$, which is the external state's investment in the impending conflict and directly reflects the probability that it will win the war. Second, the parameter $r > 0$ captures the return to the war investment. We restrict the focus to when there are diminishing returns to investment, such that r is bounded above by $\hat{r}$ to ensure that there are diminishing marginal returns, with the bound further defined in the appendix. The likelihood of the state losing the war is given by $1 - p(w, \varepsilon, r)$. The term $p(w, \varepsilon, r)$ is twice continuously differentiable. Its first partial derivative with respect to w is strictly positive and the second is strictly negative.[6] The first derivative with respect to ε is strictly negative and the second derivative is strictly positive. These assumptions imply that the probability of the state's victory is strictly decreasing in war pressure and increasing in the state's war investment and returns to investment. We also assume diminishing marginal returns for

[5]We assume that the only source of revenue ares the taxes that the magnate agrees to send in the first period. Any remaining funds held by the state is consumed at the end of the bargaining phase.

[6]As noted, we restrict our consideration to values of ε and r such that this assumption holds.

investment. This approach could, for example, follow the classic Tullock ratio function: $p(w, \varepsilon, r) = \frac{w^r}{w^r + \varepsilon^r}$. We will assume this functional form at points to visualize results.

Should the state win the war, both the state and the magnate receive a flow payoff $F > 0$, which captures future tax revenues. This value may be less than 1, i.e., the normalized unit bargained over in the first period, to account for potential damage from the war.[7] If the state loses the war, the state receives the payoff of 0.[8] This yields the following utility function for the state:

$$u_s(x, w) = \begin{cases} x & M \text{ accepts} \\ x_0 & M \text{ rejects} \end{cases} - w + p(w, \varepsilon, r) \cdot F. \tag{2}$$

The first term captures the tax contract payoff, the second term is the cost of investing in war capacity, and the third term is the future flow payoff if the state wins the war.

The magnate, in turn, has the following utility function:

$$u_M(\hat{x}) = \begin{cases} 1 - x & M \text{ accepts} \\ 1 - x_0 & M \text{ rejects} \end{cases} + p(w, \varepsilon, r) \cdot F + (1 - p(w, \varepsilon, r)) \cdot I. \tag{3}$$

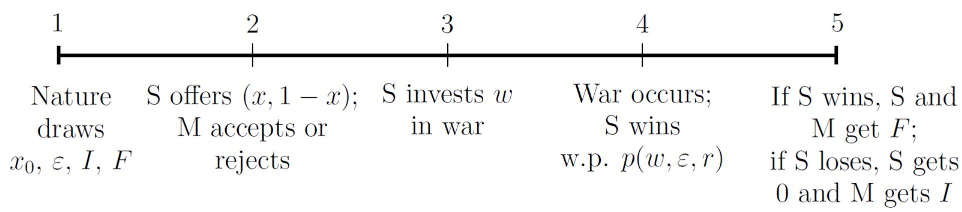
The first term captures their withheld tax revenue, the second term is the payoff to the state that wins the war, and the third term is the payoff if the state loses the war. If the state wins the war, the magnate also receives the normalized payoff F. However, if the state loses the war, the magnate receives the exogenous payoff $I \in (0, 1)$. This parameter represents the magnate's relative insulation from the war. We assume $F > I$ to prevent the magnate from preferring that the state loses the war.

[7] As an extension, we consider bargaining between the state and the magnate over the second period revenue flow.

[8] The zero payoff is a normalization relative to a positive tax flow. This payoff could be substantively justified by the state ceasing to exist (as was the case for a number of small states during our period of focus), or by the ruling elites that comprise the center being removed from power, as may be the case for enduring states.

The equilibrium solution concept employed is subgame perfect equilibrium. The model is solved by backward induction and proofs are in the appendix. The timing is summarized in Figure 1.

Figure 1: Timing



3.1 Defining Terms and Assumptions

There are three parameters that shape much of the strategic dimensions of the model: war pressure (ε); the insulation of the magnate from conflict (I); and the state's control over tax revenues (x). The first two of these parameters (ε and I) are exogenous to the model, which allows us to consider their relative values on equilibrium outcomes.

First, we characterize the external state's investment in the conflict, which directly impacts the probability that they win the war, as "war pressure." As noted above, we use this general term to capture the multitude of factors, which we do not explicitly consider in the model, that could shape the relationship between war and fiscal capacity building. For example, war pressure could be affected by the relative military preparedness of the external state, the military technology of both states, the intensity of fighting, and the likelihood of war occurring, among other factors.[9]

The insulation of the magnate (I) captures the likelihood that the magnate will retain tax rents if the central state falls. This parameter could represent factors such as the magnate being geographically distant from the war front and, therefore, unlikely to be directly affected

[9] We assume in the model that conflict is certain to take place. This assumption follows from the frequency of wars in Europe and the Middle East during our primary period of study. However, as a model extension, we treat the likelihood of war occurring as probabilistic and uncover essentially identical results.

by the conflict. In a related sense, the magnate's wealth may be sustainable independent of the state due to the nature of their capital (e.g., its relative mobility) or if how they earn revenue is independent of tax collection. In this case, even if the magnate relies on the central state for military protection, the magnate's fiscal operations may be relatively unaffected. Additionally, while we assume that the magnate cannot switch sides during the conflict, the insulation term could also capture the probability that the magnate will be left in peace by external state should they win the conflict.

Finally, fiscal control is an endogenous parameter that is our primary equilibrium object of interest. We interpret fiscal control as negotiated between the state and the magnate, which has direct consequences for the state's fiscal capacity. By increasing the central state's discretion over the total taxes collected within a nation's borders, we interpret increased x as improving the state's fiscal capacity by giving it access to a larger share of total resources.

3.2 Analysis

Starting at the end of the game, we first consider the state's decision to invest in its war capacity (w), where $X \in \{x, x_0\}$ is the revenue collected by the state in the first period that was negotiated with the magnate.

$$\max_{w \leq X} \quad X - w + p(w, \varepsilon, r) \cdot F \tag{4}$$

Maximizing Equation 4 leads to Lemma 3.1.

Lemma 3.1. *There exists a unique optimal investment in war capacity. If war pressure is too high relative to the future tax flow, the state will not invest in war capacity* ($w = 0$)*. For intermediate levels of future revenue, the state invests the interior solution of optimal war investment* ($w = \hat{w}$) *and keeps the rest of the collected revenue. For high future tax flows, the state invests all of the collected revenue, i.e., the binding constraint, in war capacity* ($w = X$).

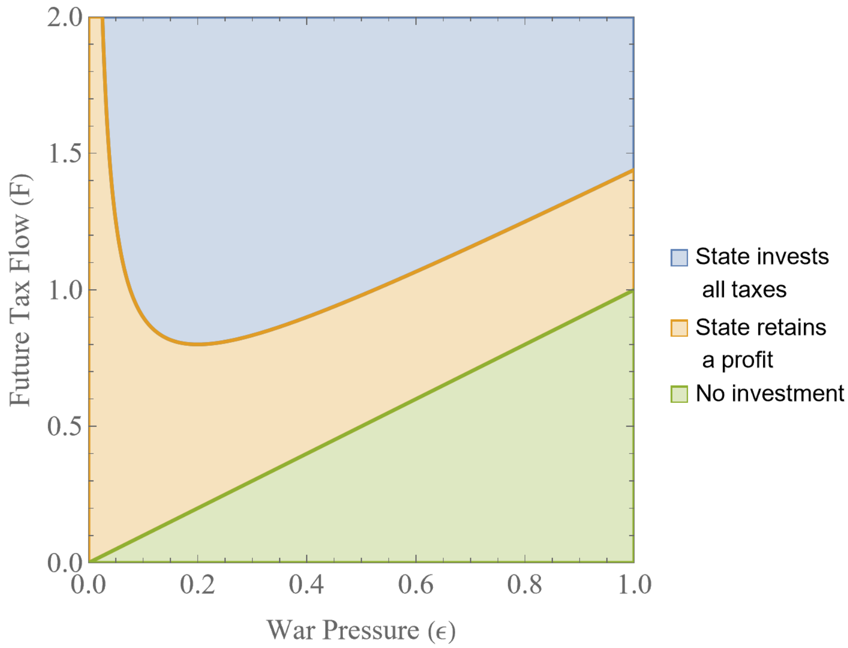
This result illustrates how the government's investment decision is determined by future tax flow payments and war pressure. To further discuss this result, it is useful to consider optimal war spending when we assume the functional form of the Tullock contest function, which is given by Equation 5.

$$\hat{w} = (\sqrt{r\varepsilon^r F} - \varepsilon^r)^{\frac{2}{r+1}} \tag{5}$$

Optimal war spending is not a function of the revenue actually collected, but is determined by three factors: future tax flows (F), which is essentially how much the state cares about winning the war; war pressure (ε), which weights the likelihood of receiving the future tax flows; and the returns to investing in war capacity (r), which determines the degree to which investing in war capacity affects the overall likelihood of winning the conflict. Hence, Lemma 3.1 details that there are essentially three levels of war spending: no investment, investment below collected revenue, and investment of all collected revenue.

This result is illustrated in Figure 2. Since investing in war capacity is costly, for sufficiently low levels of future tax flow and high war pressure, it may be that it is not worthwhile for the state to invest in war. In this case, the probability of winning the conflict is so low, combined with low future tax flows, that the investment is worth less than consuming tax in the first period and not investing in the war. For intermediate scenarios, there is an optimal war investment for the state that is less than investing all of the tax collected, as it would prefer to directly consume the difference in revenue ($X - \hat{w}$). This could include direct rents to state leaders or non-military government spending that primarily benefits the central state. Finally, for high future tax flows combined with relatively high war pressure, the state's optimal war investment may exceed the collected revenue ($\hat{w} > X$). In this case, the state will spend all of its revenue on war investment, but will likely under-invest compared to its optimal amount. In addition, Figure 2 shows that while improved future flow increases the conditions under which the state invests all collected revenue, as war pressure increases, the probability that the state will enjoy this future tax payoff decreases, and thus the state more often chooses to retain a pre-war tax windfall.

Figure 2: State's War Investment, by War Pressure and Future Tax Flow



Note: Conditions are drawn from Appendix A.1. Specification: $r = 1, X = 0.2$.

Given the state's investment choice, we next consider the bargaining phase of the game. The state makes the offer to the magnate, who may accept the revised fiscal control (x) or reject the offer to retain the initial contract (x_0). By the magnate's utility function given by Equation 3, they would reject any offer that enhances the state's fiscal control without also increasing the likelihood that the state wins the war. When the magnate is willing to accept a revised offer is detailed by Lemma 3.2.

Lemma 3.2. *The magnate is willing to accept the following offers (x):*

$$\hat{x} \equiv x = \begin{cases} \underline{x} < x \leq x_0 & \text{For } \hat{w} < x_0 \\ x_0 < x \leq \bar{x} & \text{For } x_0 < \hat{w} \end{cases} \tag{6}$$

$$\text{where } \underline{x} = \hat{w} - (F - I)(p(\hat{w}, \varepsilon, r) - p(x, \varepsilon, r))$$

$$\text{and } \bar{x} = \begin{cases} x_0 + (F - I)(p(x, \varepsilon, r) - p(x_0, \varepsilon, r)) & x < \hat{w} \\ x_0 + (F - I)(p(\hat{w}, \varepsilon, r) - p(x_0, \varepsilon, r)) & \hat{w} < x \end{cases}$$

Essentially, the magnate is willing to cede greater fiscal control to the state if it increases the state's war capacity, but the magnate must contend with the state's choice of war investment. The upper condition in Lemma 3.2 details that the magnate will reject any offers that increase the state's fiscal control if optimal war spending is already feasible with the initial contract ($\hat{w} < x_0$). In this case, additional spending will go directly to the state for consumption in the first period. Though not part of on-path equilibrium play, the magnate is willing to accept keeping additional taxes down to a lower bound as long as this increased share is not too detrimental to the state's ability to invest in the war ($\underline{x}$).

If the state credibly wants to invest further tax concessions in the war, i.e. the optimal war investment is not feasible with the initial contract ($x_0 < \hat{w}$), a revised contract is possible, as the magnate and the state must negotiate in order to make the increased war investment feasible. In this case, the state can either offer a new contract that is below the optimal war spending amount or above it, which would allow the state to earn a tax profit. In either case, the magnate's willingness to accept is determined by the expression $x_0 + (F - I)(p(x, \varepsilon, r) - p(x_0, \varepsilon, r))$. That is, the returns to increasing the probability of winning the war and the benefits of doing so (rather than receiving the insulation payoff) must exceed the additional tax cost of the investment. This forms an upper bound on the contract that the magnate is willing to accept, and there will be cases where the magnate is willing to grant the state a profit if there exist sufficient benefits to investing in war capacity above the level that the initial contract would allow. However, it will be shown that there are diminishing returns to investment as war pressure increases, leading to an inverted U-shaped relationship between the state's fiscal control over tax revenue and war pressure. This will lead the magnate to become less willing to share tax revenues as war pressure increases.

Combining these lemmas to determine the mutual best responses of the state and the magnate yields the equilibrium conditions for war investment and fiscal control, which are detailed in Proposition 1.

Proposition 1. *The equilibrium contract and war investment* (x^*, w^*) *are:*

- *For low war pressure or high initial fiscal control such that* $\hat{w} < x_0$*, the state proposes any value* $x > x_0$ *and the magnate rejects it. The state collects* $x^* = x_0$*, retains the rents* $x_0 - \hat{w}$ *and war expenditure is* $w^* = \hat{w}$*.*
- *For high war pressure or low initial fiscal control such that* $\hat{w} \geq x_0$*, the state proposes* $x^* = \bar{x} = x_0 + (F - I)(p(\hat{w}, \varepsilon, r) - p(x_0, \varepsilon, r))$ *and the magnate accepts. The state invests* $w^* = \hat{w}$ *in war spending. The state retains rents* $\bar{x} - \hat{w}$ *if* $\bar{x} > \hat{w}$*.*

The state is best off offering any contract such that $x \geq x_0$. However, they can only increase fiscal control if the war credibly leads the magnate to be willing to invest in the war effort, which may even leave the state with equilibrium profits. We next consider how the exogenous parameters in the model shift this equilibrium level of state fiscal control and war investment.

3.3 Comparative Statics

As the analysis above indicates, the equilibrium level of fiscal control and the rents above war investment collected by the state are a function of the equilibrium level of investment in war capacity by the state. If optimal war investment is below the initial contract, war cannot increase the state's fiscal control. However, if war investment requires additional funds to be collected by a central state, then enhanced fiscal control by the state is feasible. Given the central role of optimal war spending, we first consider how altering the exogenous model parameters shifts the equilibrium level of investment and then turn to overall fiscal control by the state.

Remark 1. *When equilibrium war investment is positive, it is increasing in future tax flows. It increases up to a point with respect to war pressure and returns to investment, and then decreases, giving an inverted U-shaped relationship.*

Remark 2. *The equilibrium fiscal control is increasing in future tax flows. It is increasing with respect to the initial contract if $\hat{w} < x_0$, otherwise it depends. It increases up to a point with respect to war pressure and returns to war investment, and then decreases. It is decreasing with respect to insulation.*

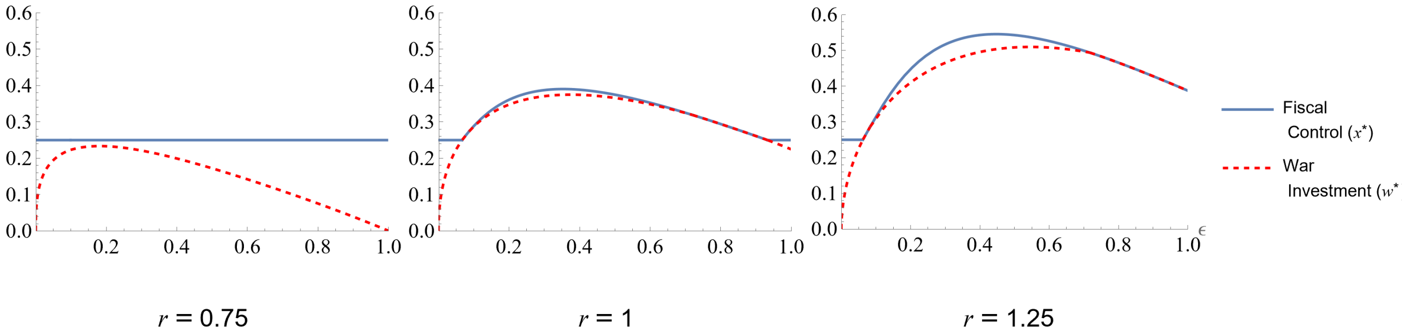
The remarks detail our main finding, which is that war does not have a monotonically positive effect on state development. This result is based on assumptions about the cross partial derivative of the probability of winning the conflict with respect to war investment and war pressure. We intentionally left this cross partial derivative ambiguous in the model setup. The key point is that at some relevant level of war pressure, this partial derivative changes sign from positive to negative. This is analogous to claiming that at some point sufficiently high war pressure will outweigh additional war investment. Thus, the result will necessarily apply only to conflicts and states where this is the case. However, we argue that this is a reasonable assumption to adopt in most conflicts.[10]

To illustrate this finding, as well as the impact of the other salient factors in the model, we next consider a series of figures assuming the Tullock contest functional form. In each case, we retain war pressure on the horizontal axis, as this is our primary exogenous parameter of interest. The vertical axis plots either the equilibrium level of the state's fiscal control (the blue line) or the state's war investment (the dashed red line). When a revised contract is feasible, all figures retain the inverted U-shaped structure, but this is augmented

[10]For example, even in the most extreme cases, if an opponent is willing to invest nearly all possible resources, it may not be worthwhile (or feasible) for a state to match that threshold of war investment.

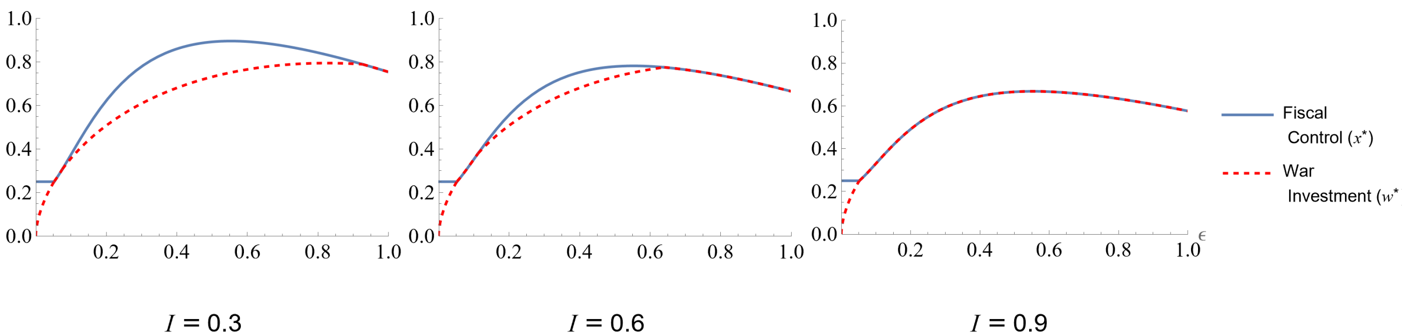
by the relevant factors, such as the insulation of the magnate, returns to war investment, initial fiscal control, and future tax flows. Note that the equilibrium war investment and fiscal control given the functional form of a Tullock contest can be found in Appendix A.3.

Figure 3: Equilibrium Fiscal Control and War Spending (by Returns to War Investment and Pressure)



Note: Vertical axis is either equilibrium fiscal control by the state or equilibrium war investment. The horizontal axis is war pressure. The horizontal blue line is the initial tax contract. Specification: $F = 1.5, I = 0.1, x_0 = 0.25$.

Figure 4: Equilibrium Fiscal Control and War Spending (by Magnate Insulation and Pressure)

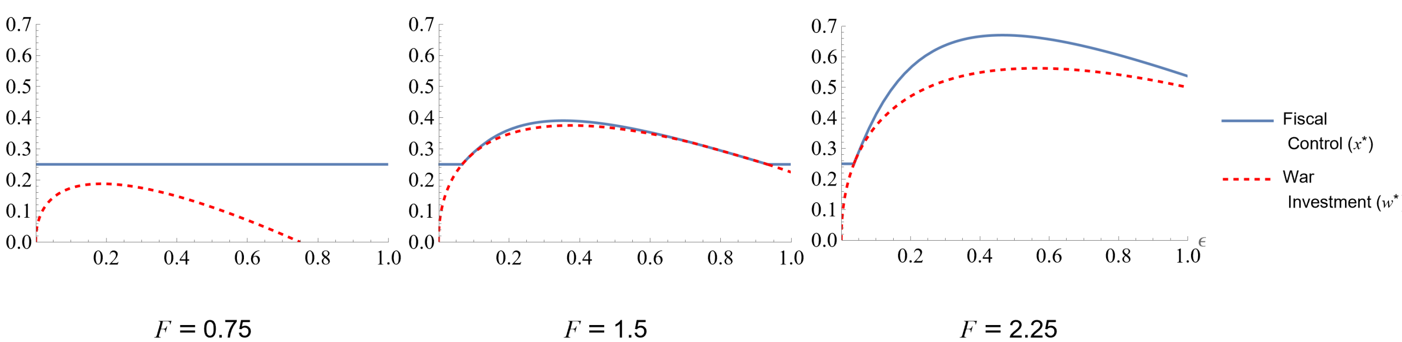


Note: Vertical axis is either equilibrium fiscal control by the state or equilibrium war investment. The horizontal axis is war pressure. The horizontal blue line is the initial tax contract. Specification: $x_0 = 0.25, r = 1$.

In Figure 3, optimal war spending drives up state fiscal control, but at high levels of war pressure, even when there are high returns to war investment, the binding constraint of bargaining keeps war investment below optimal levels. This is particularly evident above the threshold of about $\varepsilon > 0.7$ in the third panel of Figure 3. Here, the state would invest a larger fraction of the revenue collected, but hits the negotiated revenue constraint. Thus, if a new contract is feasible, war pressure is coupled with enhanced fiscal capacity up to the optimum of the parabola and then decoupled below this tipping point.

Figure 4 shows that increased insulation of the magnate has two effects, both of which are driven by the magnate's improved bargaining position. While optimal war investment is invariant to insulation, increased insulation reduces the state's fiscal control. The result is that for sufficiently high levels of insulation, war spending hits the binding constraint of taxes collected below the optimal war investment point. Increased insulation also drives down the excess rents retained by the state above equilibrium war spending, which can be visualized by the reduction in space in Figure 4 between the red dashed line and the blue solid line. At this point, the state serves only to transform collected revenues into war-fighting capacity.

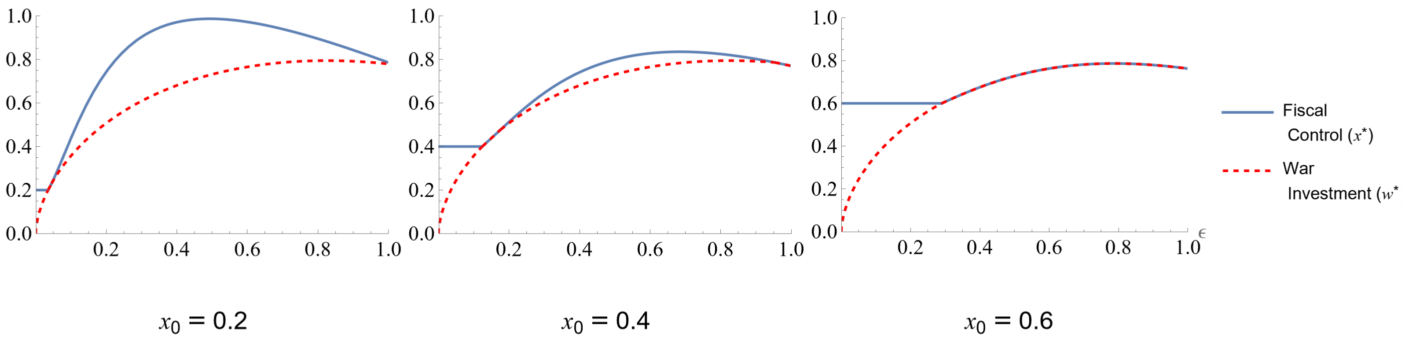
Figure 5: Equilibrium Fiscal Control and War Spending (by Future Tax Flow and Pressure)



Note: Vertical axis is either equilibrium fiscal control by the state or equilibrium war investment. The horizontal axis is war pressure. The horizontal blue line is the initial tax contract. Specification: $I = 0.1, x_0 = 0.25, r = 1.5.$

Figure 5 details how war investment is driven by future tax flows. At low levels of future tax flow, war does not enhance the state's fiscal control because optimal war investment is already feasible at the negotiated contract. At intermediate levels of tax flow, war pressure improves fiscal control, but at too high a pressure, the state returns to initial fiscal control. This forms an inverted U-shaped figure with flat plateaus at either end. Finally, at high

Figure 6: Equilibrium Fiscal Control and War Spending (by Initial Fiscal Control and Pressure)



Note: Vertical axis is either equilibrium fiscal control by the state or equilibrium war investment. The horizontal axis is war pressure. The horizontal blue line is the initial tax contract. Specification: $F = 2, I = 0.2, r = 1.5$.

levels of future tax flows, fiscal control is markedly enhanced and the magnate is willing to allow the state to collect relatively large rents to ensure increased investment in war capacity. Thus, in a sense, both the state and the magnate benefit from higher future tax flows, providing incentives to increase fiscal control in order to win the war.

Finally, Figure 6 illustrates Remark 2 in that increasing initial fiscal control has two effects. When optimal war investment is below the initial contract, increasing the initial contract benefits only the state's fiscal control, not war investment. However, when optimal war investment is above the initial contract, the state is paradoxically better off with a worse initial contract. This is because the state gains greater leverage over the magnate to extract further taxes due to the need to invest in war. However, as the initial contract improves, the benefits of increasing the contract beyond the initial level diminish, reducing the state's leverage over the magnate. This is not only detrimental to fiscal control, but also reduces the rents to the state.[11]

[11] This dynamic requires that there are sufficiently high future tax flows, otherwise a higher initial contract may slightly benefit fiscal capacity (see the appendix).

3.4 Extension: Long-term Fiscal Control

At very low levels of fiscal control, states often prioritize immediate resource gains, even to such an extent that they are willing to enter into long-term burdensome commitments. As will be discussed in detail, this dynamic is evident during periods of the Ottoman Empire. While the baseline model illustrates how war leads the state and magnates to align their interests, the baseline model's focus on a single bargaining period overlooks the state's strategic willingness to sacrifice future fiscal control to secure immediate revenue. To address this limitation, we extend the model to include multi-period bargaining.

We now consider two periods ($t \in \{1, 2\}$) and make the second period payoff endogenous by modeling multi-period bargaining over tax revenues. Future revenues are divided between the state and the magnate, with the state's share denoted x_2 and the magnate's share denoted $1 - x_2$.[12] At the start of the game, the state and the magnate negotiate a contract that specifies payments for both periods, x_1 and x_2. If the magnate rejects this offer, the contract defaults to the initial agreement for both periods ($x_t = x_0$). Consistent with the baseline model, the first-period contract always increases fiscal capacity ($x_1 > x_0$), but this is not necessarily true for the second-period contract.

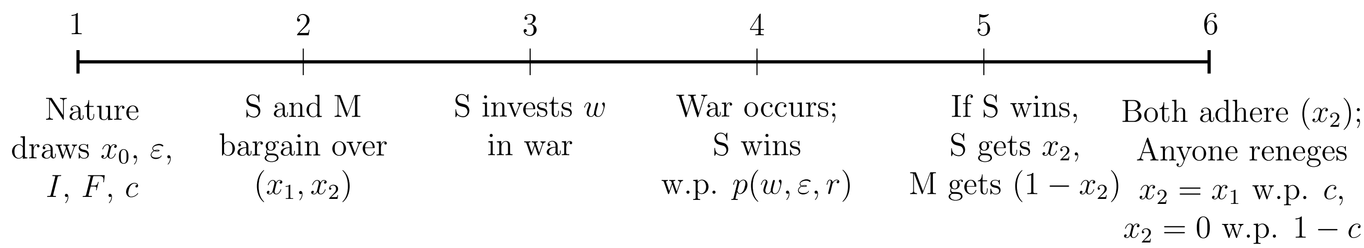
In the second period, both the state and the magnate are faced with the decision to honor or renege on the contract. Should either party renege on the contract, the state can successfully force the magnate to honor the first-period contract (x_1) with probability $c \in (0, 1)$. This captures the concept of "compliance capacity" (Berwick and Christia 2018), which is the ability of the state to enforce internal compliance within its borders. Compliance capacity reflects factors such as the state's centralized military forces or its degree of existing bureaucratic centralization relative to non-central elites.

If the state fails to force the magnate to honor the revised contract (which occurs with probability $1 - c$), the magnate keeps all the tax revenue (essentially, they cease to act as the state's surrogate tax collector). This captures that in the first period under the shadow

[12] We assume no discounting across periods.

of war, the state essentially promised a second period contract, and they have broken that promise, severing trust in the tax collection contract.[13] If the magnate rejects the initial offer, the contract reverts to the initial agreement for both periods (i.e., $x_t = x_0$), and there is no option to renege in the second period for either player.

Figure 7: Two-period Timeline



As detailed in the appendix, the extended model yields several insights. First, in the absence of a unifying threat such as war, the state cannot further expand its fiscal control in the second period. Second, both the state and the magnate face strong incentives to break the contract in the second period. The state is tempted to do so if it has granted the magnate greater control over future revenues, while the magnate is incentivized to break the contract if they have promised the state that it could retain additional control. These competing pressures make long-term fiscal control precarious, with the outcomes being either sustained increased control or a reversal of gains.

The ability to sustain enhanced state control in the first period is predicated on the state's compliance capacity. This could capture the ability to potentially eliminate intermediaries if they renege on their contract or an overall proxy of the state's authority within its internal borders.

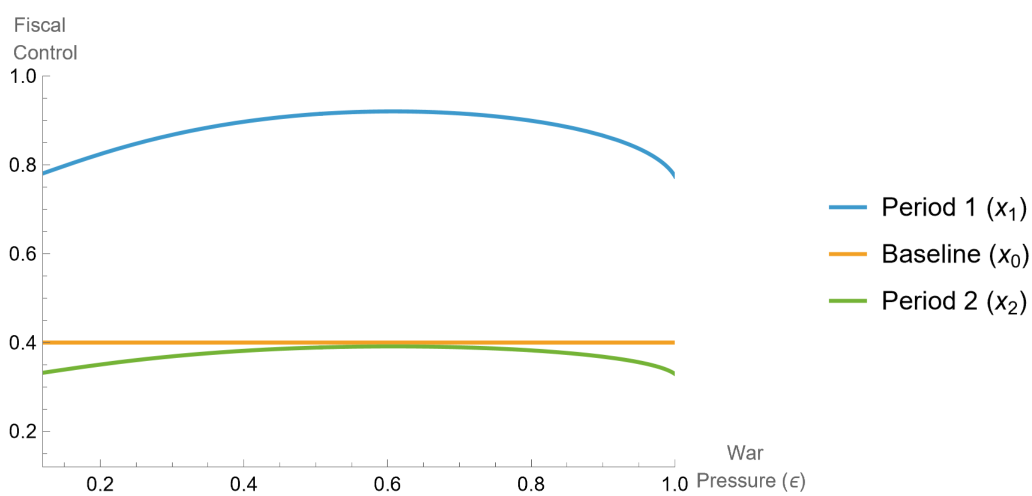
Turning to the reversal outcome of interest, in this case the magnate is willing to accept a lower contract in the first period knowing that revenues will improve in the second period (should the state remain in office). We find that fiscal control can increase above the initial

[13] This relates to relational contract theory and the role of trust in maintaining productive principal-agent dynamics (Macchiavello 2022; Watson 2021).

pre-war amount in the first period, but decreases in the second period given low compliance capacity and low initial fiscal control.

Several factors lead to this result. It is necessary for future tax revenues to be quite high, and the magnate must not be too insulated from the conflict, otherwise the magnate will not be willing to sacrifice revenue in the first period. Moreover, the bargain is partly driven by low compliance capacity, because such a bargain would not be credible in the second period if the state could later expropriate control over the tax resources. Finally, for the state to accept such a short-term bargain, the initial agreement must be insufficient to finance the war at a high level and provide the state with future benefits. Otherwise, the state would prefer to maintain the original contract. In this case, the state may receive less tax revenue to finance the war, but retain the improved fiscal control after the conflict is over. Thus, this outcome necessarily exists only at lower initial levels of fiscal control, where renegotiating to high first-period revenues greatly increases the likelihood of victory.

Figure 8: Multi-period Fiscal Control and War Exposure



Note: Specification: $x_0 = 0.4, F = 7, I = 0.5, c = 0.425$.

Figure 8 illustrates this scenario. The top line represents the increased fiscal control achieved in the first period, while the middle line reflects the baseline contract, and the bottom line shows the reduced fiscal control in the second period. These dynamics reflect the baseline model's finding that fiscal control peaks at moderate levels of conflict, but underscore the trade-offs the state faces in the second period. In particular, the magnate collects most of the revenue in the second period, limiting the state's gains. Furthermore, as illustrated by the parallel lines of the first and second period levels, the extension finds that the state's fiscal control in the second period is simply the first period fiscal control multiplied by its compliance capacity ($c \cdot x_1$). Thus, if the state's compliance capacity is sufficiently high, but not too high to deter the magnate from revising the contract in the first place, the state can maintain increased fiscal control. However, if their compliance capacity is relatively low, they will find the second period contract so onerous that they will actually lose capacity after the conflict.

This result captures the delicate trade-off for states with low initial fiscal control. Since their survival depends on extreme control over resources, they are willing to compromise their long-term fiscal capacity, creating a "low-capacity trap." The promise of higher future tax revenues to the magnate, i.e. the loss of fiscal control, is a credible promise especially in low-capacity states. In such contexts, the weakness of the central state relative to the magnates may prevent them from reneging on their promises for future contracts. Historical examples of such binding future contracts include lifetime tax-farming contracts in contexts such as the Roman and Ottoman Empires and ancien regime France, which often became hereditary contracts across future generations (Genç 2000; Fukuyama 2011; Tan 2017). Moreover, as will be discussed in more detail in the Ottoman case study, the nature of support for the central state in wartime was often in the form of temporary giving of soldiers in addition to finances.[14] In a sense, this meant that despite the improved fiscal control of the state, its long-term compliance capacity (c) did not increase despite further investment in war

[14] The phenomenon we capture in the model applies to both rural landowners and urban merchant elites. One difference may be that while urban merchants are more likely to have cash, rural landowners may be more likely to have manpower and therefore more likely to send soldiers in times of war.

capacity (w). Thus, the magnate is able to accept that their future improved position will be credibly honored by the state.

We also discuss several extensions of our model in the appendix. These include having the magnate be the proposer, modeling the microfoundations of future tax flows to account for incentives to comply with the bargain in an infinitely repeated game, and making the occurrence of war probabilistic. None of these extensions alter our main results.

3.5 Discussion

There are two mechanisms through which fiscal control may be impeded at higher levels of war pressure. The first of these mechanisms is the higher probability of losing the war. In this case, the incentive to build fiscal capacity and consume in the future is offset by the incentive to consume now. One insight from the theories relating to war's contribution to fiscal capacity is that external defense becomes a public good for all relevant internal actors (Tilly 1992; Besley and Persson 2010). However, this public good is valued differently by various actors at particular levels of war pressure, and thus non-state actors may not have incentives to contribute to fiscal control when war pressure grows too great.

The model details this nonlinear relationship between war pressure and fiscal control. Greater war pressure couples improvements to fiscal capacity of the state through enhanced state control of revenue. However, the destructive downside of war, while most pressing for the state, reaches a limit of importance to the local magnate, thereby decoupling this relationship. In essence, the personal costs to the magnate of winning the war eventually exceed the benefits to the peripheral elite. Then, while the magnate prefers that the current rulers of the state be victorious, the magnate is unwilling to give them too much of their resources and income. In addition, the exposure of the elite to the outcome of the conflict is key to determining the institutional structure. Insulation from the conflict essentially improves the magnate's "outside option," whereby the status quo bargaining position becomes increasingly satisfactory as the difference between the current state rulers and the alternative becomes increasingly narrow.

The second mechanism is through the magnates who contribute directly to the war effort. In contexts of indirect rule, intermediaries often had cash and their own soldiers and helped the state's war effort through supplying cash, military personnel, or military supplies (Barkey 2008; Karaman and Pamuk 2010; Levi 1988). Indeed, regarding the Ottoman Empire, Aksan notes that by the end of the 18th century, "...the [Ottoman] dynasty was relying almost entirely on provincial private armies for effective fighting forces, raised by governors and wealthy tax-farming families who had access to mercenary warrior bands..." (2012, p.3). During wars, when the Ottoman state was in urgent need of revenues, it "desperately sought the financial, administrative and military support of provincial magnates" (Yaycıoğlu 2016, p.81), in return for which it had to provide additional offices and tax farming contracts (Karaman and Pamuk 2010). While we abstract away from the magnate providing the armed forces, such concessions and bargains by local elites not only shape the state's short-term revenues, but also fundamentally shift the fiscal capacity of the central state during and after the war. In this sense, concessions or increases in fiscal control have a direct impact on the state's ability to raise funds that can be channeled into the development of state capacity.

Relatedly, the extension examines how fiscal control can shift across time. The state is faced with the decision to allow fiscal control to depreciate after the war in order to gain greater financial resources in the short run. Conversely, the magnate is willing to make greater war concessions during the conflict, both to ensure that the state remains in power and because the magnate is promised a financial settlement that exceeds their pre-war income. Hence, this extension shows that fiscal control that is increased during wartime can, in the long run, fall back to levels that are actually below the initial value. This occurs at relatively low levels of fiscal control and low compliance capacity, capturing a type of capacity trap. That is, states with low initial capacity are more willing to forgo future revenues for higher resources today, thereby undermining long-term fiscal control.

3.6 Empirical Predictions

The model yields two main empirical predictions. The first prediction is that fiscal control should be increasing with higher war pressure up until a point, after which it should start decreasing. Hence, we should see an inverted-U shaped relationship between war pressure and fiscal control. This result comes from our baseline model. In addition, another prediction we are able to test with our data is that increases in fiscal control are higher at lower levels of initial fiscal capacity, as we demonstrate in Figure 6.

The second main empirical prediction comes from the model's extension with a two-period game. Higher war pressure should contribute to fiscal control only at sufficiently high levels of initial fiscal control. At lower initial levels, wars should ultimately undermine fiscal control, i.e., there is a low-capacity trap.

3.7 Scope Conditions

Before we proceed to empirically test the implications of our theoretical model, it is helpful to delineate the conditions under which the theory applies.

One straightforward condition is that the theory holds in contexts of indirect rule and indirect tax collection, where rulers must negotiate with magnates who have significant control over local resources and without whom it is too costly to levy taxes on the local population. Indeed, tax farming was a common institution before the modern era, where rulers could avoid the high costs of investing in a centralized tax bureaucracy (Brewer 1989; Levi 1988).

Another scope condition is that our theory is more likely to apply to relatively low-capacity settings, i.e., centralized regimes with low revenues and low internal compliance capacity. Lack of access to revenues should make a state more likely to turn to magnates for support during such periods of urgent need for resources, such as during a conflict with an external state. With less access to revenues, a ruler will be more desperate to access the funds under the control of a local magnate, and will be more likely to make concessions to the magnate that may harm future fiscal capacity.[15]

Finally, it is useful to consider the types of wars to which our theory can be applied. The clearest cases are external wars, i.e., conflicts between two or more sovereign states. External wars are the focus of most classical studies of the relationship between war-making and state-making (Hintze 1975; Tilly 1992; Ertman 1997). While the elite bargaining element of the theory can be applied to certain forms of civil war, where there are competing state regimes with different subsets of supportive elites, we largely avoid considering internal conflicts due to the ambiguity involved in defining the "state" and "magnate" in such cases. Nevertheless, we can see parallels between the results in the long-term extension of the model and elite conflicts in authoritarian settings. Here, a ruler must trade off short-term survival against granting long-term rents to supportive elites (Meng, Paine, and Powell 2022; Bai, Jia, and Yang 2023).

4 Empirical Analysis

We now test the implications of our theoretical model. In Section 4.1, we utilize a cross-national dataset of tax revenues of European states between the mid-17th and the early 20th centuries to illustrate that states' fiscal capacity building patterns are also maximized at intermediate levels of war pressure. In Section 4.2 we test for the linear negative relationship between initial fiscal capacity and increases in fiscal capacity to find evidence for it, the higher initial fiscal capacity is, the lower are the increases in capacity. Next, in Section 4.3 we test the low capacity trap that we identify with the two period extension of the game to find that wars are significantly less likely to contribute to fiscal capacity building at low levels of initial capacity. Finally, in Section 4.4 we detail a case study of the Ottoman Empire to

[15]We take low internal compliance capacity as an untested scope condition that we argue applies to our cases during our periods of study.

present qualitative evidence for the state-magnate bargains where initially low fiscal control further undermines future capacity under warfare resulting in an urgent need for revenues.

4.1 Cross-National Evidence on the Relationship Between War Pressure and Fiscal Control

In this section, we use data by Dincecco (2011) to show that the overall fiscal revenues by European states follow the patterns predicted by our theoretical model. These European countries include Austria, Belgium, Denmark, England, France, Italy, Netherlands, Portugal, Prussia, Spain, and Sweden.[16] The earliest year in the dataset is 1650 and the latest year is 1913.

Following Karaman and Pamuk (2013), we use external battle deaths as our measure of war pressure, our independent variable. This variable aims to capture the size and severity of the war in which the country is involved. The higher the battle deaths, the stronger pressure war exerts on the central ruler. This is because the ruler will need a bigger army to counter the threat and more money in order to fund such a war.

Because the external battle deaths variable is right-skewed and some observations pose a threat to inference as outliers on the right-hand side of the spectrum, we log transform the variable. For our dependent variable we use annual percentage increase in per capita fiscal revenues. Our unit of analysis here is country-year. We add country and time fixed-effects, with time-fixed effects entailing periods of 50-years.[17] Thus, we estimate the following OLS model:

$$\Delta Revenue_{it} = \beta_0 + \beta_1 Death_{it} + \beta_2 Death_{it}^2 + \lambda_t + \gamma_i + e_{it}$$

[16] The dataset also includes Bavaria and Holland, but they do not have any non-missing values for the battle deaths variable.

[17] The model becomes too demanding if we estimate time fixed-effects at the year level, with 264 individual years in the dataset. In the appendix, we present the results for the model where we add fixed effects for 25-year periods. The results are robust to this change.

Where $\Delta Revenue_{it}$ refers to the percentage change in revenues per capita between years t and $t-1$, $Death_{it}$ refers to the number of external battle deaths in year t, λ_t being period fixed effects, and γ_i being country fixed effects. In additional models, we control for the 1-year lagged value of the dependent variable in order to account for persistence.

Table 1: Analysis of the Association Between Battle Deaths and Changes in per Capita Fiscal Revenues

	Dependent Variable: Annual Increase in per capita Fiscal Revenues			
	(1)	(2)	(3)	(4)
Battle Deaths (logged)	0.153***	0.161***	0.153**	0.161**
	(0.050)	(0.050)	(0.075)	(0.076)
Battle Deaths Squared (logged)	−0.107***	−0.112***	−0.107*	−0.112*
	(0.037)	(0.037)	(0.064)	(0.065)
Lagged Dependent Variable		−0.140***		−0.140***
		(0.024)		(0.020)
Constant	0.064**	0.074***	0.064***	0.074***
	(0.028)	(0.028)	(0.014)	(0.017)
Country Fixed Effects	Yes	Yes	Yes	Yes
Period Fixed Effects	Yes	Yes	Yes	Yes
Clustered Standard Errors	No	No	Yes	Yes
Observations	1,727	1,716	1,727	1,716
R^2	0.010	0.030	0.010	0.030

Note: Ordinary Least Squares Regression. Standard errors in parentheses. Period fixed effects are at the 50-year period. Models 3 and 4 cluster the standard errors at the country level. *p<0.1; **p<0.05; ***p<0.01

We report the results in Table 1. The coefficient for the Battle Deaths variable is estimated to be positive and its squared term is estimated to be negative. Each coefficient is statistically distinguishable from 0. In the second model we add the 1-year lagged value of the dependent variable, annual increases in fiscal revenues as a covariate. We still see an inverted-U shaped relationship between battle deaths and changes in fiscal revenues.

Models 3 and 4 cluster the standard errors at the country level in order to account for any possible autocorrelation of standard errors within countries. The picture remains very similar, although clustering increases the size of the standard errors for our variables of interest. The coefficient of the Battle Deaths variable stays significant at the conventional levels of 0.05, while the coefficient of its squared term misses significance at the conventional levels of 0.05, but is significant at the 0.1 level, in each of Models 3 and 4.

Because several countries start being covered after the first year in the dataset, we replicate the analyses with a subset of five countries that have the longest time coverage in the dataset: England (1650-1913), France (1650-1913), Netherlands (1720-1795 and 1803-1913), Prussia (1688-1913), and Spain (1703-1913). The results in the appendix do not exhibit substantive change from the analysis with the full sample.

Overall, the degree of war pressure, as measured by number of deaths in an external war, is associated with an inverted U-shaped pattern in the level of per capita fiscal revenues for European countries according to our dataset. We interpret this as evidence that fiscal control, and as a result of this, fiscal capacity building should occur at intermediate levels of war pressure, while low and high pressure instances should have less likelihood of fiscal capacity building.

4.1.1 Disaggregating the Cross-National Evidence: Scope Conditions

It may be useful to analyze the cross-national evidence in a disaggregated manner in order to more clearly see the relationship between war and the central state's fiscal revenues. This is important for checking in which countries we see the patterns predicted by our theoretical model, and also for evaluating the scope conditions for the argument.

The results in Table 2 reveal patterns that underline the importance of the scope conditions of our analyses. We conducted regression analyses within each country in the dataset with sufficient number of observations, the regression specification being:

$$\Delta Revenue_t = \beta_0 + \beta_1 Death_t + \beta_2 Death_t^2 + \lambda t + e_t$$

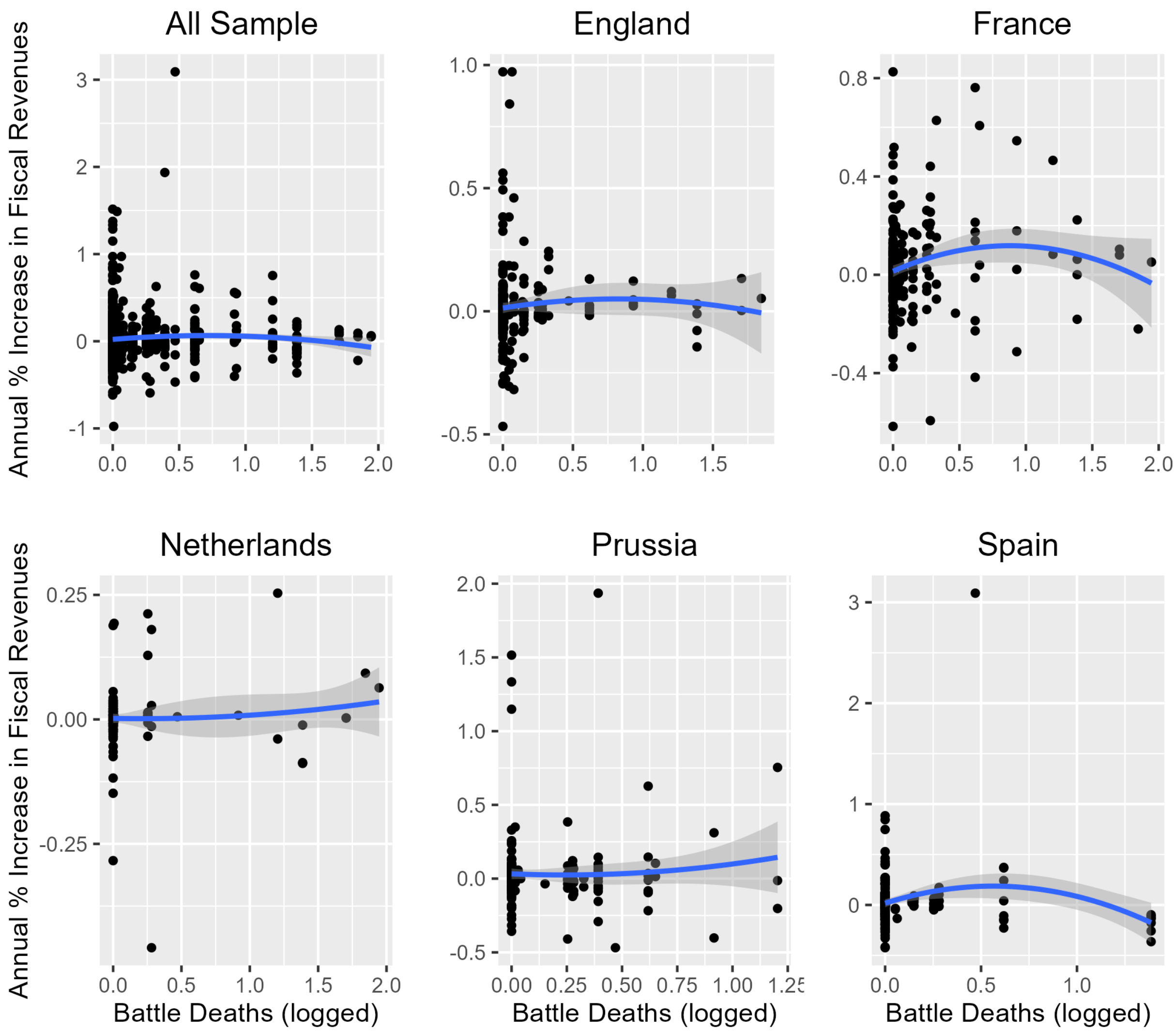
Table 2: Analysis of the Association Between Battle Deaths and Changes in per Capita Fiscal Revenues for Five Individual Countries

	Dependent Variable: Annual Increase in per capita Fiscal Revenues				
	England	France	Netherlands	Prussia	Spain
	(1)	(2)	(3)	(4)	(5)
Battle Deaths (logged)	0.089	0.236^{**}	-0.005	-0.062	0.602^{***}
	(0.091)	(0.091)	(0.052)	(0.159)	(0.203)
Battle Deaths Sq. (logged)	-0.054	-0.134^{**}	0.011	0.129	-0.535^{***}
	(0.065)	(0.062)	(0.032)	(0.182)	(0.161)
Constant	0.013	0.014	0.002	0.032^{*}	0.017
	(0.011)	(0.012)	(0.005)	(0.018)	(0.021)
Observations	263	263	185	225	210
R^2	0.004	0.027	0.006	0.004	0.052

Note: Ordinary Least Squares Regression. Standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

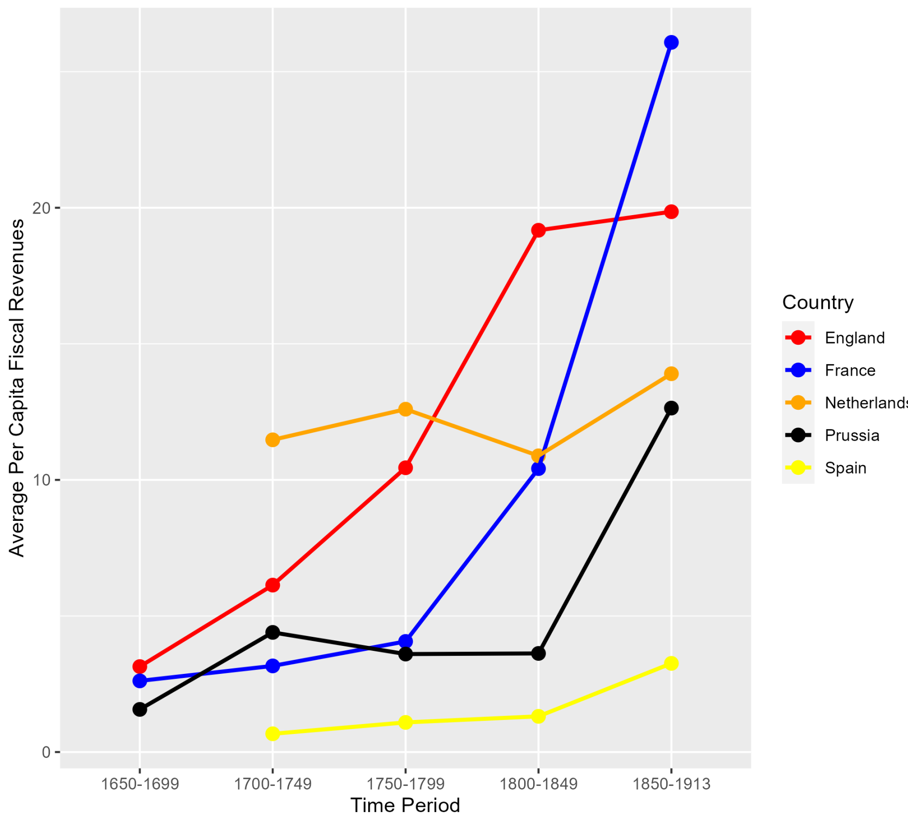
Among the five countries where we conduct these analyses, we identify a statistically significant inverse U-shaped relationship between war deaths and increases in fiscal revenues in two countries, France and Spain. The coefficient of the linear battle deaths variable is positive and the coefficient of its squared term is negative. For England, Netherlands, and Prussia we find no statistically significant inverted U-shaped relationship, even though for the English case there is a slight inverted U-shaped pattern. We visualize the relationship between war deaths (logged) and increases in fiscal revenues in Figure 9. Even though in the inverted-U shaped pattern in the whole sample (upper-leftmost plot) the relationship is not as obvious (for instance as it is for France and Spain), it should be noted that the plot aggregates observations from all the countries in the sample. In this sense, it does not perfectly match the results we presented in Table 1 above where we add country fixed effects in order to account for the heterogeneity across countries. Directly comparing the changes in the number of deaths of different countries without using country fixed effects can be misleading because a given unit of change in the war deaths variable cover different ranges of the variable across different countries, and the same unit of change in this variable may not capture the same change in war pressure in different countries.

Figure 9: Visualization of the Relationship Between Battle Deaths and Annual Increases in Fiscal Revenues



As we discussed above, our scope conditions relate to the extent of indirect rule and indirect tax collection as well as level of initial state capacity. The plots in Figure 9 speak to these scope conditions. In Figure 10 we present the average per capita fiscal revenues for these five countries by 50-year periods. Among these five countries we cover, France and Spain have much lower per capita fiscal revenues compared to England and Netherlands during most of the dataset, except France's per capita revenues approaches that of Netherlands only towards later periods, from the 19th century on, and surpasses England's only after the latter half of the 19th century. Spain's per capita revenues always remain minuscule compared to England and Netherlands. Hence, the relationship between war pressure and fiscal control that we identify in the model should be less likely to apply to England and Netherlands, given the already high levels of fiscal capacity they have during most of the time periods the dataset covers.

Figure 10: Average Per Capita Fiscal Revenues by Country for 50-Year Periods



The other scope condition, higher initial reliance on intermediaries, is also critical in explaining these results. France and Spain were more reliant on intermediaries in tax collection especially in the earlier periods of this dataset, compared to the other three countries, England, Netherlands and Prussia. These three countries could abolish tax farming earlier or had more efficient tax collection thanks to better tax collection bureaucracies (Brewer 1989; Weber 1968). The difference between England and France is well-documented. While England switched from tax farming to direct tax collection by the end of the seventeenth century, France remained heavily dependent on tax farmers for tax collection until the French revolution (Hoffman 1994; Capie 2001; Johnson and Koyama 2014). Daunton, directly comparing England to France, writes that "[in contrast to seventeenth-century France], seventeenth-century England was much less involved in European land wars and so did not need to engage in tax farming or the sale of offices on anything like the scale of France." (2012, p.113). Heavy reliance on tax farming increased the magnates' claims on the revenues at the expense of the central government. Hoffman (1994, p.230) notes that in 1677, 33% of the taxes collected in Languedoc in France ended up in the magnates' pockets, while a further 16% were spent locally according to the magnates' wishes.

Spain, similar to France, was also heavily dependent on tax farmers, who lay claim on substantial resources that could otherwise have ended up in the central treasury. Tortella and Comin (2001) write that in the early 17th century around 40% of assessed tax revenues in Spain ended up in tax farmers' pockets, while in the year 1667 only 7% of total state revenues were collected by central state officials (Kamen 1980, p.357). Even the most important direct tax collection item, sheep tax, was often farmed in Spain (Klein 1920). In contrast, Netherlands was less dependent on tax farmers for tax collection and it was able to abolish tax farming altogether in 1748 (Fritschy, Hart, and Horlings 2012).

Finally, even though Prussia's initial levels of fiscal revenues were much lower than England's and Netherlands' revenues and were comparable to that of France's and Spain's (see Figure 10), Prussia never relied on tax farming extensively, which makes it less likely that we can expect an inverted U-shaped relationship between war pressure and increases in fiscal revenues. On Prussia, Kiser writes that "With the exception of crown lands, tax farming was never used. Excise taxes were usually collected by proportionally paid state officials..." (1994, p.296), owing to its efficient bureaucratic structure (Weber 1968; Kiser and Schneider 1994).

4.2 Cross-National Evidence on the Relationship Between Initial Fiscal Control and Equilibrium Fiscal Control

Next, we test the prediction that follows from the comparative statics presented in Table 6. While the result is nuanced, generally speaking, higher values of initial fiscal control should lead to smaller increases in fiscal capacity. In order to evaluate this prediction, we regress changes in fiscal revenues on initial levels of fiscal control, while holding war threat constant. Hence, we estimate an OLS regression with the following specification, which again includes the unit (country) and period fixed effects (50-year periods):

$$\Delta Revenue_{it} = \beta_0 + \beta_1 Revenue_{it} + \beta_2 Death_{it} + \lambda_t + \gamma_i + e_{it}$$

Table 3: Analysis of the Association Between Initial Fiscal Control and Changes in per Capita Revenues

	Dependent variable:	
	Annual Increase in per Capita Fiscal Revenues	
	(1)	(2)
Per Capita Revenues	-0.0036^{***}	-0.0036^{***}
	(0.0011)	(0.0004)
Battle Deaths (logged)	0.0181	0.0181
	(0.0170)	(0.0135)
Constant	0.0537^{*}	0.0537^{*}
	(0.0280)	(0.0154)
Country Fixed Effects	Yes	Yes
Period Fixed Effects	Yes	Yes
Clustered Standard Errors	No	Yes
Observations	1,727	1,727
R^2	0.012	0.012

Note: Ordinary Least Squares Regression. Standard errors in parentheses. Model 2 clusters the standard errors at the country level. *p<0.1; **p<0.05; ***p<0.01

The results in Table 3 are in line with our expectations. The higher initial per capita revenues are, the lower the increase in the per capita fiscal revenues: Counter-intuitively, lower levels of initial fiscal control may be beneficial for equilibrium levels of fiscal control. However, we should remember that the results do not hold for very low levels of war pressure, where it stays at the baseline levels (see Figure 6). This is why we replicate the analysis by excluding the lower levels of battle deaths variable. The results (not reported) are robust to this exclusion.[18]

4.3 Cross-National Evidence on the Low-Capacity Trap

We next use the same dataset from Dincecco (2011) to test the predictions of the two-period model regarding the low capacity trap. If the model's predictions are accurate, wars should be more likely to undermine fiscal revenues when initial revenue levels are lower than a sufficient baseline level.

In order to test these predictions, we conducted logistic regression analyses where we coded the dependent variable as 1 when there was an increase in fiscal revenues and 0 when there was a decrease in the fiscal revenues compared to the previous year.[19] We check whether observations with lower initial fiscal revenues were more likely to predict decreases in fiscal revenues in case of the presence of battle deaths. Hence, we utilize the interaction between the battle deaths variable with three versions of the initial per capita revenues variable in three sets of models. In the first version, we use the initial per capita revenues as they are, i.e., in the continuous manner. In the second version, we dichotomize the initial per capita revenues variable, with a cutoff at its median (5.98). Any value below this cutoff is coded as 0 and those above are coded as 1. Finally, we move the cutoff to the first quartile (25%th observation) of the initial fiscal revenues (2.69). We run the logistic regressions of the following form:

[18] Note that the analysis does not take into account another precondition for the relationship to hold, which is that there should be sufficiently high future fiscal flows (F). We are unable to check for this condition because it is impossible to operationalize or measure the future fiscal flow variable with our data.

[19] There are no observations when the changes from the previous year are 0.

$$Pr(\text{Positive Change}_{it} = 1) = \frac{\exp(\beta_0 + \beta_1\text{Revenue}_{it} + \beta_2\text{Death}_{it} + \beta_3\text{Revenue}_{it} * \text{Death}_{it})}{1 + exp(\beta_0 + \beta_1\text{Revenue}_{it} + \beta_2\text{Death}_{it} + \beta_3\text{Revenue}_{it} * \text{Death}_{it})}$$

In this equation, our main coefficient of interest is β_3, the coefficient for the interaction term between initial per capita revenues and battle deaths. If there is a low-capacity trap, β_3 should be positive, as this would indicate that the higher the initial level of fiscal revenues, the more likely it is that wars result in positive changes in fiscal revenues (and, hence, at lower initial levels of fiscal revenues, the more likely it is that wars result in negative changes in fiscal revenues).

Table 4 demonstrates that while at higher initial levels of fiscal capacity wars are more likely to contribute to increasing fiscal revenues, yet at low levels of initial fiscal capacity, wars are more likely to undermine fiscal revenues. This is in line with the predictions of the two period model.

In all models in Table 4 we present the odds ratios based on coefficients from the logistic regression analyses. In Models 1 and 2, we use the continuous version of the initial fiscal revenues variable. Model 1 does not cluster the standard errors while Model 2 clusters the standard errors at the country level. The odds ratio of the interaction between the initial revenues and the battle deaths variable is statistically significantly estimated to be greater than 1 in each model, indicating that wars are more likely to contribute to increases in fiscal capacity at higher levels of fiscal revenues. In model 1 where the standard errors are not clustered, the coefficient is estimated to be statistically significant only at the 0.1 level, while it is significant at the 0.05 once the errors are clustered at the country level.

In Models 3 and 4 we present the results with the binary version of the initial fiscal revenues variable. Model 3 does not cluster the standard errors and Model 4 clusters them at the country level. In both models the odds ratios are estimated to be statistically significantly larger than 1, indicating that wars are more likely to contribute to increases in fiscal revenues at higher initial levels of fiscal capacity. The odds ratios estimated to be 2.844. This suggests

Table 4: Analysis of How War is More Likely to Undermine Fiscal Revenues at Low Initial Capacity

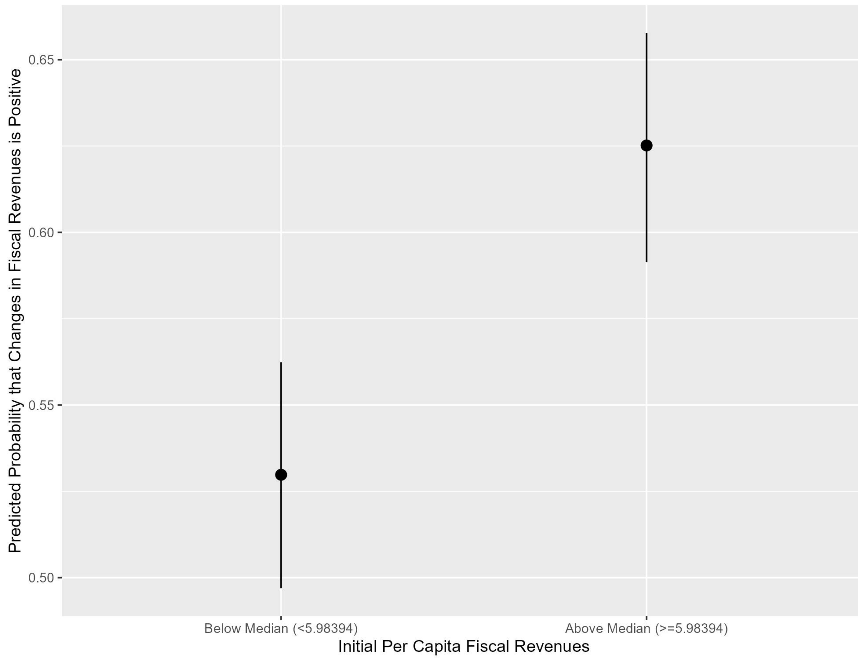
	Dependent Variable:					
	Dummy Variable Indicating whether Increases in Fiscal Revenues is Positive					
	(1)	(2)	(3)	(4)	(5)	(6)
Per Capita Revenues (cont.)	1.023 t = 3.072***	1.023 t = 1.452				
Above Median Revenue Dum.			1.321 t = 2.681***	1.321 t = 1.336		
Above 1st Quartile Revenue Dum.					0.966 t = −0.294	0.966 t = −0.141
Battle Deaths (logged)	0.614 t = −1.693*	0.614 t = −1.446	0.504 t = −2.355**	0.504 t = −2.823***	0.349 t = −2.897***	0.349 t = −3.337***
Per Capita Revenues * Battle Deaths (logged)	1.047 t = 1.786*	1.047 t = 2.275***				
Above Median Rev. Dummy * Battle Deaths (logged)			2.844 t = 2.707***	2.844 t = 3.342***		
Above 1st Quartile Rev. Dum. * Battle Deaths (logged)					3.937 t = 3.214***	3.937 t = 3.611***
Constant	1.148 t = 1.745*	1.148 t = 1.100	1.214 t = 2.688***	1.214 t = 1.854*	1.410 t = 3.324***	1.410 t = 1.563
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	No	Yes	No	Yes	No	Yes
Observations	1,727	1,727	1,727	1,727	1,727	1,727

Note: Logistic regression analysis. Odds ratios with t-values reported. Period fixed effects are at the 50-year period. Models 2, 4 and 6 cluster the standard errors at the country level. *p<0.1; **p<0.05; ***p<0.01

that for initial fiscal revenue levels that are above the median value (6.06) a unit increase in the battle deaths variable is over 2.8 times more likely to predict an increase, compared to a decrease in the fiscal revenues. Read in the inverse way, these results suggest that for the observations that start at the bottom half of initial levels of fiscal revenues, one unit increase in the battle deaths variable is over 2.8 times more likely to predict decrease in fiscal revenues, as opposed to an increase.

In Models 5 and 6 we use a binary version of the initial fiscal capacity variable but the cutoff is at the first quartile. Hence, we compare the observations with the lower one-fourth of the initial fiscal revenues to the rest, i.e., the higher three-fourth. Again, Model 5 does not cluster the standard errors and Model 6 clusters them at the country level. The odds ratio of the interaction term between the dummy variable for the higher initial per capita

Figure 11: Predicted Probabilities of Positive Change in Fiscal Revenues by Initial Fiscal Revenues



Note: Calculated based on Model 3 of Table 4, and with the battle deaths variable fixed at its median level.

revenues and the battle deaths variable in Models 5 and 6 is estimated to be 3.937 and it is statistically significant in each model. This suggests that the observations that are in the upper three quartiles of the initial fiscal revenues are almost four times more likely to have positive changes with one unit increase in the battle deaths variable, compared to the observations that are in the first quartile of initial fiscal revenues.

Finally, in Figure 11 we plot the predicted probabilities that changes in Fiscal Revenues are positive, as opposed to negative, by initial fiscal revenues and based on Model 3 of Table 4. The probability that there is positive changes in fiscal revenues is significantly higher for observations that have above-median initial fiscal revenues compared to those that have below median initial fiscal revenues.

4.4 Evidence from the Late Ottoman Empire

Our analysis in this section is based on the late Ottoman Empire in the 18th and the early-19th centuries. We focus on how bargains between the central state and the magnates resulted in decreased fiscal control of the state and increased control of the magnates due to the state's low initial capacity until the first decade of the 19th century, and how an increase in the level of economic activity due to the peaceful environment in Europe after the Congress of Vienna (1814-5) and the Treaty of Paris (1815) allowed the state to escape the low-capacity trap. Increased economic activity corresponds to a potential increased total tax revenue. We demonstrate that as wars occurred, the urgent need of revenues to fight wars made the state relinquish more future fiscal, in addition to administrative, control to the magnates in return for higher revenues at the present moment. Thus, we are able to provide qualitative evidence in support of the two-period model's prediction that when initial fiscal control is too low, wars undermine rather than contribute to state building. We also argue that another sudden decrease in the war pressures (ε) on the Ottoman Empire after 1812 from high levels to intermediate levels increased the central state's bargaining power compared to the magnates and allowed it to increase fiscal control.

4.4.1 Decentralization in the 18th Century: Loss of Fiscal Control and the Struggle for Reform Due to the Low-Capacity Trap

The 17th and 18th centuries were a period of decentralization and decreased control for the Ottoman Empire, both administratively and fiscally. Many costly wars during this period resulted in bargains between the central state and local intermediaries that mostly was resolved with more control of administrative and fiscal resources by the intermediaries in the periphery in exchange for contribution by intermediaries to the war effort. War under initial low capacity decreased the central state's bargaining power vis-a-vis the local intermediaries, resulting in more lucrative tax farm contracts and administrative offices in the hands of intermediaries, leaving less revenues in the central state's hands. Indeed, scholars blame the heavy involvement of intermediaries in tax collection (i.e. low initial fiscal control of the state) for the chronically low fiscal revenues of the Ottoman state in the longer term, as tax farmers pocketed potential fiscal revenues that could have ended up in the state treasury (Pamuk 2014). This shows parallels to the low-revenue problems caused by the state's reliance on the intermediaries in tax collection in other contexts such as Spain, which we discussed above (Tortella and Comin 2001; Kamen 1980).

An important war in this period, in which the Ottoman state initially had low fiscal control and relinquished further control to intermediaries, was the "Great Turkish War" of 1683-1699, during which the Ottoman rulers had to introduce (in 1695) lifetime tax farming contracts. A shift from a temporary to a lifetime tax farming contract is analogous to the state ceding future fiscal control in exchange for an increase in fiscal revenue in the present in order to meet the expenses of an ongoing war. In many cases of lifetime tax farming contracts, the state, in exchange for initial revenue, left control of tax collection in the hands of a particular individual during his lifetime and sometimes his descendants for an unspecified period (Genç 2000).

Two other significant wars in which the state's fiscal control was reduced were the Russo-Ottoman Wars of 1768-1774 and 1787-1792. During these wars, when the Ottoman Empire did not have sufficient means to raise revenues on its own and had to resort to the magnates to help fight the external adversaries, the magnates gained power through obtaining administrative offices and lucrative tax farming contracts in exchange for their help (Barkey 2008, p.249; Quataert 1968, p.49). The magnates became "...governors, deputy governors, ancillary contractors, or...district managers. By holding these offices and contracts, these provincial notables...monopolized tax collection." (Yaycıoğlu 2016, p.67).

Historians have documented many instances where we can clearly see bargains between the intermediaries and the central rulers during wartime. One of them is Ali Pasha of Ioannina, a magnate whose power base was in today's Northwestern Greece, and who came to obtain administrative positions and taxation privileges in vast swathes of Ottoman Balkans, including today's Albania, North Macedonia, and Greece.[20]

Ali Pasha further consolidated his power during the concurrent Russo-Ottoman War of 1806-1812 and the First Serbian Insurrection of 1804-1813 (Sezer Feyzioğlu 2017, p.25). The Ottoman Empire's two previous wars with Russia, 1768-1774 and 1787-1792 had ended in decisive Russian military victories. Especially the former of these wars was devastating for the Ottoman Empire, having concluded with the humiliating treaty of Küçük Kaynarca. With the start of the war we can see negotiations between the central state and Ali Pasha regarding the latter's contribution to the war and demands for a higher number of administrative posts and a higher share of tax income.

To consider a specific example, in 1806 after the war started, the Ottoman central government asked Ali Pasha for 40 thousand soldiers to help with the war effort (Sezer Feyzioğlu 2017, p.15). Negotiations kept happening during the rest of the war. Ali Pasha offered to send 10-15 thousand soldiers, and if needed a further 30-40 thousand to help Ottoman war efforts against Russia. However, in return for this he demanded the Mutasarrıf position in the sancak of Avlonya (Sezer Feyzioğlu 2017, p.19).[21] Later during the same war, we see negotiations over the same issues. Upon the renewal of military conflict in 1810, Ali Pasha once again demanded the position of Avlonya Mutasarrıf for one of his sons. Eventually, the Ottoman center gave in and Ali Pasha's son Muhtar Pasha became the Mutasarrıf of Avlonya (Sezer Feyzioğlu 2017, p.63). Later, in another letter from Ali Pasha dated January 22, 1812, which came after the heavy military defeat of the Turkish army on the Balkan front, Ali Pasha offered 12 thousand soldiers and 25 thousand guruşes of cash and in return asked that the administration of Tırhala sancak be handed over to him.

We can see similar patterns in the growth of the Çapanoğlu family. Originating in Bozok in Central Anatolia, by the time the patriarch of this magnate family died in 1813,

[20] He is also known as Tepedelenli Ali Paşa in Turkish.

[21] During this period in the Ottoman Empire, a mutasarrıf was the highest-level administrative position in the sancak, the second-level administrative unit.

they had obtained administrative positions and tax farming contracts in large territories in Central, Northern and Southern Anatolia, and also in places as far as Aleppo and Raqqa, in today's Northern Syria.

War pressure under initial lower fiscal control also increased the Çapanoğlu family's bargaining power against the Ottoman center and presented the family with opportunities to obtain further administrative positions and tax farming contracts, as predicted by our theoretical model. The bargains between the Çapanoğlu family and the Ottoman center proceeded in a parallel fashion to the bargains between Ali Pasha and the Ottoman center that we discussed above. One such opportunity for the family was the Ottoman-Russian war of 1787-1792. During this war the Ottoman center asked the Çapanoğlu family for provisioning and recruitment of soldiers. When in 1788 the head of the family Süleyman Çapanoğlu sent three thousand soldiers to help the war effort against Russia, he received the deputy governorship of Ankara province in addition to tax farming contracts to collect taxes from several nomadic tribes and to administer several mines (Yaycıoğlu 2016, p.85). Thus, the family's fiscal control increased at the expense of the state's fiscal capacity due to the state's urgent need of resources.

A third example of how the low-capacity trap prevented the Ottoman Empire from increasing its fiscal control and tax revenues is the rise of the Caniklizade family of Northern Anatolia. Similar to the previous cases, the head of this local notable family, Caniklizade Ali Bey, initially had tax farming contracts in the Trabzon and Amasya regions, while his contributions to the state's war effort during the 1768-74 war between the Ottoman Empire and Russia helped him become stronger at the expense of the central state (Zens 2011). As a result of his contribution of 1,500 cavalry, another 1,500 infantry and additional supplies (Karagöz 2003), in 1772 his tax farming contract in Amasya was converted to a lifetime contract (Şahin 2003). Once more, we see that the state's need for wartime revenue leads it to make concessions to local magnates at the expense of future fiscal control and capacity.

4.4.2 1812 and 1815 as Turning Points: Peace and Higher Fiscal Control

In 1812, during an intense war between the Ottoman and Russian Empires, French troops under Napoleon Bonaparte were about to invade Russia. In order to redeploy his troops to defend his country against Napoleon's armies, Russian Tsar Alexander I ratified the Treaty of Bucharest with the Ottoman Empire, ending the war on 11 June, 1812. This peace treaty reduced the war pressure (ε) on the Ottoman Empire from high to moderate, as the Ottoman Empire also had to deal with the Serbian insurrections (1804-13; 1815-17) and the Wahhabi war (1811-17) in what is now Saudi Arabia.

Another clear change during this period was the decisive defeat of Napoleon's armies and the peace on the European continent following the Congress of Vienna (1814-15) and the Treaty of Paris (1815). A lasting peace likely contributed to an increased volume of economic activity in the Ottoman Empire as well as in other European countries, which increased the potential tax revenues that could be collected as a result of this economic activity. These events changed several factors that had previously hindered and even degraded the state's fiscal control: excessive war pressure, low compliance capacity due to internal strife, and an initially low level of fiscal control. As a result, the Ottoman state was able to increase its fiscal control in a manner similar to the baseline model. That is, while the increase in potential tax revenues helped the Ottoman state escape the low-capacity trap, the shift in war pressure from high to medium re-coupled the incentives of the state and the magnates (essentially moving from the right bottom of the inverted-U to the middle).

According to the historian Şükrü Hanioğlu, after the Treaty of Bucharest with Russia in 1812, Sultan Mahmut II could concentrate on challenging the control of local magnates within the empire and while his predecessor "...Selim III had been unable to strengthen central rule because he was preoccupied with successive diplomatic crises and military campaigns, Mahmud II exploited the relative tranquility of the period—up to the outbreak of the Greek revolt and the small-scale war of 1820–23 with Iran—to place centralization at the top of his agenda. (2008, p.60)."

During this period, the Ottoman center was able to assert stronger central authority in many areas under its rule at the expense of local intermediaries, even completely eliminating some previously very strong intermediaries in the process (Barkey 2008; Hanioğlu 2008; Pamuk 2005; Sezer Feyzioğlu 2017; Yaycıoğlu 2016). The increasing fiscal control during this period included the central state assuming the control of more of the fiscal institutions of the empire (Hanioğlu 2008, p.69) including tax farming contracts, and centralized tax collection where the state appointed outside agents to collect taxes (Pamuk 2005, p.214). Although not explicitly considered in our theoretical model, the complete elimination of intermediaries from tax collection would correspond to full fiscal control by the state, where $x = 1$.

Empirically we can also see the consequence of the Ottoman center's increase in its bargaining power being reflected in changes in the value of the tax farming contracts over time. Even though we lack detailed data on tax farming contracts over time, we can compare two data points we have available. Salzmann notes that between 1810 and 1827 the value of tax farming contracts doubled (1993, p.408). This is a consequence of the increased bargaining power of the Ottoman Empire due to intermediate war pressure during the 1810s as well as an increase in total tax base, which helped the empire escape the low-capacity trap. These changes allowed the Ottoman center to take back many contracts and resell tax farming contracts at higher values to other contractors, or renegotiate the value of contracts with their current holders to receive higher payments. Either of these strategies increased the state's fiscal control.

5 Conclusion

The functioning of a state requires a compromise between local administration and centralized decision-making. The shift from fiscal regimes with little state control over resources, such as tax farming, to states characterized by greater control over taxation marked a significant change in the institutional design of states (Johnson and Koyama 2014). We augment the bellicist explanation of war-driven state building to account for the added complexity of bargaining between the centralized state and elites. Above a lower threshold of initial fiscal capacity, external conflict plays a nonlinear role in the construction of a more centrally controlled fiscal regime. Increased war pressure is coupled with fiscal capacity development up to a point, but then decouples when war pressure becomes too great. Moreover, factors such as the return to war investment and initial capacity can shape the relative importance of war in aligning the interests of the state and elites.

Additionally, we find that states that already possess relatively high fiscal capacity find wars less conducive to gaining bargaining leverage, as elites then prefer to retain fiscal control and allow the state to solely fund the conflict. Yet, when initial fiscal capacity is quite low, the state's fiscal capacity may ebb and flow as magnates are willing to forgo fiscal control during periods of conflict, but then regain significant control once the threat has dissipated. Thus, fiscal capacity can rise and reverse, creating a capacity trap in initially low-capacity environments.

Moreover, our empirical analysis finds support across European states, and our case study focuses on the Ottoman Empire, where the state's reliance on magnates and a clear shift in wartime pressures make it an instructive case to examine. The patterns that we observe in the Ottoman Empire, where short-term fiscal pressures increased the state's reliance on magnates and tax farmers, can similarly be observed in other contexts ranging from the Roman Empire (Levi 1988, p.88) to Ancien Regime France (Hoffman 1994, p.243). Overall, our findings shed light on historical state formation, but may also speak to the dynamics at play in central-periphery elite bargaining in more distant as well as recent history.

Note that we focus on one strategy by which central governments can increase fiscal control and revenues and curb the power of local intermediaries, namely by extracting a higher share of potential revenues through bargaining with elites, such as renegotiating tax farming contracts. One avenue of future research could focus on different strategies, such as the partial or complete elimination of intermediaries by using centrally appointed bureaucrats to collect taxes, or the use of coercion to eliminate intermediaries. In addition, future research can begin to consider the development of complementary institutions, such as legal capacity, e.g. property rights, and administrative capacity (Besley and Persson 2009; Magiya 2022). Finally, another potential area of future research following this work can look at the relationship between war pressure and war spending. Although our theoretical model predicts a relationship similar to the relationship between war pressure and fiscal control (an inverted U-shape), the lack of data on war spending prevented us from testing the model's predictions in this regard.

References

Acemoglu, Daron and James A. Robinson (2006). *Economic Origins of Dictatorship and Democracy*. New York, NY: Cambridge University Press.

Aksan, Virginia H. (2012). "Janissaries". In: *The Encyclopedia of War*. Vol. 2. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781444338232.wbeow317. John Wiley & Sons.

Arena, Philip and Anna O Pechenkina (2016). "External subsidies and lasting peace". In: *Journal of Conflict Resolution* 60.7, pp. 1278–1311.

Bai, Ying, Ruixue Jia, and Jiaojiao Yang (2023). "Web of power: How elite networks shaped war and politics in China". In: *The Quarterly Journal of Economics* 138.2, pp. 1067–1108.

Banks, Jeffrey S (1990). "Equilibrium behavior in crisis bargaining games". In: *American Journal of Political Science*, pp. 599–614.

Barkey, Karen (2008). *Empire of Difference: The Ottomans in Comparative Perspective*. New York: Cambridge University Press.

Beramendi, Pablo, Mark Dincecco, and Melissa Rogers (2019). "Intra-Elite Competition and Long-Run Fiscal Development". In: *The Journal of Politics* 81.1, pp. 49–65.

Berwick, Elissa and Fotini Christia (2018). "State capacity redux: Integrating classical and experimental contributions to an enduring debate". In: *Annual Review of Political Science* 21.1, pp. 71–91.

Besley, Timothy and Torsten Persson (2009). "The origins of state capacity: Property rights, taxation, and politics". In: *American Economic Review* 99.4, pp. 1218–1244.

— (2010). "State Capacity, Conflict, and Development". In: *Econometrica* 78.1, pp. 1–34.

— (2011). *Pillars of Prosperity: The Political Economics of Development Clusters*. Princeton, N.J.: Princeton University Press.

Brewer, John (1989). *The Sinews of Power: War, Money, and the English State, 1688-1783*. Boston, MA: Unwin Hyman.

Cantoni, Davide, Cathrin Mohr, and Matthias Weigand (2024). "The Rise of Fiscal Capacity: Administration and State Consolidation in the Holy Roman Empire". In: *Econometrica* 92.5, pp. 1439–1472.

Capie, Forrest (2001). "The legacy of Western European fiscal and monetary institutions for the New World". In: *The origins and development of stable fiscal and monetary institutions in England*. Ed. by Michael D. Bordo and Cortes-Conde Roberto. Cambridge: Cambridge University Press, pp. 19–58.

Cederman, Lars-Erik et al. (2023). "War did make states: Revisiting the Bellicist Paradigm in early modern Europe". In: *International Organization* 77.2, pp. 324–362.

Centeno, Miguel Angel (2002). *Blood and Debt: War and the Nation-State in Latin America.* University Park, Pa: Pennsylvania State University Press.

Cox, Gary W, Mark Dincecco, and Massimiliano Gaetano Onorato (2024). "Window of opportunity: War and the origins of parliament". In: *British Journal of Political Science* 54.2, pp. 405–421.

Daunton, Martin (2012). "The politics of British taxation, from the Glorious Revolution to the Great War". In: *The Rise of Fiscal States: A Global History 1500-1914*. Ed. by O'Brien Yun-Casalilla Bartalome, Patrick K., and Francisco Comin Comin. Cambridge: Cambridge University Press, pp. 111–142.

De Magalhaes, Leandro and Francesco Giovannoni (2022). "War and the Rise of Parliaments". In: *European Economic Review* 148, p. 104195.

Dincecco, Mark (2011). *Political Transformations and Public Finances: Europe, 1650-1913.* New York, NY: Cambridge University Press.

— (2015). "The Rise of Effective States in Europe". In: *The Journal of Economic History* 75.3, pp. 901–918.

— (2017). *State Capacity and Economic Development: Present and Past.* Cambridge, MA: Cambridge University Press.

Dincecco, Mark and Yuhua Wang (2018). "Violent conflict and political development over the long run: China versus Europe". In: *Annual Review of Political Science* 21, pp. 341–358.

Ertman, Thomas (1997). *Birth of the Leviathan: Building States and Regimes in Medieval and Early Modern Europe*. New York, NY: Cambridge University Press.

Fritschy, Wantje, Marjolein't Hart, and Edwin Horlings (2012). "Long-term trends in the fiscal history of the Netherlands, 1515-1913". In: *The Rise of Fiscal States: A Global History 1500-1914*. Ed. by O'Brien Yun-Casalilla Bartalome, Patrick K., and Francisco Comin Comin. Cambridge: Cambridge University Press, pp. 39–66.

Fukuyama, Francis (2011). *The Origins of Political Order: From Prehuman Times to the French Revolution*. New York, NY: Farrar, Straus and Giroux.

Garfias, Francisco (2018). "Elite competition and state capacity development: Theory and evidence from post-revolutionary Mexico". In: *American Political Science Review* 112.2, pp. 339–357.

Garfias, Francisco and Emily Sellars (2022a). "State building in historical political economy". In.

Garfias, Francisco and Emily A Sellars (2022b). "When state building backfires: elite coordination and popular grievance in rebellion". In: *American Journal of Political Science* 66.4, pp. 977–992.

Garfinkel, Michelle R and Stergios Skaperdas (2000). "Conflict without misperceptions or incomplete information: how the future matters". In: *Journal of conflict resolution* 44.6, pp. 793–807.

Genç, Mehmet (2000). *Osmanlı İmparatorluğu'nda Devlet ve Ekonomi*. İstanbul: Ötüken.

Gennaioli, Nicola and Hans-Joachim Voth (2015). "State Capacity and Military Conflict". In: *The Review of Economic Studies* 82.4, pp. 1409–1448.

Gibilisco, Michael (2021). "Decentralization, repression, and gambling for unity". In: *The Journal of Politics* 83.4, pp. 1353–1368.

Goldstein, Daniel A. N. (2023). "Reversals of capacity: Norms, culture, and institutional disruption". In: *The Journal of Politics*.

Grzymala-Busse, Anna (2020). "Beyond war and contracts: The medieval and religious roots of the European state". In: *Annual Review of Political Science* 23, pp. 19–36.

Hanioğlu, M. Şükrü (2008). *A Brief History of the Late Ottoman Empire*. Princeton: Princeton University Press.

Hechter, Michael (2000). *Containing nationalism*. Oxford: Oxford University Press.

Hintze, Otto (1975). *The Historical Essays of Otto Hintze*. New York, NY: Oxford University Press.

Hoffman, Philip T (1994). "Early Modern France, 1450-1700". In: *Fiscal crises, liberty, and representative government*. Ed. by Philip T Hoffman and Kathryn. Norberg. Stanford: Stanford University Press, pp. 226–252.

Johnson, Noel D. and Mark Koyama (2014). "Tax Farming and the Origins of State Capacity in England and France". In: *Explorations in Economic History* 51, pp. 1–20.

Kamen, Henry (1980). *Spain in the Later Seventeenth Century, 1665-1700*. New York: Longman.

Karagöz, Rıza (2003). *Canikli Ali Paşa*. Ankara: Türk Tarih Kurumu.

Karaman, K. Kivanç and Şevket Pamuk (2010). "Ottoman State Finances in European Perspective, 1500–1914". In: *The Journal of Economic History* 70.3, pp. 593–629.

— (2013). "Different Paths to the Modern State in Europe: The Interaction Between Warfare, Economic Structure, and Political Regime". In: *American Political Science Review* 107.3, pp. 603–626.

Kenkel, Brenton and Jack Paine (2023). "A theory of external wars and European parliaments". In: *International Organization* 77.1, pp. 102–143.

Kiser, Edgar (1994). "Markets and hierarchies in early modern tax systems: a principal-agent analysis". In: *Politics & Society* 22.3, pp. 284–315.

Kiser, Edgar and Joachim Schneider (1994). “Bureaucracy and efficiency: an analysis of taxation in early modern Prussia”. In: *American Sociological Review*, pp. 187–204.

Klein, Julius (1920). *The Mesta: A Study in Spanish Economic History, 1273-1836*. Cambridge, MA: Harvard University Press.

Ko, Chiu Yu, Mark Koyama, and Tuan-Hwee Sng (2018). “Unified china and divided Europe”. In: *International Economic Review* 59.1, pp. 285–327.

Koyama, Mark, Chiaki Moriguchi, and Tuan-Hwee Sng (2018). “Geopolitics and Asia’s little divergence: State building in China and Japan after 1850”. In: *Journal of Economic Behavior & Organization* 155, pp. 178–204.

Levi, Margaret (1988). *Of Rule and Revenue*. Berkeley, CA: University of California Press.

Macchiavello, Rocco (2022). “Relational contracts and development”. In: *Annual Review of Economics* 14.1, pp. 337–362.

Magiya, Yusuf (2022). “Predatory Rulers, Credible Commitment and Tax Compliance in the Ottoman Balkans”. In: *Journal of Historical Political Economy* 2.2, pp. 263–297.

Mares, Isabela and Didac Queralt (2015). “The Non-Democratic Origins of Income Taxation”. In: *Comparative Political Studies* 48.14, pp. 1974–2009.

Meng, Anne, Jack Paine, and Robert Powell (2022). “Authoritarian Power Sharing: Concepts, Mechanisms, and Strategies”. In: *Annual Review of Political Science* 26.

North, Douglass C. and Barry R. Weingast (1989). “Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England”. In: *The Journal of Economic History* 49.4, pp. 803–832.

Pamuk, Şevket (2005). *Osmanlı-Türkiye Iktisadi Tarihi 1500-1914*. İstanbul: İletişim.

— (2014). “Fiscal Centralisation and the Rise of the Modern State in the Ottoman Empire”. In: *The Medieval History Journal* 17.1, pp. 1–26.

Quataert, Donald (1968). “Famine in Turkey, 1873–1875”. In: *Regional Studies* 201, pp. 1–54.

Queralt, Didac (2019). "War, international finance, and fiscal capacity in the long run". In: *International Organization* 73.4, pp. 713–753.

Şahin, Canay (2003). "The Rise and fall of an Ayan family in eighteenth century Anatolia: The Caniklizades (1737-1808)". PhD thesis. Bilkent Universitesi (Turkey).

Salzmann, Ariel (1993). "An ancien regime revisited:"Privatization" and political economy in the eighteenth-century Ottoman Empire". In: *Politics & Society* 21.4, pp. 393–423.

Schenoni, Luis L (2021). "Bringing war back in: Victory and state formation in Latin America". In: *American Journal of Political Science* 65.2, pp. 405–421.

Sezer Feyzioğlu, Hamiyet (2017). *Bir Osmanlı Valisinin Hazin Sonu: Tepedelenli Ali Paşa İsyanı*. İstanbul: Türkiye İş Bankası Kültür Yayınları.

Soifer, Hillel David (2015). *State Building in Latin America*. New York, NY: Cambridge University Press.

Spaniel, William (2020). "Power transfers, military uncertainty, and war". In: *Journal of Theoretical Politics* 32.4, pp. 538–556.

Spruyt, Hendrik (2017). "War and state formation: Amending the bellicist theory of state making". In: *Does War make States?: Investigations of Charles Tilly's Historical Sociology*. Cambridge University Press, pp. 73–97.

Suryanarayan, Pavithra and Steven White (2021). "Slavery, reconstruction, and bureaucratic capacity in the American south". In: *American Political Science Review* 115.2, pp. 568–584.

Tan, James (2017). *Power and public finance at Rome, 264-49 BCE*. Oxford University Press.

Tilly, Charles (1992). *Coercion, Capital, and European States, AD 990-1992*. Cambridge, MA: Blackwell.

Tortella, Gabriel and Francisco Comin (2001). "Fiscal and monetary institutions in Spain (1600-1900)". In: *Transferring Wealth and Power from the Old to the New World: Monetary and Financial Institutions in the 17th Through the 19th Centuries*. Ed. by

Michael D. Bordo and Cortes-Conde Roberto. Cambridge: Cambrdige University Press, pp. 140–186.

Watson, Joel (2021). “Theoretical foundations of relational incentive contracts”. In: *Annual Review of Economics* 13.1, pp. 631–659.

Weber, Max (1968). *Economy and Society*. Berkeley, CA: University of California Press.

White, Eugene N. (2004). “From Privatized to Government-Administered Tax Collection: Tax Farming in Eighteenth-Century France”. In: *The Economic History Review* 57.4, pp. 636–663.

Yaycıoğlu, Ali (2016). *Partners of the Empire: The Crisis of the Ottoman Order in the Age of Revolutions*. Stanford, CA: Stanford University Press.

Zens, Robert (2011). “Provincial Powers: The Rise of Ottoman Local Notables (Ayan)”. In: *History Studies* 3.3, pp. 433–447.

Appendix

Contents

A Proofs

A.1 Proof of Lemma 2.1

There exists a unique optimal investment in war capacity. If war pressure is expected to be too high relative to the future tax flow, the state will not invest in war capacity ($w = 0$). For intermediate levels of future revenue, the state invests the interior solution of optimal war investment ($w = \hat{w}$) and keeps the rest of the collected revenue. For high future tax flows, the state invests all of the collected revenue, i.e., the binding constraint, in war capacity ($w = X$).

This statement can be written as the state maximizing its utility given its choice of war capacity:

$$w = \begin{cases} X & X < \hat{w} \\ \hat{w} & X > \hat{w} \\ 0 & 0 > \hat{w} \end{cases}$$

And, given the Tullock functional form, the state sets the war capacity subject to the following constraints:

$$w = \begin{cases} X & \frac{(X^{\frac{r+1}{2}}+\varepsilon^r)^2}{r\varepsilon^r} \leq F \\ \hat{w} & \frac{\varepsilon^r}{r} \leq F < \frac{(X^{\frac{r+1}{2}}+\varepsilon^r)^2}{r\varepsilon^r} \\ 0 & F < \frac{\varepsilon^r}{r} \end{cases} \quad \text{where } \hat{w} = (\sqrt{r\varepsilon^r F} - \varepsilon^r)^{\frac{2}{r+1}}$$

Proof:
The state faces the following war investment problem, where X is determined by the bargaining that is completed by the time the state makes its investment choice.

$$\max_{w \leq X} \quad X - w + p(w, \varepsilon, r) \cdot F, \tag{7}$$

where $p(w, \varepsilon, r)$ is probability of success in the war.

The optimization problem in Equation (7) is continuous in w on the compact interval $w \in [0, X]$. By the Weierstrass extreme value theorem, there exists a solution $\hat{w}$. Uniqueness follows from the strict concavity of the objective, since the second derivative of $p(w, \varepsilon, r)$ with respect to w is negative (by assumption for all values $r < \hat{r}$ and ε).

While the optimal $\hat{w}$ cannot be further specified on the interval, the solution depends on the relationship between $\hat{w}$ and X. Given the corner solution where $X < \hat{w}$, the state invests all resources $w = X$. For the corner solution, $\hat{w} < 0$, the state makes no investment, $w = 0$.

To solve for an explicit w, we turn to the generalized Tullock contest functional form where $p(w, \varepsilon, r) = \frac{w^r}{w^r + \varepsilon^r}$ so that we can isolate w. Note that, to ensure that the second partial derivative of $p(w, \varepsilon, r)$ is negative with respect to w, it must be the case that r is bounded from above by $\hat{r}$, where this upper bound is defined by r, where $\varepsilon^r(r-1) - (1+r)w^r = 0$. This follows from treating w as exogenous and then finding when $\frac{\partial^2 p}{\partial w^2} = \frac{r\varepsilon^r w^{r-2}((r-1)\varepsilon^r - (r+1)w^r)}{(\varepsilon^r + w^r)^3} < 0$.

Next, we analyze the optimal war capacity w by considering three cases: 1) when the constraint is slack, 2) when the constraint is binding, and 2 when it is not worthwhile for the state to invest in war capacity. The constraint can be expressed as $w + s^2 = X$, where $s^2 \geq 0$ is the slack parameter.

Case 1: The constraint is slack ($s^2 > 0$).

We can rewrite the first-order condition with respect to w as follows:

$$\begin{aligned} -1+&\frac{\partial}{\partial w}p(w,\varepsilon,r)F = 0 \\ \Rightarrow&\frac{r\varepsilon^r w^{(r-1)}}{(w^r+\varepsilon^r)^2}F = 1 \\ \Rightarrow&\hat{w} = (\sqrt{r\varepsilon^r F} - \varepsilon^r)^{\frac{2}{r+1}} \end{aligned}$$

The slack parameter is not binding if $X - \hat{w} > 0$, which holds when $F < \frac{(X^{\frac{r+1}{2}}+\varepsilon^r)^2}{r\varepsilon^r}$.

Case 2: The constraint is binding ($s^2 = 0$).

This occurs when $F \geq \frac{(X^{\frac{r+1}{2}}+\varepsilon^r)^2}{r\varepsilon^r}$. Then $\hat{w} = X$.

Case 3: Optimal to make no investment ($w = 0$).

The state makes no investment if optimal investment is negative, which is true if $0 > (\sqrt{r\varepsilon^r F} - \varepsilon^r)^{\frac{2}{r+1}}$ or, equivalently, $F < \frac{\varepsilon^r}{r}$. $\square$

A.2 Proof of Lemma 2.2

The magnate is willing to accept the following offers (x):

$$\hat{x} \equiv x = \begin{cases} \underline{\mathrm{x}} < x \leq x_0 & \text{For } \hat{w} < x_0 \\ x_0 < x \leq \bar{x} & \text{For } x_0 < \hat{w} \end{cases}$$

$$\begin{aligned} &\text{where } \underline{\mathrm{x}} = \hat{w} - (F-I)(p(\hat{w},\varepsilon,r) - p(x,\varepsilon,r)) \\ &\text{and } \bar{x} = \begin{cases} x_0 + (F-I)(p(x,\varepsilon,r) - p(x_0,\varepsilon,r)) & x < \hat{w} \\ x_0 + (F-I)(p(\hat{w},\varepsilon,r) - p(x_0,\varepsilon,r)) & \hat{w} < x \end{cases} \end{aligned}$$

Proof:

The magnate's objective function is:

$$1 - x + p(w,\varepsilon,r)\cdot F + (1 - p(w,\varepsilon,r))I$$

We consider two cases for fiscal control (i.e., the state's offers to the magnate), depending on whether the state's optimal war investment is above or below the initial contract.

1. For $\hat{w} < x_0$, optimal investment is already feasible and the state invests only $\hat{w}$ in the war effort. This yields:

   $$1 - x + p(\hat{w}, \varepsilon, r)F + (1 - p(\hat{w}, \varepsilon, r))I \tag{8}$$

   As the optimal war investment is invariant with respect to x when the constraint is not binding (see above), x only enters directly into Equation 8. Hence, the function is decreasing in x (the first order condition is negative). Thus, there is no benefit for the magnate to give up tax above the threshold x_0.

   Moreover, any improvement over the initial contract is accepted $x < x_0$, provided that $\hat{w}$ remains feasible. Below this threshold, the state invests all revenues in the war effort. Thus, the magnate prefers to give the state taxes that are sufficient to finance optimal war investments when:

   $$1 - \hat{w} + p(\hat{w}, \varepsilon, r)F + (1 - p(\hat{w}, \varepsilon, r))I \geq 1 - x + p(x, \varepsilon, r)F + (1 - p(x, \varepsilon, r))I$$

   This yields:

   $$\underline{\mathrm{x}} \equiv x \geq \hat{w} - (F - I)(p(\hat{w}, \varepsilon, r) - p(x, \varepsilon, r))$$

   We know that the expression $(p(\hat{w}, \varepsilon, r) - p(x, \varepsilon, r))$ is positive because $p(x, \varepsilon, r)$ is increasing in x as it was increasing in w and $\hat{w} > x$ by construction. Thus, the magnate is willing to accept an offer slightly below the optimal war investment, but prefers to give the state some taxes for investment rather than, for instance, keeping all taxes.

2. For $x_0 < \hat{w}$, the optimal investment is above the reservation contract, so further taxes can increase the state's investment in the war. The magnate is willing to concede further taxes if:

   $$1 - x + p(x, \varepsilon, r)F + (1 - p(x, \varepsilon, r))I \geq 1 - x_0 + p(x_0, \varepsilon, r)F + (1 - p(x_0, \varepsilon, r))I$$

   Rearranging terms, this holds when:

   $$x_0 + (F - I)(p(x, \varepsilon, r) - p(x_0, \varepsilon, r)) \geq x \equiv \bar{x}$$

   We know that the term $(p(x, \varepsilon, r) - p(x_0, \varepsilon, r))$ is positive because $p(x, \varepsilon, r)$ is increasing in x as it was increasing in w and $x > x_0$ by construction. We also know that $F > I$ holds by assumption. Essentially, the returns to increasing the probability of winning the war and the benefits of doing so must exceed the additional tax cost of the investment. Thus, the magnate will accept any offer $x \in [x_0, \bar{x}]$.

In addition, if the state offers to collect less than the optimal investment, the state's investment is binding at the level of taxes collected by the state: $x = X$. If they offer to collect more than the optimal car investment, the state will invest the interior solution $x = \hat{w}$ if it comes to an agreement with the magnate, and pocket the rest of the collected taxes. In both cases, the threshold $\bar{x}$ holds as the threshold at which the magnate is willing to concede more taxes than the initial contract. $\square$.

A.3 Proof of Proposition 1

The equilibrium contract and war investment (x^*, w^*) are:

- For low war pressure or high initial fiscal control such that $\hat{w} < x_0$, the state proposes any value $x > x_0$ and the magnate rejects it. The state collects $x^* = x_0$, retains the rents $x_0 - \hat{w}$ and war expenditure is $w^* = \hat{w}$.
- For high war pressure or low initial fiscal control such that $\hat{w} \geq x_0$, the state proposes $x^* = \bar{x} = x_0 + (F - I)(p(\hat{w}, \varepsilon, r) - p(x_0, \varepsilon, r))$ and the magnate accepts. The state invests $w^* = \hat{w}$ in war spending. The state retains rents $\bar{x} - \hat{w}$ if $\bar{x} > \hat{w}$.

Proof:

- For $\hat{w} < x_0$, by Lemma 2.2, the magnate rejects every offer $x > x_0$, which is the only way the state increases its fiscal control over the initial contract. Since every offer the state makes $x > x_0$ is rejected, the state is indifferent between making any offer. The state invests the optimal amount in the war $w^* = \hat{w}$ and keeps the rent $x_0 - \hat{w}$.
- For $x_0 < \hat{w}$, the result follows directly from Lemmas 2.1 and 2.2. Since the state makes offers that extract the most resources from the magnate, they offer $\bar{x}$, which is accepted by the magnate. The state receives rents while setting optimal war spending, which the magnate accepts as an improvement over the initial contract, if $x_0 - \hat{w}$ and no rents otherwise. $\square$

In addition, note that using the Tullock functional form, we have the following equilibrium investment in war capacity:

$$w^* = \begin{cases} x^* & \frac{(x^{*\frac{r+1}{2}} + \varepsilon^r)^2}{r\varepsilon^r} \leq F \\ \hat{w} & \frac{\varepsilon^r}{r} \leq F < \frac{(x^{*\frac{r+1}{2}} + \varepsilon^r)^2}{r\varepsilon^r} \\ 0 & F < \frac{\varepsilon^r}{r} \end{cases}$$
$$\text{where } \hat{w} = (\sqrt{r\varepsilon^r F} - \varepsilon^r)^{\frac{2}{r+1}}$$

Moreover, we have the following equilibrium level of fiscal control:

$$x^* = \begin{cases} x_0 & \text{For } \hat{w} < x_0 \\ x_0 + (F - I)(\frac{\hat{w}^r}{\hat{w}^r + \varepsilon^r} - \frac{x_0^r}{x_0^r + \varepsilon^r}) & \text{For } x_0 \leq \hat{w} \end{cases}$$
$$\text{where } \hat{w} = (\sqrt{r\varepsilon^r F} - \varepsilon^r)^{\frac{2}{r+1}}$$

A.4 Proof of Comparative Statics

Remark 1 *When equilibrium war investment is positive, it is increasing in future tax flows. It increases up to a point with respect to war pressure and returns to investment, and then decreases, giving an inverted-U relationship.*

Remark 2 *The equilibrium fiscal control is increasing in future tax flows. It is increasing with respect to the initial contract if $\hat{w} < x_0$, otherwise it depends. It increases up to a point with respect to war pressure and returns to war investment, and then decreases. It is decreasing with respect to insulation.*

Proof:
For Remark 1, note that optimal war spending, in the absence of binding constraints from bargaining, is invariant to insulation and initial fiscal control. Focusing on optimal war investment from Lemma 2.1, we have the following equation characterizing optimal war investment:

$$-1 + \frac{\partial}{\partial w} p(w, \varepsilon, r) F = 0$$

We define this expression as $G(w, \varepsilon, r, F)$, which we assume to be continuously differentiable and to have a non-zero first derivative with respect to w. We then apply the Implicit Function Theorem to consider how the optimal war investment shifts in the other parameters. First, we consider the future tax flow:

$$\frac{\partial w^*}{\partial F} = -\frac{\frac{\partial}{\partial w} p(w, \varepsilon, r)}{\frac{\partial^2}{\partial w^2} p(w, \varepsilon, r) F}$$

Since the second derivative of $p(w, \varepsilon, r)$ with respect to w is negative, but the first is positive, this expression is positive. Next, by parallel calculations, we consider the effect with respect to war pressure and returns to war investment:

$$\frac{\partial w^*}{\partial \varepsilon} = -\frac{\frac{\partial}{\partial w \partial \varepsilon} p(w, \varepsilon, r)}{\frac{\partial^2}{\partial w^2} p(w, \varepsilon, r)}$$

$$\frac{\partial w^*}{\partial r} = -\frac{\frac{\partial}{\partial w \partial r} p(w, \varepsilon, r)}{\frac{\partial^2}{\partial w^2} p(w, \varepsilon, r)}$$

Again, the second derivative of $p(w, \varepsilon, r)$ with respect to w is negative, so whatever the sign of the cross partial derivative in the numerator is, it determines how optimal investment shifts with respect to war pressure or returns to investment. We leave the signs of these cross partial derivatives unspecified, except to assume that they switch within the feasible parameter set. A functional form that satisfies this assumption is the Tullock contest function, which we use in the figures in the body of the paper.

Turning to Remark 2, fiscal control when it is renegotiated is given by the following expression:

$$x_0 + (F - I)(p(\hat{w}, \varepsilon, r) - p(x_0, \varepsilon, r)) \tag{9}$$

As we are only considering the case where $\hat{w} > x_0$, we know that the term $p(x_0, \varepsilon, r)$ is invariant with respect to F, since in this case $w = x_0$. However, for $p(\hat{w}, \varepsilon, r)$, this function increases in F because $\hat{w}$ increases in future tax and the probability of winning increases in w. We also assume that $F > I$. That is, the derivative with respect to F is increasing:

$$p(\hat{w}, \varepsilon, r) + (F - I)\frac{\partial p(\hat{w}, \varepsilon, r)}{\partial \hat{w}} \frac{\partial \hat{w}}{\partial F} > 0$$

Moreover, as optimal investment is invariant to insulation, the derivative with respect to I of Equation 9 is negative as know that $p(\hat{w}, \varepsilon, r) - p(x_0, \varepsilon, r) > 0$.

For the initial contract, if $\hat{w} < x_0$, then investment in the war is invariant with respect to the initial contract, and hence the derivative with respect to x_0 of Equation 9 is positive and fiscal control is increasing: $1 > 0$. If $\hat{w} > x_0$, then only the condition $p(x_0, \varepsilon, r)$ changes. In this case, the fiscal control increases the initial contract if:

$$1 > (F - I)\frac{\partial p(x_0, \varepsilon, r)}{\partial x_0}$$

Otherwise, fiscal control is decreasing in the initial contract. For example, the latter case is more likely as F increases.

For returns to war investment (when $\hat{w} > x_0$), the derivative is as follows:

$$(F - I)(\frac{\partial p(\hat{w}, \varepsilon, r)}{\partial \hat{w}} \frac{\partial \hat{w}}{\partial r} - \frac{\partial p(x_0, \varepsilon, r)}{\partial r})$$

This is positive as long as $\frac{\partial \hat{w}}{\partial r}$ is positive and $\frac{\partial p(\hat{w},\varepsilon,r)}{\partial \hat{w}}\frac{\partial \hat{w}}{\partial r} > \frac{\partial p(x_0,\varepsilon,r)}{\partial r}$. This is because $\frac{\partial p(\hat{w},\varepsilon,r)}{\partial \hat{w}}$, $\frac{\partial p(x_0,\varepsilon,r)}{\partial r}$ are positive. This becomes negative once $\frac{\partial \hat{w}}{\partial r}$ is negative or under the first condition and $\frac{\partial p(\hat{w},\varepsilon,r)}{\partial \hat{w}}\frac{\partial \hat{w}}{\partial r} < \frac{\partial p(x_0,\varepsilon,r)}{\partial r}$.

Finally, similarly for war pressure, the derivative is as follows:

$$(F-I)(\frac{\partial p(\hat{w},\varepsilon,r)}{\partial \hat{w}}\frac{\partial \hat{w}}{\partial \varepsilon} - \frac{\partial p(x_0,\varepsilon,r)}{\partial \varepsilon})$$

This is positive as long as $\frac{\partial \hat{w}}{\partial r}$ is positive because $\frac{\partial p(\hat{w},\varepsilon,r)}{\partial \hat{w}}$ is positive and $\frac{\partial p(x_0,\varepsilon,r)}{\partial \varepsilon}$ is negative. It becomes negative once $\frac{\partial \hat{w}}{\partial \varepsilon}$ is negative. □

B Model Extensions

B.1 Extension: Long-term Fiscal Control

Fiscal control increases in the first period and decreases in the second given low compliance capacity and low initial fiscal control. Increased fiscal control in the first period can be sustained if compliance capacity is sufficiently high.
Proof:

The state's and magnate's utilities, respectively:

$$\begin{aligned} Eu_s(x_t) = &\begin{cases} x_1 & M \text{ accepts} \\ x_0 & M \text{ rejects} \end{cases} - w \\ &+ p(\hat{w},\varepsilon,r)\begin{cases} x_2 \cdot F & S \text{ and } M \text{ adhere} \\ c \cdot x_1 \cdot F & \text{Either renege} \end{cases} \end{aligned}$$

$$\begin{aligned} Eu_M(\hat{x_t}) = &\begin{cases} 1-x_1 & M \text{ accepts} \\ 1-x_0 & M \text{ rejects} \end{cases} \\ &+ p(\hat{w},\varepsilon,r)\begin{cases} (1-x_2)\cdot F & S \text{ and } M \text{ adhere} \\ (c\cdot(1-x_1)+(1-c))F & \text{Either renege} \end{cases} \\ &+ (1-p(\hat{w},\varepsilon,r))I \end{aligned}$$

Period 2. We start in the second period and therefore take the negotiated contracts (x_1, x_2) as exogenous. First, consider the magnate's decision to adhere to the negotiated contract:

$$
\begin{aligned}
(1-x_2)F &\geq (c\cdot(1-x_1)+(1-c))F \\
cx_1 &\geq x_2
\end{aligned}
$$

The magnate will at most accept a second period offer of $x_2 = cx_1$, or will prefer to renege. Thus, we can rule out an increase in capacity beyond x_1, since the magnate will never accept such an offer. As for the state, it prefers to stick to the strategy given:

$$
\begin{aligned}
x_2 \cdot F &\geq c \cdot x_1 \cdot F \\
x_2 &\geq cx_1
\end{aligned}
$$

Conversely, the state will accept at least a second period contract of $x_2 = cx_1$. Thus, from the perspective of the first period, the state and the magnate know that only a second period offer of $x_2 = cx_1$ will be honored by both parties. Therefore, the state can only maintain its increased war capacity if it has the domestic compliance to maintain it (high c).

Period 1. Turning to the first period, the state and the magnate now consider the revised contract $\{x_1, x_2\} = \{x_1, c\cdot x_1\}$. The state wants to revise this contract if:

$$
\begin{aligned}
&x_1 - w(x_1) + p(w(x_1),\varepsilon,r)(c\cdot x_1)F \geq x_0 - w(x_0) + p(w(x_0),\varepsilon,r)x_0F \\
&\qquad \Rightarrow \left(p(w(x_1),\varepsilon,r)(c\cdot x_1) - p(w(x_0),\varepsilon,r)x_0\right)F + (x_1 - x_0) + (w(x_0) - w(x_1)) \geq 0
\end{aligned}
$$

Turning to the magnate, they accept a revised contract if:

$$
\begin{aligned}
&1 - x_1 + p(w(x_1),\varepsilon,r)(1-(c\cdot x_1))F + (1-p(w(x_1),\varepsilon,r))I \\
&\quad \geq 1 - x_0 + p(w(x_0),\varepsilon,r)(1-x_0)F + (1-p(w(x_0),\varepsilon,r))I \\
&\Rightarrow p(w(x_1),\varepsilon,r)((1-(c\cdot x_1))F - I) - p(w(x_0),\varepsilon,r)((1-x_0)F - I) + (x_0 - x_1) \geq 0
\end{aligned}
$$

For the sake of figures and tractability, we now assume the Tullock functional form and let $r = 1$. The state will revise the contract if:

$$
\begin{aligned}
&\left(p(w(x_1),\varepsilon,r)(c\cdot x_1) - p(w(x_0),\varepsilon,r)x_0\right)F + (x_1 - x_0) + (w(x_0) - w(x_1)) \geq 0 \\
&\left(\frac{w(x_1)}{w(x_1)+\varepsilon}(c\cdot x_1) - \frac{w(x_0)}{w(x_0)+\varepsilon}x_0\right)F + (x_1 - x_0) + (w(x_0) - w(x_1)) \geq 0
\end{aligned}
$$

Similar to the baseline model, the state invests $w = \sqrt{\varepsilon x_2 F} - \varepsilon$ as long as $\sqrt{\varepsilon x_2 F} - \varepsilon \leq X$ and investments $w = X$ given:

$$\hat{F} \geq \max\{\frac{(x_1 + \varepsilon)^2}{c \cdot x_1 \cdot \varepsilon}, \frac{(x_0 + \varepsilon)^2}{x_0 \varepsilon}\}.$$

This follows from the war capacity investment problem:

$$\begin{aligned} -1 + \frac{\partial p}{\partial w} x_2 F = 0 \\ \frac{\varepsilon}{(w + \varepsilon)^2} x_2 F = 1 \\ \sqrt{\varepsilon x_2 F} - \varepsilon = w. \end{aligned}$$

Isolating w and noting when this value exceeds the collected first period tax X and then solving for F yields:

$$\begin{aligned} \sqrt{\varepsilon x_2 F} - \varepsilon \geq X \\ F \geq \frac{(X + \varepsilon)^2}{\varepsilon x_2} \end{aligned}$$

The magnate will abide by the contract if:

$$\frac{w(x_1)}{w(x_1) + \varepsilon}((1 - (c \cdot x_1))F - I) - \frac{w(x_0)}{w(x_0) + \varepsilon}((1 - x_0)F - I) + (x_0 - x_1) \geq 0$$

At full war investment. Owing to the messy algebra, it is helpful to analyze the case where the state spends all its resources on war ($w(x_1) = x_1, w(x_0) = x_0$). This occurs for a sufficiently high F (as specified above). Then we have two conditions:

$$\frac{c x_1^2}{x_1 + \varepsilon} \geq \frac{x_0^2}{x_0 + \varepsilon} \tag{10}$$

$$\frac{x_1}{x_1 + \varepsilon}((1 - (c \cdot x_1))F - I) - \frac{x_0}{x_0 + \varepsilon}((1 - x_0)F - I) \geq x_1 - x_0. \tag{11}$$

Now we can consider two types of contracts, first, the state maintains enhanced fiscal control ($c x_1 > x_0$) or the state loses postwar fiscal control ($c x_1 < x_0$). This depends on their second period compliance control, where they can maintain improved control if $c > \frac{x_0}{x_1}$ or lose control if $c < \frac{x_0}{x_1}$.

Note that at the indifference point: $c = \frac{x_0}{x_1}$, the conditions become:

$$\frac{x_1}{x_1+\varepsilon} \geq \frac{x_0}{x_0+\varepsilon} \tag{12}$$

which always holds since $x_1 > x_0$. Therefore, the state will accept any offer if $c > \frac{x_0}{x_1}$ and set x_1 as high as the magnate is willing to accept. When the state loses capacity ($c < \frac{x_0}{x_1}$), its problem becomes more difficult to satisfy:

$$x_1 \geq \frac{x_0^2 + x_0\sqrt{4c\varepsilon^2 + 4c\varepsilon x_0 + x_0^2}}{2(c\varepsilon + cx_0)}. \tag{13}$$

Taking the derivative with respect to x_0 yields:

$$\frac{\frac{x_0(4c\varepsilon+2x_0)}{2\sqrt{4c\varepsilon^2+4c\varepsilon x_0+x_0^2}} + \sqrt{4c\varepsilon^2 + 4c\varepsilon x_0 + x_0^2} + 2x_0}{2(c\varepsilon + cx_0)} - \frac{c\left(x_0\sqrt{4c\varepsilon^2 + 4c\varepsilon x_0 + x_0^2} + x_0^2\right)}{2(c\varepsilon + cx_0)^2}.$$

Considering when this is positive and simplifying yields:

$$\frac{(2\varepsilon + x_0)\left(x_0\left(\sqrt{4c\varepsilon(\varepsilon + x_0) + x_0^2} + x_0\right) + 2c\varepsilon(\varepsilon + x_0)\right)}{(\varepsilon + x_0)\sqrt{4c\varepsilon(\varepsilon + x_0) + x_0^2}}.$$

As this is positive, the original threshold increases in x_0 so that it becomes harder to satisfy as the initial contract increases.

Turning to the magnate the indifference point $c = \frac{x_0}{x_1}$, when capacity does not change between periods, the condition simplifies to:

$$\begin{aligned} &\frac{x_1}{x_1+\varepsilon}((1-(x_0))F - I) - \frac{x_0}{x_0+\varepsilon}((1-x_0)F - I) \geq x_1 - x_0 \\ \Rightarrow &\left(\frac{x_1}{x_1+\varepsilon} - \frac{x_0}{x_0+\varepsilon}\right)((1-x_0)F - I) - (x_1 - x_0) \geq 0. \end{aligned}$$

As the second term is negative, at a minimum it must be the case that:

$$1 - \frac{I}{F} \geq x_0. \tag{14}$$

Essentially, the insulation payoff must not be too great nor the initial fiscal capacity. Given the general formulation:

$$\begin{aligned} &\frac{x_1}{x_1+\varepsilon}((1-(c\cdot x_1))F - I) - \frac{x_0}{x_0+\varepsilon}((1-x_0)F - I) \geq x_1 - x_0 \\ \Rightarrow &\frac{x_1}{x_1+\varepsilon}((1-cx_1)F - I) - \frac{x_0}{x_0+\varepsilon}((1-x_0)F - I) - (x_1 - x_0) \geq 0. \end{aligned}$$

Clearly, we have from above that their utility from the revised contract is decreasing in c and thus the contract becomes less attractive as c increases. Moreover, as the second and third terms are negative, at a minimum it must be the case that:

$$\frac{1}{c}(1 - \frac{I}{F}) \geq x_1, \tag{15}$$

Hence, the first period contract cannot be too onerous on the magnate. Moreover, as c increases, x_1 is driven down as the contract becomes less attractive to the magnate.

$$I(\frac{x_0}{x_0 + \varepsilon} - \frac{x_1}{x_1 + \varepsilon}) - (x_1 - x_0) + F(\frac{x_1}{x_1 + \varepsilon}(1 - cx_1) - \frac{x_0}{x_0 + \varepsilon}(1 - x_0)) \geq 0$$

The first and second terms are always negative as $x_1 > x_0$. Thus, it must be the case that F is sufficiently high and insulation is sufficiently low so that the added benefit of the higher first period probability of winning the war is worthwhile.

Finally, returning to the state, they will propose the greatest value of x_1 that the magnate will accept if their constraint is satisfied and that they are willing the accept. Thus, they set:

$$\begin{aligned} x_1^* = \max_{x_1 \in [0,1]} x_1 \text{ s.t. } & \frac{x_1}{x_1 + \varepsilon}((1 - cx_1)F - I) - \frac{x_0}{x_0 + \varepsilon}((1 - x_0)F - I) - (x_1 - x_0) = 0 \\ & \text{and } x_1 \geq \frac{x_0^2 + x_0\sqrt{4c\varepsilon^2 + 4c\varepsilon x_0 + x_0^2}}{2(c\varepsilon + cx_0)}. \end{aligned} \tag{16}$$

This yields the solution of x_1^* such that it is the upper bound that the magnate will accept is given by:

$$\begin{aligned} & \frac{\sqrt{4x_0\varepsilon(cF+1)\left(x_0+\varepsilon\right)\left(I+(F+1)x_0-F+\varepsilon\right)+\left(\varepsilon(I-F+\varepsilon)-(F+1)x_0^2\right)^2}}{2(cF+1)\left(x_0+\varepsilon\right)} \\ & + \frac{-I\varepsilon + Fx_0^2 + F\varepsilon + x_0^2 - \varepsilon^2}{2(cF+1)\left(x_0+\varepsilon\right)}. \end{aligned} \tag{17}$$

At the interior war investment solution. An interesting feature of the model extension is that if the interior solution is feasible for both the revised contract and the initial contract, $w(x_1) = \sqrt{\varepsilon c x_1 F} - \varepsilon$ and $w(x_0) = \sqrt{\varepsilon x_0 F} - \varepsilon$, and if fiscal capacity deteriorates $cx_1 < x_0$, then war investment under the revised contract will decrease from the initial contract. Obviously, the state would not agree to this revision.

Since we are interested in the case where there is a reversal of fiscal control, we focus instead on the case where the war investment is binding given the initial contact, but war spending is not given a revised contract. The condition for the corner solution for war investment given the revised contract always exceeds the initial contract because

$$\frac{(x_1+\varepsilon)^2}{c \cdot x_1 \cdot \varepsilon} > \frac{(x_0+\varepsilon)^2}{x_0\varepsilon}$$

which follows as the LHS numerator is always greater than the RHS numerator and the LHS denominator is always less than the RHS denominator as we are focusing on the case $cx_1 < x_0$. This, we focus on the case where $\frac{(x_1+\varepsilon)^2}{c \cdot x_1 \cdot \varepsilon} > F > \frac{(x_0+\varepsilon)^2}{x_0\varepsilon}$.

In this case, the conditions the state and magnate become:

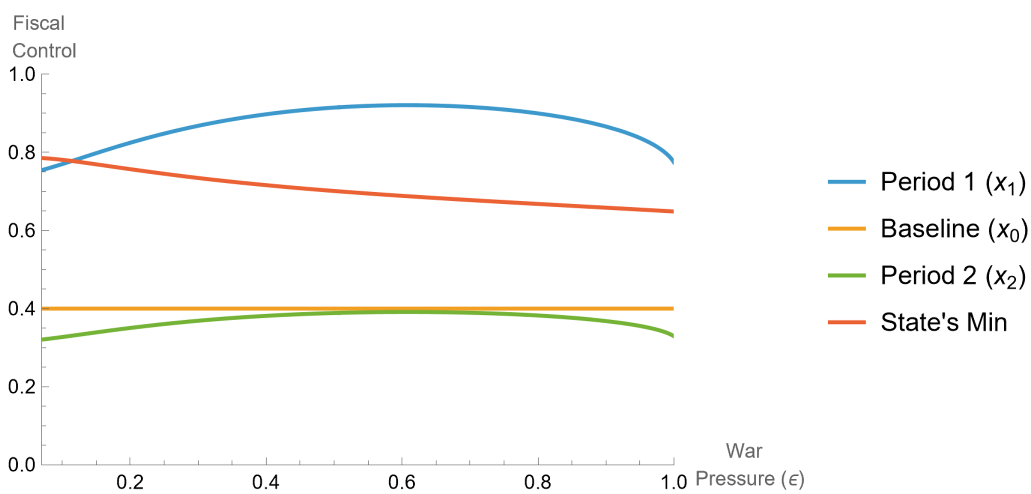
$$\left(\frac{w(x_1)}{w(x_1)+\varepsilon}(c \cdot x_1) - \frac{x_0}{x_0+\varepsilon}x_0\right) F + x_1 - w(x_1) \geq 0 \tag{18}$$

$$\frac{w(x_1)}{w(x_1)+\varepsilon}((1-(c \cdot x_1))F - I) - \frac{x_0}{x_0+\varepsilon}((1-x_0)F - I) + (x_0 - x_1) \geq 0 \tag{19}$$

where $w(x_1) = \sqrt{\varepsilon c x_1 F} - \varepsilon$.

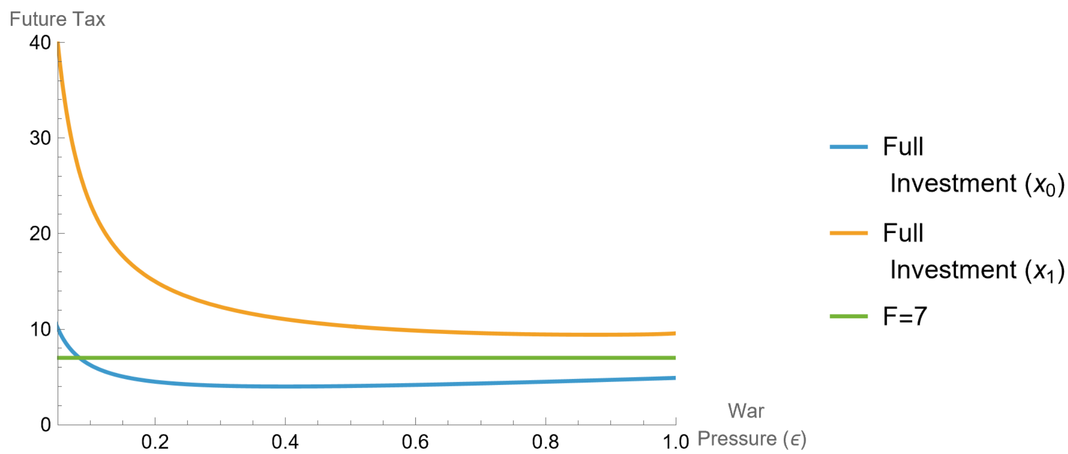
The more complicated expressions avoid nice (or short) closed-form solutions, but the threshold for the state is characterized by isolating x_1 in Equation 18 and ensuring that x_1 exceeds that threshold. Furthermore, the state maximizes the solution of Equation 19 at the indifference point.

Figure A.1: Multi-period Fiscal Control and War Exposure



In the body of the paper, a realization of this part of the extension is presented with the following specification: $x_0 = 0.4, F = 7, I = 0.5, c = 0.425$. The Figure A.1 reproduces this figure. Note that for the first period tax, we focus on the real-valued solution of Equation 19. This figure also includes an additional line in red indicating that the revised first period contract must exceed this value for the state to be willing to accept the revision over the initial contract. The proportion of the horizontal range of the plot where this line exceeds the optimal war investment is not included in figure in the body of the paper. In addition, Figure A.2 indicates when the level of future tax flows (essentially, how much they value survival or the future) is such that the state would invest all of its income in the war. In the figure from the body, we consider when future taxes are at the level indicated by the green line, which is such that the state would invest all of its resources from the initial contract, but not all of its resources from the revised contract. The section at low levels of war pressure, when the state would not invest all the resources from the initial contract, is also removed the area on the horizontal axis from the body of the paper.

Figure A.2: Multi-period Fiscal Control and War Exposure



B.2 Extension: Magnate Proposer

We now suppose that the magnate proposes the contract to the state. In this scenario, the magnate's insulation from the conflict alters war spending. Assuming the Tullock functional form and letting $r = 1$, the magnate would set the following war investment:

$$\hat{w}_M = \sqrt{\varepsilon}\sqrt{F - I} - \varepsilon \tag{20}$$

Note that we modify our notation slightly so that the optimal war spending detailed in the baseline model is denoted $\hat{w}_S$, which is the optimal investment according to the state, while the optimal war investment according to the magnate is $\hat{w}_M$. We can see that the state prefers a higher level of war investment ($\hat{w}_M < \hat{w}_S$). This is because the magnate is partially insulated from the war and therefore prefers to spend less on the war because it is less catastrophic for them to lose than it is for the state.

Where this difference in optimal spending manifests is in the bargaining phase. The state still sets the level of war spending, but since the magnate gains proposal power, if the state and the magnate can come to a revised agreement above the initial contract (i.e., if the magnate's optimal war spending is above the initial contract), the magnate can get the state to accept just enough funds for the magnate's optimal war spending ($x^* = \hat{w}_M, w^* = \hat{w}_M$). This makes the state worse off and also ensures that the state does not collect excess rents. This is because the state would always prefer to spend more on war, and hence any excess funds would go to the war effort.

Overall, by further empowering the magnate, the state's fiscal control suffers. This could have downstream consequences for individuals in the state other than the magnate who are exposed to the conflict and are likely to rely on the state for protection and provision of public goods.

Proof:

First, we derive the magnate's optimal policy. The objective function of the magnate is:

$$
\begin{aligned}
&1 - x + p(w, \varepsilon)F + (1 - p(w, \varepsilon))I \\
&\qquad \Rightarrow 1 - x + I + (F - I) \cdot p(w, \varepsilon)
\end{aligned}
$$

Taking the first order condition with respect to w yields that this function is strictly increasing in w as we assume $F > I$. Hence, the magnate would set w as high as possible, but this has a boundary condition where $x \geq w$. Hence, letting $x = w$, we find that the optimal investment occurs given:

$$
-1 + (F - I)\frac{\partial}{\partial w}p(w, \varepsilon) = 0
$$

Using the Tullock contest function and allowing $r = 1$ and solving the first-order condition (and checking the second-order condition), this function condition is maximized at $\hat{w}_M = \sqrt{\varepsilon(F - I)} - \varepsilon$. This is the optimal war investment for the magnate.

Next, we consider the equilibrium contract and war investment (x^*, w^*).

- For $\hat{w}_S < x_0$, the magnate proposes any value $x < x_0$ and the state rejects it. The state keeps the rents $x_0 - \hat{w}_S$ and the war expenditures are $w^* = \hat{w}_S$.

  In this case, since every offer we consider $x < x_0$ is rejected, the state is indifferent between making any offer. The state rejects every offer $x < x_0$ in this region. Since it is feasible, the state invests its optimal amount in the war $w^* = \hat{w}_S$ and retains the rent $x_0 - \hat{w}_S$ in the first period.

- $\hat{w}_M < x_0 < \hat{w}_S$, the state would like to increase funding but the magnate does not. In this case, the magnate proposes any value $x < x_0$ and the state rejects it. The state keeps no rents and the war expenditures are $w^* = x_0$.

- For $x_0 < \hat{w}_M$, the magnate proposes $x^* = \hat{w}_M$ and the state accepts. The state retains no rents and war spending is set at $w^* = \hat{w}_M$.

The magnate's utility is maximized when $w = \hat{w}_M$ and the government spends all of its revenue, which is the case here because $\hat{w}_M < \hat{w}_S$. The state accepts this because it is an improvement over x_0, even though it is below its optimal spending.

B.3 Extension: Micro-foundations of Future Tax Flow

A simplification of the baseline model is that we focus on a short-term interaction to account for long stretches of historical development. This approach is advantageous for tractability and captures the salient considerations of the impact of an external conflict on elite bargaining. We now consider micro-foundations for future tax flows that take into account incentives to adhere to the bargained deal.

The game occurs in two periods. However, the second period tax flow may be provided micro-foundations through an infinite horizon bargaining model. Suppose that, after the war occurs and should the state remain in power, the state and the magnate engage in an infinitely repeated interaction. Let there be a common discount factor $\beta \in (0, 1)$.

Consider the grim trigger strategy where the state offers $1 - x$ in every period and $1 - x_0$ should the magnate deviate. Moreover, let $x > x_0$ so that the state clearly prefers to retain the agreement. Now, consider that, should the magnate reject the offer, they take all tax revenue (which is captured by the unit 1), but there is then a probability $p_w \in (0, 1)$ in each period that the state loses power. In this case, the magnate faces the decision:

$$\frac{1-x}{1-\beta} \geq 1 + \frac{(1-x_0)p_w}{1-\beta}$$

This yields the cutoff result that the magnate does not deviate if $\beta \geq (1 - x_0)p_w + x$. Hence, the magnate is more willing to remain in the tax contract when there is a high likelihood of the state losing power in each period if they violate the contract.

Most critically, note that, should the magnate remain in the contract, then the flow payoff to the state is given by $F \equiv \frac{x}{1-\beta}$. Consider the realization where per period tax revenue is given by $x = \frac{1}{2}$ and $\beta = 0.95$. In this case, the future expected revenue is approximately $F = 10$. Hence, the infinite horizon bargaining model may rationalize most feasible tax flows $F \geq 1$ in the primary model.

B.4 Extension: Probability of War

We include an extension where the occurrence of war is probabilistic. Now the state and the magnate bargain, and then there is a probability that a war will occur. If it does, it proceeds as detailed above. If war does not ensue, the magnate and the state simply receive the flow payoffs. We find that the results are essentially unchanged from the baseline model. The main difference is that the motivation to win the war is slightly weakened for all players, shifting fiscal control downward in proportion to the likelihood that war will be avoided.

Now the timing runs as follows: the magnate and state bargain and, then, the war occurs with probability $c \in (0, 1)$. If a war takes place, it occurs as detailed in the baseline model. If no war occurs, the state and the magnate receive the flow payoff F.
Proof:

Note that since F is an exogenous parameter, the combination of $c \cdot F$ is effectively identical to the baseline model with F alone. Thus, the following arguments essentially parallel the baseline model, but where the probability of war c now weights downward the payoffs to winning the war.

First, we derive the state's optimal policy. The objective function of the state is now:

$$X - w + c \cdot p(w, \varepsilon)F + (1 - c)F$$

Taking the first order condition with respect to w yields:

$$\begin{aligned} -1 + \frac{\partial}{\partial w} p(w, \varepsilon, r) \cdot F \cdot c = 0 \\ \Rightarrow \frac{\partial}{\partial w} p(w, \varepsilon, r) = \frac{1}{F \cdot c} \end{aligned}$$

As the case of no war drops from consideration, the result is identical as the baseline model being weighted by the likelihood of war c. There are three cases to consider, which align as following (using the Tullock functional form):

$$w = \begin{cases} X & \frac{(X^{\frac{r+1}{2}} + \varepsilon^r)^2}{c \cdot r\varepsilon^r} \leq F \\ \hat{w} & \frac{\varepsilon^r}{c \cdot r} \leq F < \frac{(X^{\frac{r+1}{2}} + \varepsilon^r)^2}{c \cdot r\varepsilon^r} \quad \text{where } \hat{w} = (\sqrt{r\varepsilon^r F} - \varepsilon^r)^{\frac{2}{r+1}} \\ 0 & F < \frac{\varepsilon^r}{c \cdot r} \end{cases}$$

The objective function of the magnate is now:

$$1 - x + c(p(w, \varepsilon)F + (1 - p(w, \varepsilon))I) + (1 - c)F$$

By parallel arguments as Lemma 2.2, we uncover the best response of the magnate:

$$\hat{x} \equiv x = \begin{cases} \underline{x} < x \leq x_0 & \text{For } \hat{w} < x_0 \\ x_0 < x \leq \bar{x} & \text{For } x_0 < \hat{w} \end{cases}$$

$$\begin{aligned} &\text{where } \underline{x} = \hat{w} - c(F - I)(p(\hat{w}, \varepsilon, r) - p(x, \varepsilon, r)) \\ &\text{and } \bar{x} = \begin{cases} x_0 + c(F - I)(p(x, \varepsilon, r) - p(x_0, \varepsilon, r)) & x < \hat{w} \\ x_0 + c(F - I)(p(\hat{w}, \varepsilon, r) - p(x_0, \varepsilon, r)) & \hat{w} < x \end{cases} \end{aligned}$$

Thus, following directly from these best responses and by parallel arguments as Proposition 1, we find the equilibrium contract and war investment:

- For low war pressure or high initial fiscal control ($\hat{w} < x_0$), the state proposes any value $x > x_0$ and the magnate rejects it. The state collects $x^* = x_0$, retains the rents $x_0 - \hat{w}$ and war expenditure is $w^* = \hat{w}$.
- For high war pressure or low initial fiscal control ($\hat{w} \geq x_0$), the state proposes $x^* = \bar{x} = x_0 + c(F - I)(p(\hat{w}, \varepsilon, r) - p(x_0, \varepsilon, r))$ and the magnate accepts. The state invests $w^* = \hat{w}$ in war spending. The state retains rents $\bar{x} - \hat{w}$ if $\bar{x} > \hat{w}$.

C Further Empirical Analyses and Robustness Checks

C.1 Robustness Checks for the Cross-National Evidence

Table A.1: Analysis of the Association Between Battle Deaths and Changes in per Capita Fiscal Revenues with 5 Countries with Most Comprehensive Data

	Dependent Variable:			
	Annual Increase in per capita Fiscal Revenues			
	(1)	(2)	(3)	(4)
Battle Deaths (logged)	0.184***	0.198***	0.184**	0.198**
	(0.056)	(0.056)	(0.084)	(0.082)
Battle Deaths Squared (logged)	−0.124***	−0.132***	−0.124*	−0.132*
	(0.041)	(0.040)	(0.073)	(0.073)
Lagged Dependent Variable		−0.152***		−0.152***
		(0.029)		(0.020)
Constant	0.038*	0.044**	0.038***	0.044***
	(0.020)	(0.020)	(0.013)	(0.017)
Country Fixed Effects	Yes	Yes	Yes	Yes
Period Fixed Effects	Yes	Yes	Yes	Yes
Clustered Standard Errors	No	No	Yes	Yes
Observations	1,146	1,141	1,146	1,141
R^2	0.015	0.038	0.015	0.038

Note: Ordinary Least Squares Regression. Standard errors in parentheses. Period fixed effects are at the 50-year period. Models 3 and 4 cluster the standard errors at the country level. The countries included in the sample are: England, France, Netherlands, Prussia, and Spain. *p<0.1; **p<0.05; ***p<0.01

Table A.2: Analysis of the Association Between Battle Deaths and Changes in per Capita Fiscal Revenues with 25-Year Period Fixed Effects

	Dependent Variable:			
	Annual Increase in per capita Fiscal Revenues			
	(1)	(2)	(3)	(4)
Battle Deaths (logged)	0.136***	0.143***	0.136*	0.143*
	(0.050)	(0.049)	(0.075)	(0.077)
Battle Deaths Squared (logged)	−0.108***	−0.116***	−0.108*	−0.116*
	(0.037)	(0.036)	(0.065)	(0.067)
Lagged Dependent Variable		−0.144***		−0.144***
		(0.024)		(0.020)
Constant	0.087**	0.100***	0.087***	0.100***
	(0.034)	(0.034)	(0.005)	(0.007)
Country Fixed Effects	Yes	Yes	Yes	Yes
Period Fixed Effects	Yes	Yes	Yes	Yes
Clustered Standard Errors	No	No	Yes	Yes
Observations	1,727	1,716	1,727	1,716
R^2	0.013	0.034	0.013	0.034

Noste: Ordinary Least Squares Regression. Standard errors in parentheses. Period fixed effects are at the 25-year period. Models 3 and 4 cluster the standard errors at the country level. *p<0.1; **p<0.05; ***p<0.01