Nation-Building, Nationalism, and Wars*

ALBERTO ALESINA
(Harvard University and Igier)

BRYONY REICH
(Northwestern University)

ALESSANDRO RIBONI
(Ecole Polytechnique and Crest)

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Abstract. This paper explores how wars make nations above and beyond raising fiscal capacity to finance the warfare. As army size increases, states change the conduct of war, switching from mercenaries to mass conscript armies. In order for the population to accept fighting and enduring war, government elites provide public goods, reduce rent-extraction and adopt policies to build a nation, i.e., homogenize the population. Governments can instill "positive" national sentiment in the sense of emphasizing the benefit of the nation, but they can also instill "negative" sentiment in terms of aggressive propaganda against the opponent. We analyze these two types of nation-building and study their implications.

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1. Introduction

The interplay between war and the fiscal capacity of the state is well known. However, guns are not enough to win wars; one also needs motivated soldiers. In modern times, the need for large armies led to bargaining between rulers and their population. Elites had to make concessions to induce citizens to comply with war-related demands and promoted nationalism to motivate citizens and extract "ever-expanding means of war – money, men, material, and much more – from reluctant subject populations" (Tilly, 1994; see also Levi, 1997).

The "ancient regimes" of Europe fought wars with relatively small armies of mercenaries, sometimes foreigners, paid out from the loots of war. Over time, countries changed the conduct of war, switching to mass armies recruited or conscripted from the national population. Roberts (1956) explains how warfare underwent a "military revolution" starting between 1560 and 1660 and reaching completion with the "industrialization of war" (McNeill, 1982) that occurred in the 19th century.[1] The source of this revolution was changes in tactics, weapons, and communications and transport technologies which allowed states to manage a large army in the field.[2] As a result, the size of armies increased and, as Clausewitz (1832) put it, "War became the business of the people."[3]

Based upon these facts, this paper explores how wars make nations. A body of existing work examines how wars induce states to raise state capacity to finance the warfare.[4] We focus on the complementary issue of how states motivate soldiers to exert effort in war. We show that the necessity of motivating soldiers can lead the state to become a provider of mass public goods and to develop policies geared towards increasing national identity

[1] Roberts (1956), Tallett (1992), Rogers (1995), and Parker (1996) study innovations in warfare in the early modern period. For more recent innovations see McNeill (1982) and Knox and Murray (2001).

[2] The electromagnetic telegraph, developed in the 1840s, allowed the deployment and control of the army at a distance. Steamships and railroads moved weapons, men, and supplies on an entirely unprecedented scale (Onorato et al., 2014). In the middle of the 19th century, the adoption of semiautomatic machinery to manufacture rifled muskets made it possible and affordable to equip a large number of soldiers (McNeill, 1982, p. 253).

[3] According to Finer (1975), the number of French troops called up for campaigns was 65,000 in 1498, 155,000 in 1635, 440,000 in 1691, and 700,000 in 1812. In England and Prussia, which were less populous countries than France, armies were smaller but nevertheless impressive relative to the population size. For instance, in 1812 Prussia sent 300,000 soldiers (equivalent to about 10 percent of the population) to war (Finer, 1975, p. 101). These figures increased dramatically in the 20th century: during WWI, 8 million soldiers were recruited in France (Crepin, 2009, and Crepin and Boulanger, 2002).

[4] Among others, see Brewer (1990), Tilly (1990), Besley and Persson (2009), and Dincecco and Prado (2012).

and nationalism. Nation-building policies "homogenize" a heterogeneous population, making citizens feel that they belong to a collective of people who are united by a shared culture and values. We denote this form of nation-building as "positive" because it is complementary to public good provision. This national identity is supported by the provision of useful public goods and services by the government. However nationalism may take a "negative" direction, such that war engenders propaganda against the enemy and supremacy theories. With this alternative form of nationalism, elites do not provide public goods, and national identity is defined negatively, based on a stigmatization of the opponents. We discuss under which conditions the two forms of nationalism may prevail.

Throughout, we take fiscal capacity as exogenous and focus on how the elites chose the composition of public spending. The composition of the budget is at least as relevant as its size. For instance, Aidt et al. (2006) argue that total spending as a fraction of GDP did not increase that much in the 19th century up until WW2. Instead, the composition of the budget changed: in the 19th century and early 20th century, spending on defense and policing shifted in part to spending on public services (transport, communication, construction) and later on provision of public goods (education and health).[5] We develop a model of a country governed by a ruling elite who can choose how and to what extent create incentives for soldiers to exert effort in war. One way to motivate soldiers to exert effort is to pay them in victory. A less direct motivation can arise if defeat results in the loss of the national government and the foreign government takes over (essentially a war of expansion). If citizens and soldiers believe that defeat in war implies a loss of useful national public goods and services provided by their government, they will exert more effort to advance a victory.

Our first result shows that if warfare requires a relatively small army, governments motivate soldiers by paying them (more) in victory. The governing elite will extract rents rather than provide public goods and will pay mercenaries. If the required army size is larger, the problem of dilution of monetary payoffs becomes severe: elites have to give up too much of the loots to create good incentives for soldiers. As a result, governments cease to rely on professional soldiers and instead motivate war effort by investing in mass public goods that are favored by the national population. Indeed, Tilly (1990, p. 120) writes that in Europe at the end of the 19th century in order to mobilize large resources for war, states had to

[5] As reported in Table 5 in Aidt et al. (2006), in Europe, defence, judiciary, and police accounted for on average 59.7 per cent of total spending from 1850-1870, and 30.5 per cent from 1920-1938.

bargain with their subject population and concede rights, privileges, services, and protective institutions: "Central administration, justice, economic intervention and, especially, social services all grew as an outcome of political bargaining over the state's protection of its citizens."[6] Our model implies that governments should aim to provide services and public goods that are "non-generic" in the sense that the home public goods are differentiated from the foreign provision. For instance, education and services that are easily accessible by the local population and are provided in the national language.

We explore additional features that influence the decision to use monetary payment versus public goods to stimulate war effort. Since a homogeneous population agrees to a greater extent about what public goods and services should be provided, we show that a homogenous country is more likely to motivate using public good provision and a more heterogenous country by paying soldiers. For example, in a country where everyone speaks the same language, the government can provide services in that language which are then easily accessed by all. This is clearly trickier in country where individuals speak different languages. We also uncover a type of arms race in public good provision in order to motivate war effort: the more public goods are provided by the foreign government the more the home government will provide public goods.

In the second half of the paper we consider how governments might additionally use nationalism to motivate war effort. We model governments as having the option to invest in indoctrination to convince citizens they are part of a nation and to value their national government and the services it provides. One way to do this is to invest in education to teach the population a common language and the importance of national culture and values. Governments can instill "positive" national sentiment in the above sense of emphasizing the benefit of the nation, but they can also instill "negative" sentiment in terms of aggressive propaganda against the opponent. On this point, Tilly (1994) stresses that national identity often benefits from the existence of a well-defined other. For example, he writes, "Anti-German sentiment reinforced the desirability of becoming very French, as anti-French, anti-Polish, or anti-Russian feeling reinforced the desirability of becoming very German."Many country lead-

[6]See also Scheve and Stasavage (2012, 2016). Empirical evidence of this political bargain is given by Caprettini et al (2018) who find that US areas that received higher welfare spending in the 1930s were more supportive of the war effort during WW2 (they bought more war bonds and sent more volunteers to the front).

ers have resorted to negative forms of indoctrination on several occasions. For example, Kallis (2005, p. 65) argues that in the final years of WW2, when beliefs in National Socialism started to crumble, German propaganda switched from positive and self-congratulatory discourse to more negative content, stressing anti-Bolshevism, anti-Semitism, and anti-plutocratic themes. As shown by Voigtländer and Voth (2015), these forms of propaganda have long-lasting effects. Similarly, Guiso et al. (2009) find that countries with a history of wars tend to trust each other less. We show that when the required army size is small, elites do not engage in nation-building (either positive or negative). When soldiers are exclusively motivated by monetary payoffs, preference heterogeneity within the country has no impact on soldiers' effort, so that elites have no incentive to forge a national identity. This result is consistent with the view that, despite the high degree of heterogeneity of most pre-modern states, nationalism became a key force in politics only in the last two centuries.[7] The expansion of the scope of the state changed the nature of interstate conflicts. Soldiers, who were recruited mainly by conscription, fought in order to keep their own sovereignty and public goods. Preference heterogeneity within the country and the distance of preferences from the opponent country started to have an effect on war effort. Thus, nation-building became a powerful instrument to motivate the soldiers. We analyze the two forms of indoctrination and show that public good provision and positive indoctrination are complements while public good provision and negative indoctrination are substitutes. This suggests the possibility of two types of nation-building: nations that invest in mass public goods and positive nationalism, and nations that do not provide public goods and invest in anti-foreign nationalism. We believe that the distinction between these two forms of nationalism is still meaningful today. As shown in Ahlerup and Hansson (2011), some countries feature high levels of citizens' national pride (as measured by surveys) and low governmental ability to provide public goods and implement good policies. In our model, this evidence can be justified when national identity is defined in purely "negative" terms.

Finally, we show that states with low fiscal capacity or states that face an opponent with a high level of public goods are preempted from providing mass public goods. Since it is too costly to match the level of public goods by the opponent, elites choose negative nationalism to motivate the population. The latter result shows a novel channel through which low state

[7] See Anderson (1983), Gellner (1983) and Hobsbawm (1990).

capacity can be detrimental to development. By pursuing "negative" nationalism, low state-capacity governments can afford to keep high rents and have no incentives to provide valuable public goods.

Our paper is related to several others. Acemoglu and Robinson (2000) argue that elites gave concessions in response to internal threats of revolution. In this paper we consider concessions that can occur as a response to external threats. Whether the main motivation for elites' concessions were internal or external threats may have varied in different cases and it is worth further investigation. Our theory is also complementary to the work of Lizzeri and Persico (2004), who show that the expansion of voting rights, by increasing the electoral value of policies with diffuse benefits, has determined a shift from pork-barrel politics to public good provision. Alesina et al. (2017) examine the incentive to "nation-build" as a response to democratization. They do not consider wars. The interplay between democratization and external threats may exacerbate the need to nation-build and is left for future research. Besley and Persson (2009, 2011) show how wars give rulers the incentive to build an effective state that can successfully tax its citizens in order to finance military expenses. Gennaioli and Voth (2015) show that before the military revolution, the probability of winning a war was somewhat independent of fiscal resources. They argue that between 1650 and 1800, the odds of the fiscally stronger power winning a conflict increased dramatically, thus giving strong incentives to build fiscal capacity.[8] The focus of these papers is fiscal capacity rather than nation-building. The former is the ability of states to collect taxes, the latter is the process of fostering a feeling among citizens of belonging to a common culture and community. Aghion et al. (2014) study which regime (democracy or autocracy) invests more in education. They also investigate whether spending on education is related to external threats. For a discussion of education policies as instruments of cultural homogenization, see also Weber (1976, ch. 18), Posen (1993), Darden and Mylonas (2016), Alesina et al. (2017), and Bandiera et al. (2017). Here we focus on government spending per se (not only and exclusively on education) and we model the mechanism through which spending can increase effort in the conflict. Finally this paper is also related to the literature on conflict. Esteban and Ray (2001, 2011) study

[8]There is empirical evidence (Biddle, 2004) that in more recent times the correlation between military expenditures and military victory has weakened. Gennaioli and Voth (2015) model the military revolution as an increase of the sensitivity of the war outcome to fiscal revenues. We model it in a complementary manner, as an increase of the size of the army.

conflicts over "public goods" (such as, political power and ideological supremacy) and private goods (e.g., spoils).[9] In their model, there is an exogenous parameter which determines the importance of the public and private components in the conflict. In our model soldiers fight to capture monetary payoffs and/or to defend the national public good. In contrast to Esteban and Ray (2001, 2011), the importance of the two components and the degree of cross-group alienation are endogenous and are a choice of the elite.

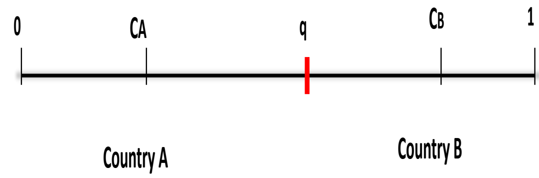
The paper is organized as follows. Section 2 presents the basic structure of the model and examines peacetime. Section 3 considers war between the two countries. Section 4 discusses the elite's trade-off between providing public goods and paying the soldiers with monetary transfers. Section 5 studies various forms of nation building including indoctrination, nationalism and negative propaganda against the enemy. The last section concludes. All proofs are in the Appendix.

2. Peace

The world consists of two countries, A and B, for the moment at peace and with no prospect of war. Country A is represented by the linear segment $[0, q]$ and country B by the segment $(q, 1]$. We let $C_A \in [0, q]$ and $C_B \in (q, 1]$ denote the location of the "capitals" of the two countries as in Figure 1. In each country, there are two types of individuals: members of the elite and ordinary citizens. The total population of ordinary citizens is normalized to 1. Ordinary citizens have measure q in country A and $1 - q$ in country B. The elite has measure s_j in country $j = A, B$. Each individual has a specific "location." All members of the elite are located in the capital, where the public good is provided, while citizens are uniformly distributed over the country. Each country is run by its own elite and the elite is not threatened by internal revolutions. In peacetime the only role of the elite is to decide how to spend the tax revenue: between rent-extraction, public good provision and nation-building or homogenization (terms which we use interchangeably). More on this below.

[9] On this distinction, see also Spolaore and Wacziarg (2016).

Figure 1: The two countries



In country j all individuals, including the elite, receive a fixed income y_j. Ordinary citizens (but not the elite) pay an exogenously given tax of t_j. This could be easily generalized to elites paying taxes and/or having higher income, with no gain of insights and with more notation. The level of taxes is determined by the fiscal capacity of the state, which we assume to be exogenous for tractability of analysis. We briefly discuss this issue in the Conclusion. When A and B are not in conflict, we can deal with them separately and analogously. Here we solve for country A.

The citizens and the elite derive utility from private consumption and from the public good. In country A the utility of an individual located at $i \in [0, q]$ is

$$U_{i,A} = \theta g_A (1 - a\,|i - C_A|) + c_{i,A}, \tag{1}$$

where $g_A \geq 0$ is a scalar that denotes the size of the public good provided in the capital of country A. Consumption of an ordinary citizen in country A is $c_{i,A} = y_A - t_A$, while consumption by a member of the elite is

$$c_{e,A} = y_A + \phi_A, \tag{2}$$

where ϕ_A are the rents.

Following Alesina and Spolaore (2003), we give the public good a geographical and a preference interpretation: it is located in the country's capital and individuals located close to the capital benefit more from the public good. The proximity can be interpreted as geographical or in terms of preferences, culture, or language. The value $|i - C_A|$ is the distance of individual i from the location of the public good. The parameter $\theta > 0$ is the marginal benefit of public spending for an individual at zero distance from it, and $a > 0$ is the marginal cost of distance. A low (respectively high) value for the parameter a captures homogeneity (respectively heterogeneity) of preferences within the country. We posit $a < 1$ so that everybody's utility is increasing in the public good.

We also assume that the government has access to homogenizing technology. The latter makes the public good more attractive to individuals who are far away from it. In other words, "homogenized" citizens feel like members of the nation rather than of their specific village, region, ethnic, or religious groups. States have homogenized populations by creating state-controlled educational systems, promoting national symbols and traditions, celebrating the cultural roots in national museums, using print-based media, teaching a common language (the one spoken by the elite in the capital) and so on. Homogenization can also be achieved in more physical terms such as building roads (or railroads or airports) in order to reduce the costs of distance from the capital.

The variable $\lambda_A \in [0, 1]$ denotes the homogenization policy while h is the linear cost of it. We model homogenization as a technology that changes individual preferences by shifting the ideal point of an individual "located" at i and bringing it closer to C_A:

$$(1 - \lambda_A)i + \lambda_A C_A. \tag{3}$$

Thus the higher λ_A is, the more the citizens benefit from the public good provided in the capital. We assume that the citizens do not (or cannot) resist homogenization. We denote this form of nation building as "positive" because it emphasizes the benefits of the public goods and services provided by the government.

The share of $t_A q$ (the tax revenue) that is appropriated by the elite as political rent is $(1 - \pi_A) \in [0, 1]$ and is chosen by the elite. If $\pi_A > 0$, the tax revenue is used to either provide the public good (financing a positive g_A) or to homogenize (financing a positive λ_A). The budget constraint of the government is given by

$$\pi_A t_A q = g_A + h\lambda_A. \tag{4}$$

The elite is located in the capital. Each member of the elite has the following utility which is maximized subject to the budget constraint above:

$$U_{e,A} = \theta g_A + y_A + \frac{(1 - \pi_A)t_A q}{s_A}. \tag{5}$$

The last term of (5) is ϕ_A, the political rents appropriated by each member of the elite (of measure s_A). The utility of the elite is not affected by λ_A, since the elite is located in the capital (i.e. elites have the public good that they like). Thus, the elite sets $\lambda_A = 0$ since homogenization is costly. Given the linearity of (5) it immediately follows that the elite either invests all tax revenue in the public good or diverts all tax revenue as rent.

Proposition 1: *For all parameters values, $\lambda_A = 0$. When*

$$1 - s_A\theta > 0, \tag{6}$$

the elite chooses zero public good provision and the entire tax revenue is appropriated as rents. When instead (6) does not hold, the elite does not extract rents and chooses maximal spending on the public good.

Condition (6) implies that if the elite's measure s_A is relatively small, and if the benefits of the public good are not extraordinarily large (small θ), then the elite prefers to extract rents rather than deliver public goods that benefit every one, including the elite.[10] This captures the case of ancient regimes: small elites extracting rents and with small (or non existent) public sectors. Throughout the rest of the paper we assume that (6) holds. Thus:

Assumption 1: $1 - s_A\theta > 0$.

3. War

3.1. The Determinants of Victory

We now study a conflict between country A and B without modelling why a conflict erupts. The elite does not fight and the proportion of ordinary citizens fighting in the war is respectively $\chi \in [0, 1]$ in both countries. In reality, elites fought wars as highly ranked members of the army. Generalizing this would yield no major insight but would clutter the notation.

The size of the army in country A and B is χq and $\chi(1 - q)$ respectively. We assume that the army fully represents the heterogenous population in the country. That is, the elite cannot selectively send citizens to the front on the basis of their location, and citizens cannot

[10] If utility were not linear in g_A, public good provision would not be necessarily zero (see Appendix). Linearity is assumed to keep the analysis tractable.

resist the call. The exogenously given parameter χ plays a key role in our analysis; an increase in χ captures the evolution of military technologies that we described in the introduction. We focus on wars that entail a loss of sovereignty. [11] The defeated country forgoes its entire tax revenue to the winner and its capital becomes the capital of the winning country. If country A wins, the tax revenue raised in country B is shared between A's elite and A's soldiers according to the proportions $1 - \gamma_A$ and γ_A, respectively, where γ_A is chosen by the elite. The reverse holds true if B wins.

Each soldier in A exerts effort e_A, derived in Section 3.3. Total effort in country A is therefore $\chi q e_A$. Effort in country B, e_B, is taken as exogenous, and total effort is therefore equal to $\chi(1-q)e_B > 0$. The probability of country A winning is given by:

$$P_A(e_A, e_B) = \frac{\chi q e_A}{\chi q e_A + \chi(1-q)e_B} \tag{7}$$

with the probability that B wins $P_B = 1 - P_A$.

The probability of winning depends on soldiers' effort and motivation. Needless to say, in reality it depends also on the quality and quantity of guns but remember that we assume a constant tax revenue. More generally, we could have assumed that the military strength of a country is the product of two inputs, soldiers' effort and guns, and that the cost of effort is reduced by having more efficient guns. In this case, soldiers efforts would increase with the quantity and quality of military equipment, so that effort may also be taken more generally as a catchall term for having a more efficient army.

Throughout, we hold fixed war effort and policies in country B. Solving for A's best-response allows us to study the elites' main trade-off in a transparent way.

The relevant timeline is as follows. First, the elite of country A chooses how to allocate taxes among rents, public good provision, and homogenization, as well as how to divide the spoils of war between themselves and soldiers. Thus, the elite chooses policy vector $(g_A, \lambda_A, \gamma_A)$ subject to (4) and given $e_B, t_{B,} g_B > 0$. To make the problem interesting, g_B should not be too large otherwise individuals in A would like to be invaded by country B. Similarly, e_B cannot be too high in order to give soldiers in A the incentive to exert positive effort. Also the size of the two countries cannot be too different otherwise the larger country

[11] We model it as a total loss but it could be a partial loss of sovereignty, by adding additional heavy notation.

would win with almost certainty. We discuss these bounds in the Appendix. The elite's rents are determined residually using (4). Second, a conflict arises and war effort e_A is chosen. Finally, the winner of the conflict is determined, and individuals' payoffs are computed. We will solve the game backward, first computing the war effort in A (Section 3.3) and then solving the elite's problem. It bears stressing that we abstract from commitment problems on the part of the elite: the initially chosen policies determine the soldiers' payoffs when the war ends.

3.2. Citizen and Elite Payoffs

Consider an ordinary citizen $i \in [0, q]$ who is a soldier in country A. His utility in case of victory and defeat (net of the effort cost) is denoted, respectively, by $U^+_{i,A}$ and $U^-_{i,A}$. Using (1) and (3):

$$U^+_{i,A} = \theta g_A - \theta g_A a \left|(1-\lambda_A)i + \lambda_A C_A - C_A\right| + y_A - t_A + \gamma_A \frac{t_B(1-q)}{\chi q}. \tag{8}$$

All but the final term in (8) are the same as in peacetime. The final term is the "pay" that each soldier receives from the spoils of war: in victory, proportion γ_A of the tax revenue of B is distributed among A's private soldiers, whose measure is χq. If country A is defeated, the capital of country A moves to C_B. Citizens continue to pay taxes but the tax revenue goes to country B. Then, citizen i's utility is

$$U^-_{i,A} = \theta g_B - \theta g_B a[C_B - (1-\lambda_A)i - \lambda_A C_A] + y_A - t_A. \tag{9}$$

Citizens in A evaluate the new capital according to their preferences after homogenization, i.e., for given λ_A. In (9) we have also assumed that the elite in the winning country do not homogenize the losers. [12]

The utility of each elite member in country A in case of a success and a defeat is denoted, respectively, by $U^+_{e,A}$ and $U^-_{e,A}$, where

[12] We do not model insurrections in this paper; if we did, homogenization could be useful even in peacetime and for a winning foreign country. See for instance Dehdari and Gehring (2017). Alesina et al. (2017) study a model of homogenization with insurrections modelled as independentist movements. An interesting avenue for future research could investigate how the prospects of future insurrections of conquered territories may influence the decision to go to war and the subsequent choice to homogenize after victory.

$$U_{e,A}^{+} = \theta g_A + y_A + (1-\pi_A)\frac{t_A q}{s_A} + (1-\gamma_A)\frac{t_B(1-q)}{s_A}. \tag{10}$$

The last two terms in the above expression are, respectively, the political rents and the share of loots appropriated by the elite. The elite's utility from defeat is

$$U_{e,A}^{-} = \theta g_B - \theta g_B a(C_B - C_A) + y_A. \tag{11}$$

Payoff (11) assumes that the elite continue to not pay taxes in case of defeat, but lose their political rents. Assuming that the elite pays taxes in case of defeat would reinforce our results, because it gives the elite even stronger incentives to win the war.

3.3. Effort

We abstract from the free-riding problem that may arise when individuals choose effort levels in war. The latter would be extreme in a model with a continuum of soldiers, given that each soldier would see his contribution to the winning probability as negligible, leading to no effort in equilibrium. Yet, we do observe that soldiers exert a significant amount of effort in many wars. Threat of harsh punishment for cowardice (not modelled here) is certainly a reason, but it is not the only one. In this paper we bypass free-riding problems by assuming that (1) all soldiers in A exert the same effort level e_A, and (2) this common effort level maximizes the average expected payoff of ordinary citizens. Analogous to the concept of rule-utilitarianism by Harsanyi (1980), the idea is that soldiers, regardless of their differences, want to "do their part" by abiding by an effort rule that, when followed by all soldiers, would maximize average utility.[13]

Given the policy vector $(g_A, \lambda_A, \gamma_A)$, effort in war, e_A, maximizes the average expected payoff of all citizens:

$$\max_{e_A} \quad \frac{1}{q}\left(\int_0^q U_{i,A}^{-} di + P_A(e_A, e_B)\int_0^q (U_{i,A}^{+} - U_{i,A}^{-}) di\right) - e_A. \tag{12}$$

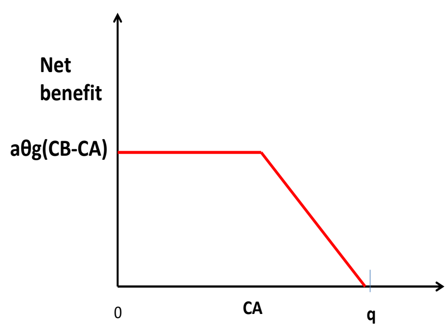
The last term is the cost of effort, which we assume is linear in e_A.

Depending on their location, individuals have different stakes in the conflict. Individuals

[13] A similar behavioral assumption is made, for instance, in Aghion et al., (2014), Feddersen and Sandroni (2006), and Coate and Conlin (2004).

close to the border have (relatively) low stakes, as moving the capital to C_B in case of a defeat would be less costly for them. People closer to C_A have higher stakes. Figure 2 draws the net benefit of winning for citizens in each country for a given set of policies: we select $\gamma_A = 0$, $g_A = g_B$, and assume that citizen q (at the border of the two countries) is equally distant from the two capitals. An increase in the spoils of war received by soldiers, γ_A, will increase the net benefit of winning by the same amount for all citizens, while an increase in the size of the public good provided by country A, g_A, increases the net benefit of winning to a greater extent for individuals closer to the capital.

Figure 2: Net benefit of winning



The average net benefit of winning is the average utility that a soldier receives in case of victory relative to the utility in case of defeat. We let NB_A denote the average net benefit of winning in country A

$$NB_A \equiv \int_0^q \frac{U_{i,A}^{+} - U_{i,A}^{-}}{q} di \tag{13}$$

and define the positive parameter $\Delta \equiv \frac{C_A^2}{q} + \frac{q}{2} - C_A$. Since optimal effort increases in NB_A, policies chosen by the elite raise war effort, e_A, if they increase the soldiers' average net benefit of winning.

Lemma 1: *War effort in A is increasing in the size of government provided in A and in the spoils of war, but is decreasing in the size of the government provided in B:*

$$\frac{\partial NB_A}{\partial g_A} = \theta - a\theta(1-\lambda_A)\Delta \geq 0 \qquad \frac{\partial NB_A}{\partial \gamma_A} = \frac{t_B(1-q)}{\chi q} \geq 0$$
$$\frac{\partial NB_A}{\partial g_B} = -\theta + a\theta\left(C_B - \lambda_A C_A - (1-\lambda_A)\frac{q}{2}\right) \leq 0 \tag{14}$$

War effort in A does not depend on taxation in country A, is increasing in taxation in country B, and is increasing in homogenization in A if and only if

$$\frac{\partial NB_A}{\partial \lambda_A} = \theta g_A a\Delta + \theta g_B a(\frac{q}{2} - C_A) \geq 0. \tag{15}$$

Lemma 1 shows that an increase in public good provision by country A has a positive effect on effort. When the country is relatively homogenous (small a), a given increase in public goods has a stronger effect on citizens' welfare and, consequently, a larger effect on war effort. The promise of a higher share of the spoils of war raises soldiers' effort by a larger amount when χ is small. When country B provides more public goods, effort in A decreases because citizens are less worried by the perspective of being governed by country B. When the capital of country B is more distant (in terms of geography and culture) from the average citizen of country A, the disincentive effect of higher foreign public goods is smaller. Because taxes t_A are paid regardless of the war outcome, the net benefit of winning (hence, war effort) does not depend on t_A. Conversely, an opponent with higher fiscal capacity t_B provides larger spoils of war and raises war effort of soldiers of country A.

The sign of the effect of λ_A on war effort is ambiguous as the first term of (15) is positive but the second term may be negative. To see why indoctrination might reduce incentives to fight, notice that homogenization has the biggest effect on the desired effort of citizens between C_A and the border with country B. Homogenization increases their utility in the case of victory and reduces their utility in the case of defeat. Homogenization results in higher utility from the public goods provided in country A and makes defeat more costly because these citizens find themselves with preferences further away from C_B and so receive lower utility from the public goods provided in country B. For citizens who are to the left of C_A, homogenization reduces their "distance" to C_A but also to C_B, increasing the utility of both victory and defeat. Think, for instance, of roads linking Brittany to Paris which reduce the cost to reach Paris but also Berlin. More generally, eliminating (more or less peacefully) local culture by making people more "cosmopolitan" may make them closer to both "capitals". Obviously this effect would be eliminated if there were a fixed cost of losing sovereignty. In the Appendix we also consider an alternative form of homogenization which raises the value of the home public good and leaves the value of the foreign public good unchanged. For example, teaching a national language.

4. Public Good Provision versus Loots

In this section, we show that wars, and especially mass warfare, induce the elite to allocate a larger share of tax revenue to public good provision and lead to a reduction of rent extraction. In order to build intuition, we begin by solving a simplified version of the model without homogenization ($\lambda_A = 0$). The policy vector reduces to (g_A, γ_A): the elite chooses public good provision (which directly determines rent extraction π_A) and how much of the spoils of war go to soldiers. The optimal policy vector that maximizes the elite's expected payoff is given by:

$$(\gamma_A^\star, g_A^\star) = \arg\max_{g_A,\gamma_A} (U_{e,A}^+ - U_{e,A}^-)(\frac{\chi q e_A}{\chi q e_A + \chi(1-q)e_B}) + U_{e,A}^- - e_A. \tag{16}$$

The last term of (16) is the linear cost of effort; the underlying assumption is that the elite internalizes the effort cost exerted by ordinary citizens in the war. This assumption is completely inessential. If the elite disregarded soldiers' effort, the results would be qualitatively unchanged. Note that policies have a direct effect on the elite's payoff and an indirect effect via soldiers' effort. When country A faces an external threat, the elite must make some concession. If both g_A and γ_A were equal to zero, soldiers' net benefit of winning would be negative and there would be no war effort, leading to a sure defeat. In choosing the size of the public good, g_A, and the spoils of war accrued by soldiers, γ_A, the elite compares the costs (in terms of its utility) with the benefits (in terms of providing incentives) of both instruments. When equilibrium policies do not hit their upper constraint (i.e., $\gamma_A^\star < 1$ and $g_A^\star < t_A q$), only the most efficient instrument is used. In the Appendix we address the case in which the policies can also hit their upper constraint and show that the thrust of our results would not change. From this point onwards our results present the case where equilibrium policies do not hit their upper constraints.

Proposition 2: *When army size is small so that $\chi < \overline{\chi}$, where*

$$\overline{\chi} \equiv \frac{1 - \theta s_A}{q\theta(1 - a\Delta)}, \tag{17}$$

we have $\gamma_A^\star > 0$ and $g_A^\star = 0$. When instead $\chi \geq \overline{\chi}$, we have $g_A^\star > 0$ and $\gamma_A^\star = 0$.

Proposition 2 states that there is a cutoff in army size below which the elite provides incentives to fight by paying its soldiers with the loots of war, but without delivering public goods. For larger army sizes, the elite gives citizens incentives to fight by providing public goods but no monetary transfers (that is, soldiers are not paid with the loots of war). This proposition captures the evolution of wars and nation-building. When armies were small, the elite motivated professional soldiers (mercenaries) by paying them with loots of war. The advent of mass armies made the problem of dilution of the loots severe: loots were not sufficient, or, to put it differently, elites had to give up too much of the loots to create good incentives for the soldiers. The provision of public goods, which are (at least partially) non-rival, is a better "technology"than private goods to motivate a large army. Elites began to provide public goods. Soldiers, who were recruited mainly by conscription, fought in order to keep their own sovereignty and public goods. To simplify the notation we assumed that the public good is completely non-rival. Qualitatively our results would obviously apply to a model where public goods are only partly non-rival. Also, we assumed away the effect that certain public goods (e.g., roads) may have on the technology of war.

Our analysis has two implications. First, it suggests that the incentives to provide public goods increase with the advent of "total wars", i.e., wars among nation-states with competing ideologies that were fought for the ultimate existence of nations. If the national public goods are not at stake in war, citizens will not fight for them, so that elites will not have the incentive to provide them in the first place. Second, elites should privilege the provision of "non-generic" public goods that are differentiated from the public goods provided by foreign states. When national public goods are less substitutable with public goods provided by the other country, citizens will be more afraid of losing them. An example of such a public good is public education in the national language that teaches national values and culture.

Figures 3 and 4 show the equilibrium levels of γ_A and g_A as a function of χ. As army size increases, elites must concede to soldiers a growing share of the spoils of war. This is why in Figure 3, γ_A is initially increasing in χ. When army size reaches the threshold $\overline{\chi}$, spending jumps up and soldiers are not paid anymore. Note that this discontinuity arises because we assume linear utility. In the Appendix we solve a model with quasi-linear utility in consumption and show that results are qualitatively the same (public spending increases continuously in army size, and loots are not distributed for large values of χ).

Figure 3

Spoils promised to soldiers

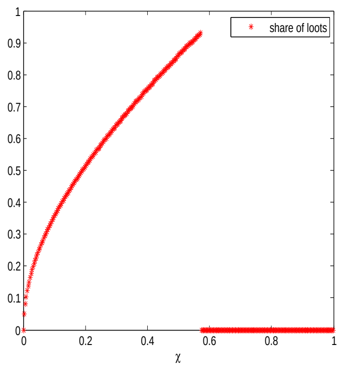
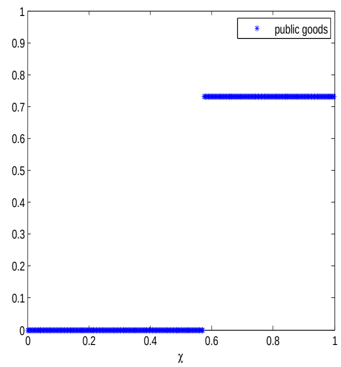


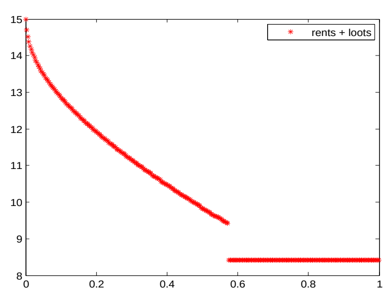
Figure 4

Public goods



From (17), note that the cutoff $\overline{\chi}$ is decreasing in the marginal benefit of public goods. A higher value of public goods relative to the value of the spoils of war will tip the elite to incentivize soldiers with public goods at an earlier point. Similarly, a more homogeneous country switches "earlier" (i.e., has a lower threshold on army size) to providing public goods since public goods are more valued on average in a more homogeneous country. In contrast, more heterogeneous societies disagree to a greater extent about what public goods should be provided, and so direct payments to soldiers can be more effective. Consistent with this, Levi (1997, p. 124) argues that countries with class, social, ethnic, and religious cleavages mainly relied on professional soldiers and were least able to mobilize their population to support conscription. For instance, universal male conscription in Canada and Britain was strongly opposed, respectively, by the Francophone and Irish population.[14]

Figure 5: Resources captured by the elite



[14]On the history of military conscription, see Mjøset and Van Holde (2002).

While public spending jumps up at $\overline{\chi}$, the resources captured by the elite (namely, the sum of rents and loots of war) drop at the cutoff (see Figure 5). At $\overline{\chi}$ the elite is indifferent between distributing loots and providing spending. Since public goods are also valued by the elite, indifference is possible only if monetary transfers to the elite drop. Figure 5 shows that increases in army size make the elite worse off by requiring an expansion of concessions to the population.

To determine the level of public good provision, g_A, and the proportion of spoils that go to soldiers, γ_A, that are chosen by the elite, we solve the first order conditions. For concision, we present the first order condition for g_A only. Let $NB_{e,A} \equiv U^+_{e,A} - U^-_{e,A}$, obtained from (10) and (11), denote the net benefit from winning for the elite. If the solution for g_A is interior to the interval $[0, t_A q]$, the first order condition is

$$\underbrace{\frac{\frac{\partial P(e_A,e_B)}{\partial g_A}}{P(e_A,e_B)}}_{effort\ effect} \underbrace{(NB_{e,A} - NB_A)}_{disagreement} = \underbrace{\frac{1-\theta s_A}{s_A}}_{elite's\ mc}. \tag{18}$$

The right-hand side of (18) is the elite's marginal cost of providing more public good and the left-hand side is the marginal benefit. The first term on the left hand side is larger when the probability of winning is more sensitive to increasing public good provision, that is, when soldier effort is more sensitive to public good provision. The second (positive) term measures the difference between the net benefit of winning to the elite and the average net benefit of winning to citizens. This term captures the extent of disagreement between the two groups regarding the right amount of effort that should be exerted in war. The higher this term, the higher the elite's incentives to "strategically manipulate" citizens' effort. When effort responds strongly to public good provision, and when the elite has a much bigger stake in the conflict relative to citizens, the elite's incentives to deliver more public goods increase.

From (18) we can show that if the other country has higher public spending, the elite increases public spending in A towards the foreign level of public spending. That is, there is a "spending contagion" from B to A. Foreign public spending makes losing the war less costly for domestic citizens and so the elite has to respond by increasing domestic public spending in order to motivate citizens to fight.

Proposition 3: *Suppose $C_A \leq \frac{q}{2}$. When $\chi \geq \overline{\chi}$, the size of government in country A, g_A, is* *increasing in the size of government in country B, g_B.*

5. Nationalism

We now consider the case where the elite can also choose "positive" nation-building, i.e., the elite chooses $(g_A, \gamma_A, \lambda_A)$. To avoid considering multiple cases, we derive these results under the assumption that the capital of A is in the middle of the country.

Assumption 2: $C_A = q/2$.

Unlike public good spending, which is also enjoyed by the elite, "positive" nation-building (or homogenization, terms which we use interchangeably) does not directly affect the elite's payoff. The elite pursues homogenization only if it is effective in raising war effort.[15] Assumption 2 guarantees that the overall effect of homogenization on war effort is unambiguously positive and does not depend on g_B. We state the following result.

Proposition 4: *When army size is small so that $\chi < \widehat{\chi}$, elites pay soldiers with monetary transfers without providing public goods and without investing in "positive" nation-building. Compared to the case where homogenization is restricted to zero, when positive homogenization is feasible, the threshold size of the army above which public goods are provided weakly decreases: $\widehat{\chi} \leq \overline{\chi}$.*

When $\chi \geq \widehat{\chi}$ the equilibrium level of public goods g_A^* is strictly positive while homogenization is given by

$$\lambda_A^* = \max\{0, \frac{1-\theta s_A}{h} g_A^* - \frac{1-a\Delta}{a\Delta}\}. \tag{19}$$

The first result of Proposition 4 is that nation-building will always occur alongside the provision of public goods. From (15), notice that the cross partial derivative of the average net benefit of winning, NB_A, with respect to spending and homogenization is $\theta a\Delta > 0$. There is a complementarity: a larger government in A makes homogenization policy more effective at raising war effort. This is intuitive: if country A does not provide any public goods (or if g_A is sufficiently small), it is worthless to reduce citizens' distance to the capital. When soldiers are exclusively motivated by monetary payoffs, preference heterogeneity within the country

[15] Some homogenization policies (e.g., teaching a common language to the soldiers) may also directly affect the efficiency of the army by facilitating communication.

and the distance of preferences from the opponent country has no impact on soldiers' effort. Second, since homogenization acts to differentiate national public goods from foreign ones, it makes the public good a more effective instrument to boost war effort. This explains why the threshold size of the army above which public goods are provided weakly decreases. Even if nation-building make countries switch "earlier" to public good provision, it is ambiguous whether, conditional on being above the cutoff, it leads to higher public good spending. First, nation-building reduces the resources available for public goods. Second, a more homogenous population raises the first term on the left-hand side of (18), but lowers the second term on the same equation (as the elite and most citizens equally enjoy the national public good).

We now compare this "benchmark" (or "positive") homogenization with an alternative form of nation-building, labeled "negative" (or anti-foreign) nationalism. Anti-foreign nationalism does not increase the value of the home public good, but instead increases citizen dislike for the public good provided by the opponent. The goal is to bolster war effort by convincing the population that resistance is a lesser evil than losing the war.[16]

Thus the comparison we execute is between a positive and negative form of indoctrination where the positive form of indoctrination increases the value of the home nation while the negative form decreases the value of the foreign nation. To facilitate the comparison, we assume that any form of homogenization has a unitary cost h.

Anti-foreign nationalism is modeled as follows. If country A is defeated and the capital moves to C_B, we assume that citizen i's utility is

$$\widehat{U}_{i,A}^{-} = (1-\lambda_2)\theta g_B \left[1 - a\left|i - C_B\right|\right] + y_A - t_A + \gamma_A \frac{t_B(1-q)}{\chi q}, \tag{20}$$

where $\lambda_2 \in [0,1]$. A higher λ_2 lowers the value of the foreign public good. Conversely, if country A wins, preferences towards the public good in A are unchanged:

$$\widehat{U}_{i,A}^{+} = \theta g_A \left[1 - a\left|i - C_A\right|\right] + y_A - t_A. \tag{21}$$

In considering this form of nation-building, we assume that the elite itself is not affected by its own propaganda: propaganda against the enemy affects ordinary citizens' utility only.

[16]Similarly, Padro-i-Miquel (2007) suggests citizens support kleptocratic rulers because they fear falling under an equally venal ruler who would favor other groups.

This form of indoctrination is totally inefficient from a welfare point of view, as it worsens agents' utility in case of defeat and does not improve utility in case of victory.

To be effective, negative indoctrination does not require the provision of public goods in the home country. However, g_B has to be positive. Before stating the next proposition, we define the following cutoff

$$\widetilde{\chi} \equiv \frac{h}{q\theta g_B(1 - a(C_B - \frac{q}{2}))} \tag{22}$$

and the parameter

$$\varphi \equiv \frac{1 - a\Delta}{1 - \theta s_A} - \frac{g_B(1 - a(C_B - \frac{q}{2}))}{h}. \tag{23}$$

We continue to assume that equilibrium levels of λ_2, γ_A, and g_A are bounded away from their maximal levels, $\lambda_2^\star < 1$, $\gamma_A^\star < 1$, and $g_A^\star + h\lambda_2^* < t_A q$. Proposition 4 states the policy choices of the elite when the elite has access to anti-foreign propaganda as the only form of indoctrination.

Proposition 5: *When army size is small, $\chi < \min\{\overline{\chi}, \widetilde{\chi}\}$, the elite gives monetary transfers to its soldiers without providing public goods and without undertaking anti-foreign propaganda.*

When army size is large, $\chi \geq \min\{\overline{\chi}, \widetilde{\chi}\}$, the elite stops paying its soldiers and provides either public goods (when $\varphi \geq 0$) or anti-foreign propaganda (when $\varphi < 0$), but not both.

Public good provision and anti-foreign propaganda are substitutes and no longer complements. Therefore, we could observe anti-foreign propaganda (hence, strong nationalistic feelings) without any provision of national public goods. This result is consistent with the evidence of several countries with high levels of nationalism and national pride but limited ability to provide public goods and implement good policies.[17] Instead, when indoctrination takes the other (more positive) forms, it is observed together with public-good provision.

Assume that the elite can pursue either of these two forms of indoctrination. Given that all forms of indoctrination analyzed so far have no direct effect on the elite's utility, the elite chooses the type of indoctrination that increases the effort of citizens at the lowest cost.

[17] On this, see Ahlerup and Hansson (2011).

The following proposition provides a sufficient condition that guarantees that anti-foreign propaganda dominates other forms of indoctrination.

Proposition 6: *When fiscal capacity is sufficiently low so that*

$$t_A < \frac{g_B(\frac{1}{a} - (C_B - \frac{q}{2}))}{\Delta q}, \tag{24}$$

the elite's preferred form of indoctrination is anti-foreign propaganda.

Proposition 6 states that countries with low fiscal capacity that face an enemy with high levels of public goods will prefer to pursue negative propaganda. This result is intuitive: countries that cannot match the level of public goods in the foreign country are discouraged from providing public goods. These countries prefer negative propaganda over other (more positive) forms of indoctrination because the former does not require effective public good provision in the home country. An implication of Proposition 6 is that the arms race in public good provision that we discussed in Proposition 3 does not necessarily occur when elites have the possibility to pursue negative nation-building. A high level of public good provision in the foreign country may actually have a negative effect on public good provision in the home country.

6. Conclusion

We have explored several issues related to the question of how wars make states. The recent economic literature on this point has almost exclusively focused on how wars induce states to raise their fiscal capacity to buy military equipment. This paper study complementary issues, namely how to motivate the population (soldiers in particular) to endure war. We show that motivating soldiers for war induces the building of nations. Besides promising monetary payoffs, elites have two means to increase war effort. The first is to provide public goods and services in the home country that directly benefit citizens, so that soldiers lose a lot if the war is lost. A key conclusion of our analysis is that as warfare technologies lead to larger armies, elites change the way they motivate soldiers: they move from motivating small armies of mercenaries with loots of war, to providing mass public good provision to motivate large conscripted armies. Homogeneous nations can more effectively provide mass public goods and so are more likely to use this tool to motive soldiers.

As a second means to increase war effort, elites may homogenize or indoctrinate citizens to value domestic public goods and to dislike living under foreign occupation. Indoctrinating citizens to value domestic public goods (positive indoctrination) is a complement to public good provision, while anti-foreign propaganda (negative indoctrination) is a substitute. Thus mass public good provision and positive nationalism should emerge hand in hand. In contrast, countries with low fiscal capacity will engage in anti-foreign propaganda, without public good provision.

This paper takes taxes as exogenous. The next step would be to integrate our model with a framework that takes fiscal capacity to be endogenous. The choice of fiscal capacity by the elites would be shaped by the following trade-off. Higher state capacity and more taxes would imply more resources for military equipment and for public goods. But on the other hand, higher taxes might negatively affect war effort and the citizens' positive attitude towards their "nation". We leave this extension to future research.

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Appendix

Proof of Proposition 1: The elite chooses $\lambda_A = 0$ because the elite does not gain from costly homogenization. Plugging $\lambda_A = 0$ into (4), the government budget constraint becomes $\pi_A t_A q = g_A$. This allows us to write the elite's problem as

$$\max_{\pi_A} \theta \pi_A t_A q + y_A + (1 - \pi_A) \frac{t_A q}{s_A} \tag{A.1}$$

This expression is linear in π_A and is increasing when $\theta > \frac{1}{s_A}$. Then, public good provision is maximal when $1 - s_A\theta \leq 0$ and zero otherwise. $\square$

Proof of Lemma 1: We proceed by steps.

Step 1. We show that effort is increasing in NB_A.

Optimal effort solves the following problem:

$$\max_{e_A \geq 0} \frac{1}{q}\left(\int_0^q U^-_{i,A} di + P_A(e_A, e_B)\int_0^q (U^+_{i,A} - U^-_{i,A}) di\right) - e_A \tag{A.2}$$

Using (7) and (13) we obtain

$$\max_{e_A}\left(\int_0^q \frac{U^-_{i,A}}{q} di + \frac{qe_A}{qe_A + (1-q)e_B} NB_A\right) - e_A \tag{A.3}$$

If the solution is interior, the first order condition is:

$$NB_A \frac{q[qe_A + (1-q)e_B] - q^2 e_A}{[qe_A + (1-q)e_B]^2} = 1 \tag{A.4}$$

After taking the square root

$$[q(1-q)e_B NB_A]^{1/2} = [qe_A + (1-q)e_B] \tag{A.5}$$

This leads to the optimal effort in country A:

$$e^*_A = max\left\{\frac{[q(1-q)e_B NB_A]^{1/2}}{q} - \frac{(1-q)e_B}{q},\ 0\right\} \tag{A.6}$$

From (A.6) it is immediate that optimal effort is increasing in NB_A. Note that for an interior solution one needs that

$$e_B < \frac{q}{(1-q)} NB_A. \tag{A.7}$$

Step 2. We compute NB_A

First, from (8) we have:

$$\begin{aligned} &\frac{1}{q}\int_0^q U^+_{i,A} di \\ = \quad & -\frac{1}{q}\theta g_A a(1-\lambda_A)[\int_0^{C_A}(C_A - i)di + \int_{C_A}^q (i - C_A)di] + \theta g_A + y_A - t_A + \gamma_A \frac{t_B(1-q)}{\chi q} \end{aligned}$$

$$
\begin{aligned}
&= -\frac{1}{q}\theta g_A a(1-\lambda_A)(C_A^2 - \frac{C_A^2}{2} + \frac{q^2}{2} - C_A q - \frac{C_A^2}{2} + C_A^2) + \theta g_A + y_A - t_A + \gamma_A \frac{t_B(1-q)}{\chi q} \\
&= -\theta g_A a(1-\lambda_A)(\frac{C_A^2}{q} + \frac{q}{2} - C_A) + \theta g_A + y_A - t_A + \gamma_A \frac{t_B(1-q)}{\chi q}
\end{aligned}
$$

Similarly, from (9)

$$
\begin{aligned}
\frac{1}{q}\int_0^q U_{i,A}^- di &= -\frac{1}{q}\theta g_B a \int_0^q [(C_B - \lambda_A C_A) - (1-\lambda_A)i]di + \frac{1}{q}\left[\theta g_B - t_A + y_A\right] q \\
&= -\frac{1}{q}\theta g_B a[(C_B - \lambda_A C_A)q - (1-\lambda_A)\frac{q^2}{2}] + \theta g_B - t_A + y_A \\
&= -\theta g_B a[C_B - \lambda_A C_A - (1-\lambda_A)\frac{q}{2}] + \theta g_B - t_A + y_A
\end{aligned}
$$

Then

$$
\begin{aligned}
NB_A &= \frac{1}{q}\int_0^q (U_{i,A}^+ - U_{i,A}^-)di \\
&= -\theta g_A a(1-\lambda_A)(\frac{C_A^2}{q} + \frac{q}{2} - C_A) + \theta g_A + y_A - t_A + \gamma_A \frac{t_B(1-q)}{\chi q} \\
&\quad +\theta g_B a[C_B - \lambda_A C_A - (1-\lambda_A)\frac{q}{2}] - \theta g_B + t_A - y_A \\
&= \theta[g_A - g_B - g_A a(1-\lambda_A)(\frac{C_A^2}{q} + \frac{q}{2} - C_A)] \\
&\quad +\theta g_B a[C_B - \lambda C_A - (1-\lambda_A)\frac{q}{2}] + \gamma_A \frac{t_B(1-q)}{\chi q} \qquad \text{(A.8)}
\end{aligned}
$$

The derivatives in Lemma 1 can be computed from the above expression. Throughout we will focus our analysis on parameters for which there exist values of g_A and γ_A, where $g_A \geq 0$, $\gamma_A \geq 0$, $g_A \leq t_A q$, and $\gamma_A \leq 1$, and such that (A.7) holds. In words: there exists some feasible policy (g_A, γ_A) such that the elite can motivate positive war effort on the part of citizens.

Proof of Proposition 2: Assume $\lambda_A = 0$. Define

$$
EU_e = NB_{e,A}(\frac{\chi q e_A}{\chi q e_A + \chi(1-q)e_B}) + U_{e,A}^- - e_A \qquad \text{(A.9)}
$$

The elite chooses $g_A \in [0, t_A q]$ and $\gamma_A \in [0,1]$ to maximize EU_e. We denote by $\gamma_A^\star$ and $g_A^\star$ the optimal solutions. Using (10) and (11) we compute the net benefit of winning for the elite

$$
NB_{e,A} = \theta g_A + (1 - \frac{g_A}{t_A q})\frac{t_A q}{s_A} + \frac{(1-\gamma_A)t_B(1-q)}{s_A} - \theta g_B(1 - a(C_B - C_A)) \qquad \text{(A.10)}
$$

Step 1. We show that it is not optimal to set $\gamma_A^\star = g_A^\star = 0$.

From above, we restrict our analysis to parameters for which there exists a value of g_A and γ_A, where $g_A \geq 0$, $\gamma_A \geq 0$, $g_A \leq t_A q$, and $\gamma_A \leq 1$, and such that (A.7) holds. We also assume $NB_{e,A} > NB_A$. Effort is strictly positive only if $g_A > 0$ or $\gamma_A > 0$ or both. It remains to observe that a policy that induces positive effort is strictly preferred by the elite to a policy $\gamma_A = g_A = 0$. If a policy (g_A, γ_A) results in citizens choosing $e_A > 0$ then, from (A.3), it must be that $\frac{qe_A}{qe_A+(1-q)e_B} NB_A - e_A > 0$, but since $NB_{e,A} > NB_A$ we know from (A.9) that the elite must strictly prefer this policy to one that induces zero effort.

Step 2. We prove that it cannot be that the solution is interior for both public good and transfers. That is, it cannot be $g_A^\star \in (0, t_A q)$ and $\gamma_A^\star \in (0,1)$.

We show that if $\chi < \frac{1-\theta s_A}{q\theta(1-a\Delta)}$, then either $\gamma_A^\star \in (0,1)$ and $g_A^\star = 0$, or $g_A^\star > 0$ and $\gamma_A^\star = 1$. If $\chi \geq \frac{1-\theta s_A}{q\theta(1-a\Delta)}$, then either $g_A^\star \in (0, t_A q)$ and $\gamma_A^\star = 0$, or $\gamma_A^\star > 0$ and $g_A^\star = t_A q$.

The Lagrangian of the problem is

$$\begin{aligned} L(g_A, \gamma_A; \psi, \omega) &= (U_{e,A}^+ - U_{e,A}^-)(\frac{\chi q e_A}{\chi q e_A + \chi(1-q)e_B}) + U_{e,A}^- - e_A \\ &\quad + \psi g_A + \omega \gamma_A + \widehat{\psi}(t_A q - g_A) + \widehat{\omega}(1-\gamma_A) \end{aligned} \tag{A.11}$$

where ψ, ω, $\widehat{\psi}$, and $\widehat{\omega}$ are the multipliers of the constraints $g_A \geq 0$, $\gamma_A \geq 0$, $g_A \leq t_A q$, and $\gamma_A \leq 1$.

Taking the first-order conditions with respect to γ_A and g_A :

$$\frac{\partial L(g_A, \gamma_A; \psi, \omega)}{\partial \gamma_A} = \frac{\partial NB_{e,A}}{\partial \gamma_A} P(e_A, e_B) + NB_{e,A} \frac{\partial P(e_A, e_B)}{\partial e_A} \frac{\partial e_A}{\partial NB_A} \frac{\partial NB_A}{\partial \gamma_A} - \frac{\partial e_A}{\partial NB_A} \frac{\partial NB_A}{\partial \gamma_A} + \omega - \hat{\omega} = 0 \tag{A.12}$$

$$\frac{\partial L(g_A, \gamma_A; \psi, \omega)}{\partial g_A} = \frac{\partial NB_{e,A}}{\partial g_A} P(e_A, e_B) + NB_{e,A} \frac{\partial P(e_A, e_B)}{\partial e_A} \frac{\partial e_A}{\partial NB_A} \frac{\partial NB_A}{\partial g_A} - \frac{\partial e_A}{\partial NB_A} \frac{\partial NB_A}{\partial g_A} + \psi - \hat{\psi} = 0 \tag{A.13}$$

Using the interior condition on effort e_A,

$$\frac{\partial P(e_A, e_B)}{\partial e_A} NB_A = 1, \tag{A.14}$$

rearranging terms, we can write:

$$\frac{\partial P(e_A, e_B)}{\partial e_A} \frac{NB_{e,A} - NB_A}{P(e_A, e_B)} \frac{\partial e_A}{\partial NB_A} = \frac{\frac{t_B(1-q)}{s_A}}{\frac{t_B(1-q)}{\chi q}} - \omega' + \widehat{\omega}' \tag{A.15}$$

where $\omega' = \frac{\omega}{P(e_A,e_B)}$ and $\widehat{\omega}' = \frac{\widehat{\omega}}{P(e_A,e_B)}$, and

$$\frac{\partial P(e_A,e_B)}{\partial e_A}\frac{NB_{e,A}-NB_A}{P(e_A,e_B)}\frac{\partial e_A}{\partial NB_A} = \frac{(\frac{1}{s_A}-\theta)}{\theta(1-a\Delta)} - \psi' + \widehat{\psi}' \tag{A.16}$$

where $\psi' = \frac{\psi}{P(e_A,e_B)}$ and $\widehat{\psi}' = \frac{\widehat{\psi}}{P(e_A,e_B)}$.

Suppose $g_A^\star \in (0, t_A q)$. Then, $\psi' = \widehat{\psi}' = 0$ and we have

$$\frac{\partial P(e_A,e_B)}{\partial e_A}\frac{NB_{e,A}-NB_A}{P(e_A,e_B)}\frac{\partial e_A}{\partial NB_A} = \frac{(\frac{1}{s_A}-\theta)}{\theta(1-a\Delta)} \tag{A.17}$$

If

$$\frac{\frac{t_B(1-q)}{s_A}}{\frac{t_B(1-q)}{\chi q}} > \frac{(\frac{1}{s_A}-\theta)}{\theta(1-a\Delta)} \tag{A.18}$$

(equivalently $\chi > \overline{\chi}$), then from (A.15) it must be that $\omega' > 0$ and so $\gamma_A^* = 0$. If instead $\chi < \overline{\chi}$, then from (A.15) it must be that $\hat{\omega}' > 0$ and so $\gamma_A^\star = 1$. At the non-generic value $\chi = \overline{\chi}$, then we can also have an interior solution for γ_A^*. Suppose instead $\gamma_A^\star \in (0,1)$. Following a symmetric argument, we can show that if (A.18) holds then $g_A^\star = t_A q$ and if instead $\chi < \overline{\chi}$ then $g_A^\star = 0$. At the non-generic value $\chi = \overline{\chi}$, then we can also have an interior solution for g_A^*. Finally, observe that if neither g_A^* nor γ_A^* are interior then from step 1 we have either $(g_A^\star = t_A q, \gamma_A^* = 1)$, or $(g_A^\star = t_A q, \gamma_A^* = 0)$, or $(g_A^* = 0, \gamma_A^* = 1)$. When $(g_A^\star = t_A q, \gamma_A^* = 0)$, then $\hat{\psi}' > 0$, $\psi' = 0$, $\hat{\omega}' = 0$, and $\omega' > 0$. Then it must be that $\chi > \overline{\chi}$. Symmetrically if $(g_A^* = 0, \gamma_A^* = 1)$ then it must be that $\chi < \overline{\chi}$.

To avoid unfruitful complications in the analysis from now on we will assume that at $\chi = \overline{\chi}$, when the elite is indifferent between investing in g_A or in γ_A, the elite invests first in g_A and then invests in γ_A only if g_A reaches its upper limit. In the paper we consider only the case where γ_A^* and g_A^* do not reach their upper limit.

We next show uniqueness of the equilibria to be used in the proceeding results. We show that the LHS of (A.16) is strictly decreasing in g_A when $\gamma_A = 0$ and that the LHS of (A.15) is decreasing in γ_A when $g_A = 0$. If the first order conditions give us a unique critical point, this guarantees that it solves the optimization problem. Assuming an interior solution, we rewrite the first-order conditions with respect to g_A and γ_A:

$$\frac{q(1-q)e_B\,(NB_{e,A}-NB_A)}{qe_A(qe_A+(1-q)e_B)}\theta(1-a\Delta)\frac{\sqrt{(1-q)qe_B}}{2q\sqrt{NB_A}} = (\frac{1}{s_A}-\theta) \tag{A.19}$$

$$\frac{q(1-q)e_B\,(NB_{e,A}-NB_A)}{qe_A(qe_A+(1-q)e_B)}\frac{t_B(1-q)}{\chi q}\frac{\sqrt{(1-q)qe_B}}{2q\sqrt{NB_A}} = \frac{t_B(1-q)}{s_A} \tag{A.20}$$

where

$$NB_{e,A}-NB_A \quad = \quad \theta g_A + (1-\frac{g_A}{t_A q})\frac{t_A q}{s_A} + \frac{(1-\gamma_A)t_B(1-q)}{s_A}$$

$$-\theta g_B(1 - a(C_B - C_A))$$
$$-\theta g_A(1 - a\Delta) + \theta g_B(1 - a(C_B - \frac{q}{2})) - \gamma_A \frac{t_B(1-q)}{\chi q}. \quad \text{(A.21)}$$

It can be shown that the LHS of (A.19) is decreasing in g_A because e_A and NB_A are increasing in g_A and $NB_{e,A} - NB_A$ is decreasing in g_A (given Assumption 1). Similarly, the LHS of (A.19) is decreasing in γ_A because e_A and NB_A are increasing in γ_A and $NB_{e,A} - NB_A$ is decreasing in γ_A.

□

Proof of Proposition 3: Expression (18) is the first order condition with respect to g_A, which can be written as

$$\frac{q(1-q)e_B\,(NB_{e,A} - NB_A)}{qe_A(qe_A + (1-q)e_B)}\theta(1 - a\Delta)\frac{\sqrt{(1-q)qe_B}}{2q\sqrt{NB_A}} = (\frac{1}{s_A} - \theta) \quad \text{(A.22)}$$

We can rewrite (A.21) as

$$NB_{e,A} - NB_A = \theta g_B a(C_B - C_A) - a\theta g_B(C_B - \frac{q}{2}) + \Omega \quad \text{(A.23)}$$

where Ω is a term that does not depend on g_B. When $C_A \leq \frac{q}{2}$ we have that $NB_{e,A} - NB_A$ increases in g_B. By Lemma 1, NB_A and e_A decrease in g_B. Then, we have that the LHS of (A.22) increases in g_B. Finally, since the LHS of (A.22) decreases in g_A, this proves Proposition 3. Note that $C_A \leq \frac{q}{2}$ is a sufficient condition (not a necessary one). □

Before proving Proposition 4, we state the following Lemma.

Lemma 2: *In equilibrium, homogenization, λ_A^*, and public spending, g_A^*, are positively related, where homogenization is given by*

$$\lambda_A^* = \max\{0, \frac{1 - \theta s_A}{h} g_A^* - \frac{1 - a\Delta}{a\Delta}\}. \quad \text{(A.24)}$$

Proof of Lemma 2:

The Lagrangian of the problem with λ_A is

$$\begin{aligned} L(g_A, \gamma_A, \lambda_A; \psi, \omega) &= (U_{e,A}^+ - U_{e,A}^-)(\frac{\chi q e_A}{\chi q e_A + \chi(1-q)e_B}) + U_{e,A}^- - e_A \quad \text{(A.25)} \\ &+\psi g_A + \omega\gamma_A + \nu\lambda_A + \widehat{\psi}(t_A q - g_A - h\lambda) + \widehat{\omega}(1 - \gamma_A) + \widehat{\nu}(1 - \lambda_A) \end{aligned}$$

where ψ, ω, ν, $\widehat{\psi}$, $\widehat{\omega}$ and $\widehat{\nu}$ are the multipliers of the constraints $g_A \geq 0$, $\gamma_A \geq 0$, $\lambda_A \geq 0$, $g_A + h\lambda_A \leq t_A q$, $\gamma_A \leq 1$, and $\lambda_A \leq 1$.

Our results present the case where equilibrium policies do not hit their upper constraints. For homogenization this implies $\lambda_A^* < 1$.

When $g_A^* = 0$ it is immediate that homogenization is of no value to the elite and so $\lambda_A^* = 0$. When g_A^* is interior, $g_A^* \in (0, t_A q - h\lambda_A^*)$, then the first order condition with respect to g_A is

$$\frac{\partial P(e_A, e_B)}{\partial e_A} \frac{NB_{e,A} - NB_A}{P(e_A, e_B)} \frac{\partial e_A}{\partial NB_A} = \frac{(\frac{1}{s_A} - \theta)}{\theta(1 - a(1 - \lambda_A)\Delta)}. \tag{A.26}$$

Then either $\lambda_A^* = 0$ or $\lambda_A^* > 0$. If $\lambda_A^* > 0$ then the first order condition with respect to λ is

$$\frac{\partial P(e_A, e_B)}{\partial e_A} \frac{NB_{e,A} - NB_A}{P(e_A, e_B)} \frac{\partial e_A}{\partial NB_A} = \frac{\frac{h}{s_A}}{\theta g_A a \Delta}. \tag{A.27}$$

Since the left hand sides of (A.26) and (A.27) are identical, then λ_A^* satisfies

$$\frac{\theta(1 - (1 - \lambda_A^*) a\Delta)}{\frac{1}{s_A} - \theta} = \frac{\theta(g_A^* a\Delta - g_B a(C_A - \frac{q}{2}))}{\frac{h}{s_A}} \tag{A.28}$$

where $C_A = \frac{q}{2}$. It follows that if $\lambda_A^* > 0$ then it is an increasing function of g_A^* :

$$\lambda_A^* = \frac{1 - \theta s_A}{h} g_A^* - \frac{1 - a\Delta}{a\Delta}. \tag{A.29}$$

□

Proof of Proposition 4:

First note that e_A^* continues to be given by the expression in (A.6), but the term NB_A in e_A^* becomes

$$NB_A = \theta g_A \left[1 - a(\frac{C_A^2}{q} + \frac{q}{2} + C_A)\right] - (1 - \lambda_2)\theta g_B \left[1 - a(C_B - \frac{q}{2})\right]. \tag{A.30}$$

The expected utility of the elite continues to be given by

$$EU_e = NB_{e,A}(\frac{\chi q e_A}{\chi q e_A + \chi(1 - q)e_B}) + U_{e,A}^- - e_A \tag{A.31}$$

where, as with benchmark homogenization,

$$NB_{e,A} = \theta g_A + (1 - \frac{g_A + h\lambda_2}{t_A q})\frac{t_A q}{s_A} + \frac{(1 - \gamma_A)t_B(1 - q)}{s_A} - \theta g_B(1 - a(C_B - C_A)). \tag{A.32}$$

It continues to hold that the elite always chooses at least one of $\gamma_A^*, g_A^*, \lambda_2^*$ to be strictly positive. The

Lagrangian of the problem with λ_2 is

$$L(g_A,\gamma_A,\lambda_2;\psi,\omega) = (U^+_{e,A}-U^-_{e,A})(\frac{\chi q e_A}{\chi q e_A+\chi(1-q)e_B})+U^-_{e,A}-e_A \tag{A.33}$$

$$+\psi g_A+\omega\gamma_A+\nu\lambda_2+\widehat{\psi}(t_A q-g_A-h\lambda_2)+\widehat{\omega}(1-\gamma_A)+\widehat{\nu}(1-\lambda_2) \tag{A.34}$$

where ψ, ω, ν, $\widehat{\psi}$, $\widehat{\omega}$ and $\widehat{\nu}$ are the multipliers of the constraints $g_A \geq 0$, $\gamma_A \geq 0$, $\lambda_2 \geq 0$, $g_A + h\lambda_2 \leq t_A q$, $\gamma_A \leq 1$, and $\lambda_2 \leq 1$. We continue to consider the case where policy choices do not hit their upper constraints. Then the first order conditions with respect to γ_A, g_A, and λ_2 are respectively

$$\frac{\partial P(e_A,e_B)}{\partial e_A}\frac{NB_{e,A}-NB_A}{P(e_A,e_B)}\frac{\partial e_A}{\partial NB_A} = \frac{\frac{t_B(1-q)}{s_A}}{\frac{t_B(1-q)}{\chi q}}-\omega' \tag{A.35}$$

$$\frac{\partial P(e_A,e_B)}{\partial e_A}\frac{NB_{e,A}-NB_A}{P(e_A,e_B)}\frac{\partial e_A}{\partial NB_A} = \frac{(\frac{1}{s_A}-\theta)}{\theta(1-a\Delta)}-\psi' \tag{A.36}$$

$$\frac{\partial P(e_A,e_B)}{\partial e_A}\frac{NB_{e,A}-NB_A}{P(e_A,e_B)}\frac{\partial e_A}{\partial NB_A} = \frac{\frac{h}{s_A}}{\theta g_B(1-a(C_B-\frac{q}{2}))}-\nu' \tag{A.37}$$

where ω', ψ', and ν' are the values of ω, ψ, and ν scaled by positive constants. Note that Δ in A.36 is not a function of λ_2.

We follow the same strategy as previous proofs. Suppose $\gamma^\star_A \in (0,1)$. When

$$\frac{\frac{t_B(1-q)}{s_A}}{\frac{t_B(1-q)}{\chi q}} < \min\left\{\frac{(\frac{1}{s_A}-\theta)}{\theta(1-a\Delta)}, \frac{\frac{h}{s_A}}{\theta g_B(1-a(C_B-\frac{q}{2}))}\right\} \tag{A.38}$$

then it must be that $\psi' > 0$ and $\nu' > 0$ and hence $g_A = 0$ and $\lambda_2 = 0$. When the inequality in (A.38) is reversed, the only way the first order conditions can be satisfied is if $\omega' > 0$. This implies $\gamma^*_A = 0$.

Condition (A.38) is equivalent to $\chi < \min\{\overline{\chi},\widetilde{\chi}\}$. Thus when $\chi > \min\{\overline{\chi},\widetilde{\chi}\}$, then $\gamma^*_A = 0$. The choice between using g_A or λ_2 is driven by the inequality

$$\frac{(\frac{1}{s_A}-\theta)}{\theta(1-a\Delta)} > \frac{\frac{h}{s_A}}{\theta g_B(1-a(C_B-\frac{q}{2}))}. \tag{A.39}$$

If (A.39) holds, since we cannot have both $\psi' > 0$ and $\nu' > 0$ (otherwise all policy choices would be zero). Then it must be that $\psi' > 0$ and so $g^*_A = 0$ and $\lambda^*_2 \in (0,1)$. A symmetric argument holds to show that when the inequality in (A.39) is reversed then $g^*_A \in (0, qt_A)$ and $\lambda^*_2 = 0$. The inequality in (A.39) gives us the sign of φ. When $\chi = \min\{\overline{\chi},\widetilde{\chi}\}$, then the elite is indifferent between using either γ_A or one of the other instruments. For simplicity of statement, we assume they invest in one of the other instruments. When $\varphi = 0$ then the elite is similarly indifferent between using g_A or λ_2. For simplicity of statement, we assume they invest in λ_2. □

Proof of Proposition 5: The elite choose between two forms of nation-building: negative (denoted λ_2) and positive (denoted λ_A). First, note that when $\lambda_A = \lambda_2 = 0$ the net benefit of winning is the same for both types of nation-building. The net benefit in case of negative indoctrination can be written as

$$\widehat{NB}_A = \theta(g_A - g_A a(\frac{C_A^2}{q} + \frac{q}{2} - C_A)) - \theta(1-\lambda_2)g_B(1 - a(C_B - \frac{q}{2})) \tag{A.40}$$

The derivative of the average net benefit with respect to λ_2 is

$$\frac{\partial \widehat{NB}_A}{\partial \lambda_2} = \theta g_B(1 - a(C_B - \frac{q}{2})) \tag{A.41}$$

From (A.8) the derivative of the net benefit with respect to λ_A is

$$\frac{\partial NB_A}{\partial \lambda_A} = \theta g_A a \Delta \tag{A.42}$$

For the equilibrium value of g_A^*, if the following holds

$$\theta g_A a \Delta < \theta g_B(1 - a(C_B - \frac{q}{2})), \tag{A.43}$$

then $\widehat{NB}_A \geq NB_A$. This implies positive homogenization is not used since the elite value homogenization only through its impact on the net benefit of winning the war. Using the fact that fiscal capacity puts an upper bound on spending, that is $g_A < qt_A + \lambda h \leq qt_A$, if

$$t_A < \frac{\theta g_B(1 - a(C_B - \frac{q}{2}))}{q\theta a \Delta} \tag{A.44}$$

then homogenization, if used, will be negative homogenization. □

Binding fiscal-capacity and loots of war

Assume $\lambda = 0$. Suppose that equilibrium policies are not bounded away from their maximal levels –i.e., either $\gamma_A^\star = 1$ or $g_A^\star = t_A q$. Simulations show that public spending might be provided before the cutoff $\overline{\chi}$. This occurs when $\gamma_A^\star$ hits the upper constraint and the elite are left only with the less efficient instrument (public good) to further boost effort. In fact, note from Figures A.1 and A.2 that when $\chi \leq \overline{\chi}$, spending is strictly positive precisely when $\gamma_A^\star = 1$. Similarly, from Figure A.2 we observe that soldiers' pay is positive when $\chi > \overline{\chi}$. This occurs because the elite is already using public spending, the most efficient instrument, at full capacity. The graphs below show that qualitatively results are similar to those stated in Proposition

2. It bears stressing that the cutoff is the same one derived in Proposition 2.

Figure A.1

public goods

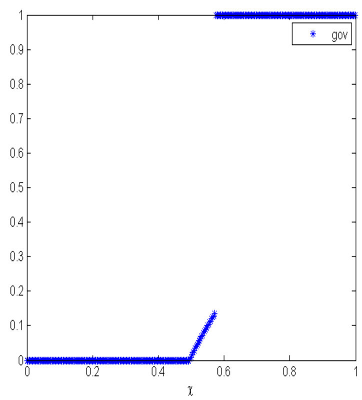


Figure A.2

soldiers' pay

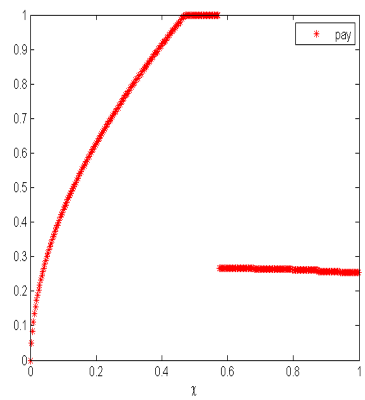
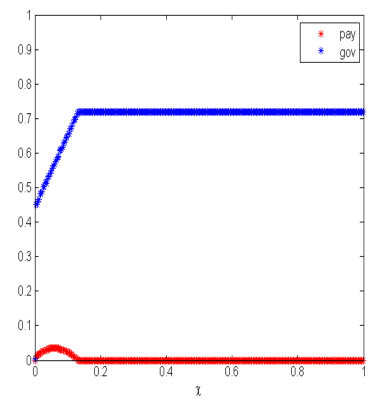


Figure A.3

quasi linear utility



Quasi-Linear Utility

Assume the following quasi-linear utility function for all $i \in [0, q]$

$$U_{i,A} = \ln(g_A)\theta(1 - a\,|i - C_A|) + c_{i,A} \tag{A.45}$$

Under peace, the elite maximizes

$$U_{e,A} = \theta \ln(g_A) + y_A + \frac{(1-\pi_A)t_A q}{s_A}. \tag{A.46}$$

subject to the government's budget constraint. It is immediate to compute that under peace, if the solution is interior (i.e., fiscal capacity is not too low), optimal spending is

$$g_A^\star = \theta s_A \tag{A.47}$$

Compared to Proposition 1, there is public good provision under peace as well and public spending increases in θ and s_A. Under war (assume $\lambda = 0$), if the solutions for $g_A^\star$ and $\gamma_A^\star$ are both interior, we have

$$g_A^\star = \theta s_A + \chi q \theta(1 - a\Delta), \tag{A.48}$$

This implies that an increase in army size raises spending, as in the model in the main text, but in a continuous way. We can simulate a path for spending and soldiers' pay as a function of army size. When army size is small, the solution is interior and public spending increases in χ according to (A.48). As army size gets sufficiently large, soldiers are not paid anymore and public spending is constant thereafter.

Enemy Neutral Indoctrination

Assume $C_A = q/2$ and any form of indoctrination has a unitary cost h. We consider a form of indoctrination called "enemy-neutral" which does not affect citizens' utility in case country B wins the war; it only raises the value of the public good provided in A. The utility if A wins is

$$\widetilde{U}^{+}_{i,A} = \theta g_A \left[1 - a(1-\lambda_1)\left|i - C_A\right|\right] + y_A - t_A + \gamma_A \frac{t_B(1-q)}{\chi q} \tag{A.49}$$

where $\lambda_1 \in [0,1]$. In case of defeat, the utility of A's citizens is unchanged and equal to

$$\widetilde{U}^{-}_{i,A} = \theta g_B \left[1 - a\left|i - C_B\right|\right] + y_A - t_A. \tag{A.50}$$

Language policies might be considered in this type of homogenization. It is reasonable to suppose that making, say, Bretons learn French improves their ability to feel "French" and enjoy the public goods provided in Paris, but should have little or no consequence on the way they would enjoy the German public good in case of a defeat in a Franco-German war. There are two ways of considering the effect of this alternative form of homogenization on war effort. On one hand, relative to the benchmark form of homogenization in the paper, citizens located to the left of C_A, far from the border with country B, have stronger incentives to fight. On the other hand, there is a negative effect on the desired war effort of citizens located to the right of C_A, because it is not the case anymore that homogenization worsens the utility of these citizens in defeat. It can be shown that when Assumption 2 holds, the two effects exactly balance out (Lemma 3 below). Choices made by the elite and choice of effort by soldiers are the same under either form of indoctrination. This equivalence result hinges crucially on the assumption that the capital is in the middle. If the capital of country A were close to "zero," the benchmark form of homogenization would be more effective, because bringing the population closer to the capital of A would also bring most of the citizens further away from B's capital. Conversely, if the capital were close to the border with country B, enemy-neutral indoctrination would be more effective.

Lemma 3: *Equilibrium war effort, elite's payoffs and public policies under enemy-neutral homogenization coincide with the ones obtained under the "benchmark" form of homogenization.*

Proof of Lemma 3: Under the benchmark utility, the average net benefit of winning in the country is

$$\begin{aligned} NB_A &= \theta(g_A - g_B - g_A a(1-\lambda)(\frac{C_A^2}{q} + \frac{q}{2} - C_A)) \\ &\quad + \theta g_B a(C_B - \lambda C_A - (1-\lambda)\frac{q}{2}) + \gamma_A \frac{t_B(1-q)}{\chi q} \end{aligned} \tag{A.51}$$

Under "enemy neutral" nation-building the average net benefit of winning in the country is

$$\begin{aligned} \widetilde{NB}_A &= \theta(g_A - g_B - g_A a(1-\lambda_1)(\frac{C_A^2}{q} + \frac{q}{2} - C_A)) \\ &\quad + \theta g_B a(C_B - \frac{q}{2}) + \gamma_A \frac{t_B(1-q)}{\chi q} \end{aligned} \tag{A.52}$$

Both net benefits are identical when $C_A = \frac{q}{2}$. It also follows that if $C_A > q/2$, "enemy neutral" would be preferable for the elite to the "benchmark" one, and vice versa when $C_A < q/2$. When $C_A = \frac{q}{2}$, since the two forms of nation-building affect the elite utility only through the probability of winning, and since the elite's payoffs do not depend on nation-building, we have that economic outcomes under the two forms of nation-building are identical. $\square$