

# The Political Economy of Blood and Treasure \*

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## Abstract

This paper presents a theory predicting capital-intensive defense preparation in democracies based on median voter preferences. By developing a highly capitalized military with a low probability of conscription and casualties, this median voter reduces her expected costs of conflict. Democracies with high economic inequality are likely to build larger and more heavily capitalized militaries in reaction to perceived threats than more egalitarian ones. Statistical analysis of both public opinion and state-level behavior links inequality, threat and military capitalization in democracies. The paper concludes by exploring the theory's implications: if a majority of voters can dampen their aversion to war by the shifting of costs onto a wealthy minority, then a democracy with high income inequality and a capitalized military may more readily resort to an aggressive foreign policy.

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Costing 15 billion dollars to date, the U.S. Army's Future Combat Systems (FCS) is the largest research program in the history of the Department of Defense.<sup>1</sup> The FCS includes at least ten unmanned vehicles or sensors; Army briefings claim the system reduces logistical support requirements by up to seventy percent, cuts a battalions worth of combat troops by half, and increases "survivability" by sixty to eighty percent.<sup>2</sup> The FCS is the largest and latest instance of the continuing attempt to create a "new American way of war," one that increases the speed of warmaking, widens the military power gap between the United States and the rest of the world, minimizes American casualties, and raises the financial costs of defense for American taxpayers.<sup>3</sup>

The United States is not alone; Australia, Great Britain, Israel and South Korea are all in the midst of capital-intensive retoolings of their militaries.<sup>4</sup> France's recently published Defense White Paper promises to cut personnel by seventeen percent (the majority from the Army) and apply the savings towards upgraded hardware, a military space program, improved airlift, and armored platforms designed to protect the soldiers that remain. Despite the personnel cuts, the White Paper defines French strategic interests ambitiously, incorporating the Atlantic, Mediterranean and the Middle East with a new, permanent naval base established in Abu Dhabi. In this paper I argue that such militaries and expansive aims are developed with the average voter's blessing in spite of—indeed because of—the hefty capital investment it requires.<sup>5</sup>

This paper presents a theory of democratic military preparation synthesizing three well-established social scientific insights. This paper explains the shift with a parsimonious theory of military preparation synthesizing three social scientific insights. A large body of International Relations research claims that voter preferences force democracies to provide the public good of security efficiently. However, many works in political economy explore how the average voter can use public goods as a tool for wealth redistribution (an insight often called the Meltzer-Richard hypothesis). Political economists in turn generally avoid addressing defense as the paradigmatic public good, and thus its redistributive potential. I combine the decision to arm with a simple, venerable model of public

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<sup>1</sup>In the most recent defense budget proposal, Defense Secretary Robert Gates recommended cutting funding for the manned components of the FCS. The money that would have been spent will be fund a successor ground vehicle with increased armor more suited for conditions in Afghanistan and Iraq. Additionally, Gates has advocated equipping all forty-five of the Army's brigades with the FCS not the fifteen originally planned.

<sup>2</sup>Feickert 2005, 152.

<sup>3</sup>Boot 2003; Ferris 2003; Hoffman 1996.

<sup>4</sup>Bennett 2006.

<sup>5</sup>French Ministry of Defense, 2008

choice to demonstrate that the median voter can shift the costs of defense provision onto the rich through the substitution of military capital for labor, making conscription and casualties less likely, and thereby turning arming and war into an exercise in fiscal, rather than social, mobilization.

After briefly reviewing previous approaches to democratic cost aversion and public goods provision, I present a revised model of public goods as wealth redistribution suggesting that democracies respond to increased threats with more capitalization, that military capitalization increases as the inequality in the wealth distribution rises, and that this redistributive process results in greater military effort and increased defense spending. I then test the basic Meltzer-Richard redistribution model using public opinion data, and then test the predictions of the revised model on states' arming behavior. I conclude by speculating on these findings' implications for international politics.

## 1 Cost Internalization and Democratic Exceptionalism

Many findings of democratic exceptionalism in IR rest on the assumption of cost internalization within the electorate, summarized by Fred Chernoff, "Citizens and subjects—rather than presidents and monarchs—fight in wars, die in wars, and pay taxes to finance wars. In most cases, it is not in the citizen's self-interest for the state to go to war."<sup>6</sup> This mechanism is used to explain why democracies fight shorter wars,<sup>7</sup> prefer to negotiate,<sup>8</sup> win the wars they do initiate,<sup>9</sup> spend less money on defense in peacetime, and devote more to the effort in wartime.<sup>10</sup>

Office-seeking executives requiring the support of a large number of voters cannot bribe a small elite with private goods but must instead provide goods enjoyed by all.<sup>11</sup> Therefore democratic leaders "survive on the basis of their public goods performance" including military victory.<sup>12</sup> Since those holding ultimate political power also pay for these public goods, elected leaders must provide these goods efficiently, leaving as much wealth as possible in the hands of the voter for consumption.

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<sup>6</sup>Chernoff 2004, 54

<sup>7</sup>Bennett and Stam 1998; Slantchev 2004.

<sup>8</sup>Bueno de Mesquita et al. 2003; Filson and Werner 2004.

<sup>9</sup>Siverson 1995; Bueno de Mesquita et al. 1999; Reiter and Stam 2002.

<sup>10</sup>Fordham and Walker 2005; Goldsmith 2003, 2007. I do not address more norm-based arguments such as Maoz and Russett 1993; Dixon 1994; Owen 1994; Farnham 2003. I am also not examining other institutional arguments such as the role of democratic transparency, Schultz 2001; Schultz and Weingast 2003; Lipson 2003. Nonetheless, even these arguments rest on the electorate weighing the merits of the case and making their opinion known, and surely the price of war must be a crucial factor.

<sup>11</sup>Bueno de Mesquita et al. 2003. Like many others including Bueno de Mesquita and Downs 2006 I collapse this arrangement of a large selectorate and winning coalition into the term "democracy."

<sup>12</sup>Bueno de Mesquita et al. 1999.

Democracies thread the needle of providing the voter with both more public goods and lower taxes for these goods than do non-democracies. In terms of defense, democracies get the most bang for the buck.<sup>13</sup>

When explaining aggressive or foolish behavior by democracies, IR theory focuses on the capturing of the state by interest groups who disproportionately gain benefits from a policy while distributing the costs throughout society.<sup>14</sup> Examining the pathological effects of “domestic coalition politics,” Jack Snyder claims that while democracies tend to experience fewer of these problems due to their governments’ reflection of a broader social interest, they can still pursue overexpansion due to a poorly informed electorate or logrolling by narrow special interest groups, rather than the will of a majority of rational voters.<sup>15</sup> This approach updates the classical liberal tenet that the poor have little value for arming and war, which only serve the interests of the rich. Militarism and imperialism are, in John Hobson’s words, “Irrational from the standpoint of the whole nation” but “rational enough from the standpoint of certain classes,” and thus would be absent in “an intelligent laissez-faire democracy which gave duly proportionate weight in its policy to all economic interests alike.”<sup>16</sup>

Empirical evidence provides some support for the claim that democracies spend less on their military than other regimes.<sup>17</sup> However, other work suggests more nuanced links between defense spending and domestic politics. Richard Eichenberg and Richard Stoll broadly finds that public opinion does have an effect on defense spending in several democracies. Benjamin Fordham links the increasingly capitalized military in the Cold War United States to domestic pressures such as unemployment.<sup>18</sup> Israeli and American defense spending rises prior to an election.<sup>19</sup> Kevin Narizny views military buildups as a leftist maneuver to increase the size of government.<sup>20</sup> Kenneth Scheve and Paul Stasavage argue that the rise of progressive taxation and the welfare state rose in response to concerns over social equity in the era of conscripted mass army warfare.<sup>21</sup>

Other work considers how democracy shapes the *type* of military built. Erik Gartzke proposes

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<sup>13</sup>Lake 1992; Bueno de Mesquita et al. 2003.

<sup>14</sup>Milner 1997; Moravcsik 1997.

<sup>15</sup>Snyder 1991 .

<sup>16</sup>Hobson 1902, 52.

<sup>17</sup>Fordham 2003; Goldsmith 2003, 2007; Fordham and Walker 2005.

<sup>18</sup>Fordham 2004 .

<sup>19</sup>Mintz and Ward 1989; Mayer 1992.

<sup>20</sup>Narizny 2007.

<sup>21</sup>Scheve and Stasavage 2008 .

a theory of democratic defense preparation in which democracies allocate higher amounts of capital (weapons, technology, etc.) per soldier, thereby incurring “economic burdens, perhaps for domestic political benefit.”<sup>22</sup> Gartzke rejects the hypothesis empirically, but other studies show that democracies place fewer people under arms in both peace and war and pursue less personnel-intensive maneuver strategies.<sup>23</sup> The Israeli defense budget rises in response to higher battle deaths, and Paul Vasquez provides evidence that the use of conscripted soldiers forces democracies to pursue casualty-avoiding strategies.<sup>24</sup> An innovative study shows that defense firms in Western democracies emphasize (own) casualty reduction in weapons advertisements.<sup>25</sup>

## 2 The Demand for Security

Economists have long ranked national defense among the purest of public goods.<sup>26</sup> In this sense the government’s provision of security is as much a public program as unemployment insurance or a health care system.<sup>27</sup> What dictates the demand for this public good?

To answer this question I assume that national security is valuable, scarce and costly. This does not imply that the world is extremely dangerous, only that actors desire but can never achieve perfect or unlimited security. Large amounts of security require tradeoffs against other public goods or consumption. While the demand for security varies with the perceived threat, it is never zero. I assume that a voter within a democracy is no less concerned with security than any other actor, and no less capable of balancing marginal costs and benefits.

### 2.1 Median Voter Theory

Like Bueno de Mesquita et al, I assume that citizens weigh personal costs against gains in the public good of security in determining the type of military built, the way it fights, and the conflicts it enters. I assume individuals act purposefully, have consistent preferences, and their goal is to

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<sup>22</sup>Gartzke 2001, 469.

<sup>23</sup>Reiter and Stam 2002; Fordham and Walker 2005. Reiter and Meek 1999a,b.

<sup>24</sup>Mintz and Ward 1989, Vasquez 2005.

<sup>25</sup>Schörnig and Lembcke 2006.

<sup>26</sup>Kapstein 1992; Hudson and Jones 2005. A public good is both nonrival—one’s enjoyment of it does not diminish the value for another—and nonexcludable—everyone within the state enjoys it regardless of their contribution to it. See Samuelson 1954; Snidal 1979.

<sup>27</sup>See Gilpin 1981, 19. I will subsume for simplicity’s sake “peaceful” public goods as part of the individual’s consumption.

increase, in light of these preferences, their well-being by maximizing the good in their lives (security and consumption) and minimizing the bad (conscriptioin and taxes). With access to all relevant information they are capable of perfectly calculating the expected value of various policies, and immune to satisficing behavior and to cognitive biases. They may care about the public welfare (such as the national interest or the well-being of their countrys soldiers), but weigh this against the sacrices in consumption required to generate it.

I choose perhaps the simplest possible model of democracy, median voter theory (MVT). The most straightforward way to conceptualize this is by assuming a direct democracy with no agenda setter, where all citizens vote on pairs of policy alternatives by majority-rules referenda.<sup>28</sup> As long as these policies can be ordered along a single dimension and preferences are single-peaked, the median voter's preferred policy will win, since voters who prefer a different policy than the median voter will be unable to agree on an alternative in order to create an alternate majority.<sup>29</sup>

While MVT requires strong assumptions, its simple, intuitive approach to deciding policies within a democracy makes it a useful tool. Importantly, it is the inherent assumption of the vast majority of democratic exceptionalism, while exceptionalisms critics concentrate on perversions of this rational democratic ideal to explain awed foreign policy. It is normatively attractive; we should want a democracys policy to reect the preferences of the average (rational and well-informed) voter. MVT is most appropriately applied to collective goods, such as the public good of defense. At least in the United States, even the pork element of defense spending is spread widely, and strong bipartisan support exists for military spending.<sup>30</sup> Because foreign policy is often considered a realm apart (at least rhetorically), it is less prone to the chaos resulting from voting over multiple issue dimensions.<sup>32</sup> Military preparation requires long planning windows which can dampen any

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<sup>28</sup>Rather than a direct democracy, the most common version of MVT assumes an odd number of voters and candidates from two parties who are motivated solely by winning the election in a majority rules, winner-takes-all election. The candidates are able to commit to their policies in advance of their election. Black 1948; Downs 1957. To allow for stable equilibria in the presence of more than one issue dimension, we can assume that voters are only differentiated by one parameter, income or wealth. Alternatively, we can have voters vote probabilistically, vote on each issue sequentially, or divide the citizenry into a small group of wealthy and a large group of non-wealthy people. Essentially these approaches result in the same outcome: the median voter picks the policy. For reviews of these various approaches see Persson and Tabellini 2000 and Acemoglu and Robinson 2005. Even works of scholarship that take partisanship as their starting point find ways for voters to draw their elected agents to the political center, for example through divided government Alesina and Rosenthal 1995 or supermajority requirements Krehbiel 1998.

<sup>29</sup>Single-peaked implies that individuals prefer policies closer to their ideal point than further away.

<sup>30</sup>Betts 2005. That said, there has been a shifting of military expenditure, as well as all other federal expenditure to the south and west, the "gun belt".<sup>31</sup> This essay suggests this is no coincidence.

<sup>32</sup>McKelvey 1976; Plott 1967. Although see ? on increased partisanship on these issues in the United States.

cycling among political parties or voters. Successful military coercion by democracies generally requires consensus among political elites.<sup>33</sup>

## 2.2 Providing Security to the Median Voter

I relax the axiomatic (if often tacit) exceptionalist assumption that costs are always internalized within the electorate to explore ways in which costs for the median voter may be lower than the per capita cost for the state. There are two specific means by which costs are distributed away from the median voter: *economic inequality* and *military doctrine*.

In a democracy, inequality can lead to the shifting of resources from the relatively wealthy to the relatively poor through policy. Even in democracies wealth is never distributed equally; the person with median income is less well off than a person with the mean income.<sup>34</sup> If the median voter can set a tax rate and spend the government revenue on a service available to all citizens, she will take advantage of the potential for redistribution, a proposition known as the “Meltzer-Richard” hypothesis.<sup>35</sup> Even with a flat income tax, the wealthy will pay a larger portion of the costs for a public good enjoyed by all. A relatively poorer median voter will support a higher tax rate since the benefit she enjoys from the public good outweighs the relatively small amount she loses to taxes.<sup>36</sup> For similar redistributive reasons, the median voter will prefer to tax capital rather than labor, again resulting in redistribution.<sup>37</sup> Both forms of redistribution influence the production of military power.

## 2.3 Capitalization

Military power can be stylized as the output the two production factors—capital (tanks, planes, ammunition, even training) and labor (soldiers, sailors, etc.)—plus a substitution technology. One factor of production can substitute for the other, albeit imperfectly. Given a hundred tanks and two soldiers, adding one more tank is less useful than another soldier.

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<sup>33</sup>Schultz 2001.

<sup>34</sup>Defense economics scholars have used median voter models before but have not made this assumption, and thus do not address the redistributive effects of the defense public good. Dudley and Montmarquette 1981; Smith 1989; Murdoch, Sandler, and Hansen 1991; Throsby and Withers 2001.

<sup>35</sup>Meltzer and Richard 1981; Persson and Tabellini 2000; Alesina and Rodrik 1994.

<sup>36</sup>For example, according to the Congressional Budget Office, in the United States the fifth of the population with the highest incomes were responsible for 69% of all federal tax revenue, and the top 1% paid 28%. The middle quintile paid only 9% and the lowest paid less than one, Harris 2007.

<sup>37</sup>Persson and Tabellini 2000, 117-122.

Tax revenue can pay for both factors, but personnel can also be supplied from conscription, a tax on citizens' labor (which I assume is distributed equally) rather than capital. When a draft is in place, the median voter will demand a larger amount of the military budget go towards the purchase of capital to reduce the risk of conscription. In cases where the threat does not currently justify resorting to conscription, military capitalization will still help determine a draft's future likelihood. The median voter normally will prefer an expensive, all-volunteer military; but once the level of threat creates a demand for labor reaching into the middle class, the voter will support a military staffed through a fair draft whose conscripts are protected by large amounts of capital.<sup>38</sup> Casualties are also a public bad; no one wants to see their fellow citizens die. The less wealthy are more likely to be drafted, are more likely to join an all-volunteer force, may gain jobs from domestic weapons manufacturing, and often regard military service as a means of acquiring human capital.<sup>39</sup> For all these reasons, the median voter will accept a higher tax, what the British socialist Sidney Webb called "the conscription of riches," to build highly capitalized militaries in both peace and war.

The ability to replace military labor with capital is constrained by substitutability, determined in part by the available technology. The right tools (and doctrine) can increase the output of military power with the same amount of inputs, or increase the effectiveness of one's favored factor of production. Limits exist however; a bulldozer makes one person much more effective at moving earth, but for the purposes of archaeology it is a disastrous substitute for several individuals wielding chisels and brushes. Similarly, a repower and capital-intensive military is less-suited for fighting insurgencies than for fighting conventional forces.<sup>40</sup>

### 3 Formalizing the Production of Military Power

I assume a closed economy consisting of citizens with the same preferences for a mix of private consumption and a single public good—defense—paid for through a common tax rate on wealth. Untaxed wealth is consumed. I assume that this wealth endowment is the only difference between

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<sup>38</sup>Vasquez 2005.

<sup>39</sup>Appy 1993. Cooper 1977, 89 estimates that once the increased likelihood of being drafted is factored in, "black, non-high-school graduates forgo an amount equal to 3.4 percent of the present value of their expected lifetime earnings, while whites with postgraduate schooling forgo an average of only 1.1 percent."

<sup>40</sup>Lyll and Wilson III 2007.

these hypothetical voters; every individual values her life equally and can produce the same amount of military labor.

The median voter sets all policy in sequential votes, choosing a tax rate first and then allocating this revenue between military capital and labor.<sup>41</sup> This arrangement possesses the virtue not only of simplicity, but at least some empirical plausibility; the U.S. Congress for example votes on taxes and military spending separately.<sup>42</sup>

The voter's utility contains three components: the voter's private consumption  $c_m$ , the public good of security  $S$ , and the public bad of a draft  $D$ .  $D$  represents the likelihood of the draft if it does not exist and the extent of the draft if it does, the "conscription" term should be considered a proxy for all of the reasons to prefer a capitalized military listed above. Let  $\tau$  be the tax rate and  $y_m$  the median voter's wealth ( $\bar{y}$  is the state's per capita wealth). Therefore:  $c_m = (1 - \tau)y_m$ .

With the total revenue from taxation ( $\tau N\bar{y}$ , with  $N$  being the state's population), the state can only purchase military capital  $K$  (the numeraire good in dollars) and military labor  $L$  (in people at an exogenous cost of  $\omega$  dollars each).<sup>43</sup> The government budget  $G$  is described as  $G = \tau N\bar{y} = K + \omega L$ .

Let  $\theta$ , an expression of inequality, be the ratio of  $\bar{y}$  over  $y_m$  (and therefore  $\theta \geq 1$ ). The consumption term becomes:

$$c_m = \left(1 - \frac{K}{N\bar{y}} - \frac{\omega L}{N\bar{y}}\right) y_m = \left(y_m - \frac{K}{N\theta} - \frac{\omega L}{N\theta}\right) \quad (1)$$

The public good of security is provided through military capability, the outcome of a neoclassical production function:  $M = K^\alpha L^{1-\alpha}$ .<sup>44</sup> The technological parameter  $\alpha$  determines the substitutability of labor and capital ( $0 \leq \alpha \leq 1$ ).

External threats are intrinsic to defense's public good value. In times of minimal danger, the median voter will prefer to consume her own wealth. Taking Alexander Wendt's epigram that "five hundred British nuclear weapons are less threatening to the US than five North Korean ones" as

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<sup>41</sup>One could also allow the voter to decide whether to implement conscription. I avoid this for the sake of parsimony.

<sup>42</sup>If Congress contains members representing the interests of districts with varying levels of wealth, then the median voter theory remains a useful model.

<sup>43</sup>Gartzke (2001) does not factor in the relative costs of labor and capital, potentially leading to flawed results.

<sup>44</sup>I use a Cobb-Douglas function for simplicity and to generate hypotheses for testing; the model can be made more generalizable with no impact on the theoretical outcomes, so long as the factors are neither perfect substitutes nor complements. For a more general model see Dudley and Montmarquette 1981.

my guide, threat is described by two parameters.<sup>45</sup> The value of security  $S$  consists of  $M$  as a proportion of the combined military capability of the voter's state and that of potential enemies  $E$ , multiplied by a salience parameter  $\beta$  that can incorporate such diverse mitigating factors as perception of threat, geographic separation, etc.<sup>46</sup> Since perfect security is impossible, I assume that these values are never zero.

$$S = \frac{\beta M}{(M + E)} = \frac{\beta K^\alpha L^{1-\alpha}}{(K^\alpha L^{1-\alpha} + E)} \quad (2)$$

Finally, conscription or at least its possibility exists. The risk of being drafted is the same for every member of the population and therefore a public "bad," and is proportional to the amount of labor used in the military over the size of the population. The expected value of a draft also incorporates a measurement of threat, becoming more negative as the danger posed by an opponent's military rises:  $D = -\frac{EL}{N}$ . This is summed with equations (1) and (2) to obtain the median voter's utility function:<sup>47</sup>

$$U_m = \left( y_m - \frac{K}{N\theta} - \frac{\omega L}{N\theta} \right) + \frac{\beta K^\alpha L^{1-\alpha}}{(K^\alpha L^{1-\alpha} + E)} - \frac{EL}{N} \quad (3)$$

### 3.1 Choosing a Capital-to-Labor Ratio

This game is solved by backwards induction. By unique subgame perfect Nash equilibrium, the median voter will choose allocations of military capital and labor that minimize costs for producing a given amount of military capability  $M$ , expressed as a cost minimization problem using equation (3) constrained by the production function:

$$\min_{K,L} = \frac{K}{N\theta} + \frac{\omega L}{N\theta} + \frac{EL}{N} \text{ subject to } M = K^\alpha L^{1-\alpha}$$

This can be transformed into a Lagrangian function:

$$\mathcal{L} = \frac{K}{N\theta} + \frac{\omega L}{N\theta} + \frac{EL}{N} + \lambda [M - K^\alpha L^{1-\alpha}]$$

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<sup>45</sup>Wendt 1999, 255.

<sup>46</sup>For simplicity I assume that there are no economies of scale and no spillover effects from allies' defense spending.

<sup>47</sup>I do not model deadweight losses from the taxation. Adding deadweight losses will not change the theoretical conclusions, but will dampen any incentive to redistribute.

Solving for the first order conditions:

$$\lambda^* = \frac{1}{N\theta\alpha} \left[ \frac{\alpha}{1-\alpha} (\omega + E\theta) \right]^{1-\alpha} \quad (4)$$

$$K^* = M \left[ \frac{\alpha}{1-\alpha} (\omega + E\theta) \right]^{1-\alpha} \quad (5)$$

$$L^* = M \left[ \frac{\alpha}{1-\alpha} (\omega + E\theta) \right]^{-\alpha} \quad (6)$$

The ratio of equations (5) and (6) gives the median voter's desired Capital-to-Personnel Ratio (CPR):

$$\left( \frac{K}{L} \right)^* = \frac{\alpha}{1-\alpha} (\omega + E\theta) \quad (7)$$

Not surprisingly, as the cost of military labor  $\omega$  rises, the median voter will favor a more capitalized military. More interesting, as inequality  $\theta$  rises the ratio of capital to labor desired by the median voter also increases in order to reduce the risks of conscription and casualties. As the potential threat  $E$  rises, the median voter's preference for capital intensifies; a high threat environment produces a rise in capital intensity even with no economic inequality ( $\theta=1$ ), since the draft and potential casualties adds an additional "price" to military labor. From equation (7), as technology becomes more capital augmenting ( $\alpha$  becomes larger), the median voter will vote to invest in more capital-intensive militaries.

### 3.2 Defense Effort

Having chosen the allocation of capital and labor, from Equations (5) and (6) we can use the median voter's utility function in Equation (3) to solve the first stage of the game and the military effort that maximizes the median voter's utility, or  $M^*$ .

$$\frac{\partial U_m}{\partial M} = \frac{\beta E}{(M + E)^2} - \frac{1}{N\theta\alpha} \left[ \frac{\alpha}{1-\alpha} (\omega + E\theta) \right]^{1-\alpha}$$

$$M^* = \sqrt{\beta EN\theta\alpha \left[ \frac{\alpha}{1 - \alpha(\omega + E\theta)} \right]^{\alpha-1}} - E \quad (8)$$

Taking the derivative of Equation (8) with respect to  $\theta$ :

$$\frac{\partial M^*}{\partial \theta} = \frac{\sqrt{\beta EN\theta\alpha} \left[ \frac{\alpha}{1 - \alpha(\omega + E\theta)} \right]^{\frac{\alpha-1}{2}} (\omega + \alpha E\theta)}{2\theta(\omega + E\theta)} \quad (9)$$

Equation (9), while complex, is positive for all possible values of the parameters (which are all greater than zero). Increased inequality results in increased military effort, as predicted by the simpler Meltzer-Richard model..

## 4 Hypotheses

Prior to testing the implications of the above model, I first focus on the “standard” Meltzer-Richard hypotheses to see if microfoundational evidence (in public opinion surveys) exists for defense’s redistributive potential. This also allows competitive testing against the classical liberal tenet that the relatively poor have little value for arming and war. The first empirical section tests the following three hypotheses:

*H<sub>1</sub> Lower personal income should result in support for higher defense spending.*

*H<sub>2</sub> Higher state-wide inequality should exacerbate income’s effect.*

*H<sub>3</sub> As defense’s public goods value increases, so does the effect of income on support.*

The first hypothesis on state behavior stemming from the refined theory above is simple. If a capitalized military tends to reduce the costs of defense for the median voter, then:

*H<sub>4</sub> As the military threat to a state increases (or when involved in an armed conflict), a democracy will develop a more capitalized military.*

A number of equally plausible explanations exist for  $H_4$ . However, only if military preparation contains a redistributive component will the following hypothesis find support:

*H<sub>5</sub> As wealth inequality increases, a democracy will develop a more capitalized military in reaction to a military threat or armed conflict.*

As suggested by the formal model, inequality and the military's value as public good are intimately linked to threat. In a perfectly benign world, the median voter would not bother to spend money (even if it is mostly someone else's money) on defense. Threat and inequality must be considered in tandem.

## 5 Testing the Micro-Theory: Public Opinion on Defense Spending

While Hobson would explain a correlation of inequality and militarization as the result of the wealthy's superior political power (and accordingly be unpopular amongst the non-rich), if defense spending actually has redistributive implications then an individual's relatively low wealth should correlate to *support* for higher defense spending. To test this, I use a series of cross-national surveys from the International Social Survey Program on the Role of Government. The surveys provide high quality data at the micro-level (this section's central concern) as well as allow for some comparative testing of state-level factors. Table 1 shows the number of observations for each state-year for which data on the independent and dependent variables are available.

### 5.1 Dependent Variable: Support for Defense Spending

Each survey asks respondents:

Please show whether you would like to see more or less government spending in [a series of government programs including "the Military and Defense"]. Remember that if you say 'much more', it might require a tax increase to pay for it.

Responses ranged along a five point scale with one being "spend much more," three "spend the same as now," and five "spend much less" (the higher the number, the more dovish the respondent on defense spending).

### 5.2 Explanatory Variables: Individual Income and Economic Inequality

The independent variable of greatest interest is a micro-level one: the respondent's *Household Income*.<sup>48</sup> Since each survey recorded income in different increments and in the local currency, I divided the data into income quintiles for each state to allow for cross-national comparison.

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<sup>48</sup>Individual income for Israel in 1996 due to data availability.

Dividing responses into income quintiles does not capture any skew in income distribution. I operationalize this important factor with a state-level variable, economic *Inequality*, measured by the Gini coefficient.<sup>49</sup> When dealing with data on inequality, researchers must choose between consistency and breadth. Sources likely to be consistent, such as those of the Luxembourg Income Study (LIS) and the OECD, contain limited numbers of observations. For the quantitative analysis, I have decided to err on the side of breadth. I use the University of Texas Inequality Project's (UTIP) Estimated Household Income Inequality, which combines data from the World Bank's estimates of Gini coefficients with independently collected data on industrial pay inequality for a large panel of countries from 1963 through 1999.<sup>50</sup> I supplement this with data from the UN's WIDER World Income Inequality Database from 2000 on.<sup>51</sup>

Figures 1(a) and 1(b) show the differences in the average responses of top and bottom income quintiles, ordered by state-level inequality taken from the smaller but more consistent LIS and OECD datasets. Almost every difference is positive, that is the wealthier are on average more dovish than the least wealthy. Furthermore, the relationship appears to be exacerbated by state-level inequality. Figure 2 shows the results of ordered logistic regressions of support for defense spending on household income quintile for each state-year. The plotted results broadly support the theory, sixty out of seventy coefficients are positive, and thirty-eight of these are significantly so. However, the broad range of coefficients for household income suggests that macro-level influences affect individual attitudes considerably. For example, two country-years have a negative and significant relationship between income and defense support; that is the wealthier prefer more spending. One possible cause for this is the involvement of these two states in unpopular conflicts—Israel in 1990 (towards the end of the First Intifada) and the United States in 2006 (at the depth of the Iraq War's popularity).

To explain such variation, one would ideally employ a cross-sectionally comparable measurement of the respondents assessment of the value of the public good of defense, but this does not exist. An alternative micro-level tack is to use respondents attitudes on other domestic programs. For this reason, and to assess the existence of tradeoffs between guns and butter, I include an question

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<sup>49</sup>The area between the Lorenz curve, which graphs the cumulative income share against the distribution of the population and a curve describing perfect equality, and is expressed as a percentage from 0 (perfect equality) to 100 (perfect inequality).

<sup>50</sup>Galbraith and Kum 2005.

<sup>51</sup>Version 2.0c, May 2008.

on health care containing phrasing identical to the dependent variables (higher values indicate less support for spending). I also look to state-level variables to incorporate the public good value of defense. Population is an indirect measure of a public good (the larger number of citizens, the lower the goods per capita cost). The likelihood of conflict should certainly play a role in attitudes towards defense. I therefore incorporate a *Conflict* dummy variable if the state has participated in an armed conflict in the last five years.<sup>52</sup> Finally I introduce *Conscription* as a categorical variable based on whether a state's military contains no conscripts, less than half conscripts, between 50 and 66% conscripts, and greater than 66% conscripts.<sup>53</sup> While the theory assigns much importance to conscription (and other sources of extra cost to military labor), it is not clear how the existence of conscription will affect voter perception of a government policy not accounted for in the model as will be discussed in the next section.

### 5.3 Control Variables

In addition to testing the simple model, I include a host of demographic variables commonly used in survey research: *Age*, sex (*Male*), and Political Party Identification (*Party* ordered from leftmost to rightmost). Not surprisingly, respondent *Education* tends to correlate with income and may also exert an independent influence on one's assessment of international politics and the need for defense spending. I include it not only as a control variable, but as an additional test of the role of income on support for defense. Finally, I introduce a state-level variables likely to simultaneously affect the independent and dependent variables: *logged GDP*— from the United Nations.

### 5.4 Method of Analysis: Multi-level Models

Theory and preliminary analysis of the data suggests that both state- and individual-level factors affect attitudes towards defense spending. Furthermore, some of these factors are likely to be conditional on each other; the effect of being in the bottom quintile should be magnified by high economic inequality. Undoubtedly unobserved factors at the state level affect the dependent variable, and the dataset contains only a modest number of poor quality data at the country-year level (both threat and inequality are notoriously difficult to consistently measure).

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<sup>52</sup>Gleditsch et al (2002), version 4-2008. Armed conflicts involve one of more states in which twenty-five deaths have occurred.

<sup>53</sup>Williams 2005; Gifford 2006.

Under these circumstances, simple ordinary least squares regressions (or any regression on a pooled sample of all countries' responses) are likely to be biased due to clustering at the state level and standard errors are likely to be underestimated.<sup>54</sup> Theory suggests level factors—economic inequality and military threat—condition the effect of individual-level factors. In the model I assume random intercepts for income, education, party identification, and support for healthcare spending.<sup>55</sup> This section therefore relies primarily on multi-level models, also known as hierarchical linear models (HLM), to incorporate all the variables suggested by the theory and to account for these sources of bias.<sup>56</sup>

## 5.5 Results

Model 1 of Table 2 shows the results of an ordinal logistic regression with country and year fixed effects. This approach avoids omitted variable bias at the state-level at the cost of making no effort to test the effects of these factors, which no doubt exist given the results depicted in Figure 2. The remaining models are HLMs.<sup>57</sup> Models 1-4, in which *Income* is tested without an interaction term, show a positive and significant coefficient for income—wealthier respondents were more dovish.

Turning to the state-level variable of *Inequality*, respondents in more unequal states are on average more supportive of increased defense spending. However, one should be circumspect in interpreting the relationship of the dependent variable to state-level factors. The dependent variable is an individual's assessment of government performance in response to a state-level factor, but the regression does not incorporate the states response, omitting an important link in the causal chain.<sup>58</sup> We cannot conclude from these models that *Inequality* correlates to a society's desire to spend more money on defense. Rather, all one can say is that the average respondent in an unequal society is more likely to assess that the government is spending insufficient funds on defense.<sup>59</sup> For this reason, neither the consistently hawkish coefficients for *Conflict* nor their lack of significance in Models 4 and 6 tell us much about the theory's plausibility.

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<sup>55</sup>I assume that the effects of age and sex are fixed (i.e. invariant across countries).

<sup>56</sup>For an excellent introduction to HLM in political science, see CITE.

<sup>57</sup>For ease of interpretation, I used a linear model (via Stata's `xtmixed` command). I also ran the variables in Models 2 through 6 as an ordered logit using the GLLAMM program and found similar results in terms of direction and significance of coefficients. These results will be published in a web appendix.

<sup>58</sup>For this reason, the differences between quintiles was used in Figure 6, rather than the mean response.

<sup>59</sup>If the theory's assumptions were strictly correct, then *Inequality* should have *no* effect since the median voter should be getting the exact policy she desires.

Theory does makes claims about the *interaction* between individual income and these state-level factors. The consistently positive effects of the interaction terms in Models 5 and 6 support the theory. However, interaction terms and their individual components are difficult to interpret in table format, and the presence or lack of asterisks can be misleading. A graph provides a more intuitive means of presenting the results. Figure 3 presents the effects of *Income* and *Inequality* on support for defense spending.<sup>60</sup> The “y axis” in Figure 8 shows the coefficient (with 90% confidence intervals) for *Income* conditioned on the state-level factor, whose value increases along the “x axis.” First, the coefficient is positive and statistically distinct from zero for almost all values of *Inequality*. As the theory suggests, the graph depicts an upwardly sloping marginal effect as *Inequality* grows from its minimum to its maximum values.<sup>61</sup> These results support the theory’s suggestion that defense spending contains a redistributive element. On the other hand, recent involvement in an armed conflict does not appear to have a statistically significant effect.

Defense’s redistributive nature is further bolstered by the strong positive correlation between an individual’s for lower defense spending and for *Healthcare* spending. A higher level of *Education* is also associated with increased dovishness, even when controlling for *Income*, although we cannot conclude that this is entirely due to redistribution. Increased *Age* also correlates to hawkishness which may capture another redistributive element. However, older people are less likely to be drafted or serve in the military, so the urge to capitalize might be smaller. Not surprisingly those further to the political right are more hawkish. One’s gender has no significant effect on the dependent variable, although in all six models, *Male* correlates, perhaps surprisingly, to dovish responses.

Having established the plausibility that one’s relative income affects one’s support for defense spending, suggesting the presence of a redistributive effect, the next section examines state-level behavior.

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<sup>60</sup>See Kam and Franzese 2007 and Brambor, Clark, and Golder 2006.

<sup>61</sup>The graphical results from Model 5 are essentially identical to that of Model 6, and are therefore not depicted.

## 6 Testing the Macro-Theory: Arming and Redistribution

The unit of analysis for this section is the state-year. The data set consists of the democratic members of NATO (excepting Luxembourg and Iceland) with observations from 1971-2004.<sup>62</sup> The NATO data are of high quality and consistency, not only because the alliance tracks and reports military spending in significant detail, but also because these states generally report aspects of their population and economy in a transparent and effective manner. Many NATO member states are also among the world’s wealthiest and most mature democracies, and thus represent “easy cases” for democratic exceptionalism.<sup>63</sup>

### 6.1 Dependent Variables: Military Capitalization and Military Spending

NATO members report annually the percent of their defense budget spent on *Equipment* (separate from infrastructure). This operationalization of CPR factors in the relative prices of capital and labor—an important component of the formal model—and accounts for purchasing power differences. For similar reasons, to analyze military spending I have chosen the *Military Burden*, a state’s defense spending as a percentage of GDP, taken from the Stockholm International Peace Research Institute (SIPRI) and the Correlates of War (COW).<sup>64</sup> The SIPRI data is available from 1988 onward, while the COW data is available up to 2000.<sup>65</sup>

### 6.2 Explanatory Variables: Inequality and Threat

My first explanatory variable is again the state’s *Economic Inequality*. As in the previous section, I use the combined UTIP and WIDER data sets. My second explanatory variable is the threat posed by rivals’ military capability (hereafter called *Threat*) or the possibility of *Conflict* without which the value of defense is largely zero. To operationalize *Conflict*, I again use the UCDP dataset. For *Threat* I use the list of strategic rivals for every state since 1960, summing the COW composite index of national capabilities (CINC) scores for a given state-year.<sup>66</sup> States are coded

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<sup>62</sup>States were coded as democratic with a Polity 2 score of 6 or higher according to the Polity IV data set Gurr, Marshall, and Jagers 2002.

<sup>63</sup>Mansfield and Snyder 2005.

<sup>64</sup>Singer 1987. Benjamin Goldsmith CITE details the theoretical and technical reasons to prefer the defense burden as a measurement of military effort.

<sup>65</sup>The SIPRI and COW data are not comparable to each other and are thus analyzed separately.

<sup>66</sup>Colaresi, Rasler, and Thompson 2007. See also Fordham and Walker 2005. The CINC score combines six measures (military spending, military personnel, iron and steel production, energy consumption and total and urban

as another country's strategic rival for a given country if the latter's leaders considered the former to be a potential enemy and sufficiently comparable in power to make a lopsided conflict unlikely. Given that my theory suggests that defense's public good value also varies with the median voter's perception of threat (i.e.  $\beta$ ), this list of rivalries (rather than one based on frequency of militarized disputes) is the most appropriate measure of threat available.<sup>67</sup>

Since my theoretical model specifies that inequality and threat are jointly linked to the dependent variable, the effect of each explanatory variable is contingent on the other. I therefore report results of regressions reported with and without an interaction term, *Inequality\*Threat*, the latter models providing the essential test of the theory.

### 6.3 Control Variables

The most important control variable stemming from the formal model is  $\omega$ , the price of military labor relative to the numeraire good of military capital, which should reflect the underlying factor endowments of the state and thereby control for wealth as well (states with high per capita capital endowments will make efficient use of their resources through capitalization). This is particularly essential since democracy, wealth and even inequality are correlated with each other. I have chosen *GDP per capita* from the UN expressed in logged 2007 U.S. dollars, to represent these important influences on the allocation of military resources.

Again taking the formal model as my guide I introduce a select number of control variables to account for factors likely to affect either the value of the public good or  $\omega$ . A strong ally may reduce the state's insecurity as well as allow it to specialize in its abundant factor (analogous to the predictions of comparative advantage in trade theory) rather than overweight capital in the state's military portfolio. My theory suggests that strong allies will result in a *decrease* in military capitalization and its inclusion produces an additional test of the theory. I incorporate defensive allies' capabilities, or *Allies* based on the CINC scores taken from the COW alliance dataset.<sup>68</sup>

An aging population may require a more capitalized military due to a smaller labor pool; I therefore include the population percentage over the age of 65, *over65*, taken from the World population) expressed as percentage of the total in the international system for that year.

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<sup>67</sup>Very few states in the data set are coded as having strategic rivals. However, since this data set looks at countries over relatively long periods of time, there is sufficient variation in Threat to justify its conclusion. In the ISSP dataset on the other hand, Threat takes on a non-zero value 6 times, which severely limits its usefulness.

<sup>68</sup>Gibler and Sarkees 2004. Note that data derived from the COW only goes up to 2001.

Bank.<sup>69</sup> Insular, powerful states are likely to develop heavily capitalized militaries since maritime and major powers have higher capital needs (warships, aerial refueling, etc) in order to project power at longer distances. To control for this, I insert a dummy variable describing if the state possesses a aircraft *Carrier*.<sup>70</sup> Obviously, building an aircraft carrier (or a navy for that matter) requires an enormous outlay (and modest numbers of personnel) and represents an assertive foreign policy. The theory suggests that my explanatory variables will influence this decision; the inclusion of the aircraft carrier dummy will likely mitigate the effect of my explanatory variables on the dependent variable of military capitalization.<sup>71</sup> Finally, *Conscription* is likely to drive down the costs of military labor (in terms of defense spending if not the economy) and lower the expected value of conflict.

## 6.4 Method of Analysis

Time series, cross-sectional (TSCS) data, especially across states, tend to exhibit a number of pathologies making simple OLS regression inappropriate. The data are likely to exhibit groupwise heteroskedasticity. Panel-corrected standard errors (PCSE) control for this as well as for cross-sectional correlation of errors.<sup>72</sup> Fixed effects will help correct for unit heterogeneity and thus omitted variable bias, albeit at a cost in efficiency. Fixed effects can mask the influence of stable variables such as the possession of aircraft carriers, and undermine that of slow-moving variables such as household inequality. Nonetheless, F-tests reject the null of no unit heterogeneity in the data set, and the conservative approach is to employ fixed effects, risking Type II errors.<sup>73</sup>

Not surprisingly, autoregressions of the dependent variables indicate strong serial correlation; capital investment is likely to be a long-term, multi-year investment plan given the amount of time it takes to build advanced weapons platforms and their lengthy depreciations. Lagged dependent variables (LDVs) are the simplest means of controlling for this, although debate continues

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<sup>69</sup>2006.

<sup>70</sup>Generously defined as any ship capable of carrying multiple fixed or rotary wing aircraft, taken from various editions of *Jane's Fighting Ships*.

<sup>71</sup>Of course, since this variable rarely changes within a state and few countries have built carriers, the effect is largely swamped by country fixed effects. In other, unreported regressions I also included a major power dummy variable (COW). The use of the aircraft carrier contains more observations and includes all the major powers excepting Germany after 1991.

<sup>72</sup>Beck and Katz 1995.

<sup>73</sup>F-tests reject the null that country fixed effects are jointly zero, and Hausmann tests reject the use of random effects.

over their advisability due to their tendency to reduce the significance of the other independent variables. While often cited in order to avoid their use, Christopher Achen does not reject LDVs but simply counsels the consideration of their theoretical appropriateness and the need to correct for autocorrelation.<sup>74</sup> More specifically, Achen warns that in the presence of serial correlation lagged dependent variables can reduce the significance of many key independent variable, introducing bias.<sup>75</sup><sup>76</sup> Lagrange multiplier tests of the four dependent variables reveal little or no remaining serial correlation following the introduction of an LDV.<sup>77</sup> The conservative tack is to include LDVs.

There also exists the potential for integration, that is the dependent variable may contain one or more processes exhibiting a trend (OLS regressions assumes a long-run equilibrium level for the dependent variable). Even if the data are stationary but highly persistent OLS is likely to produce spurious results.<sup>78</sup> Tests for stationarity in panel data tend to have low power, but a useful rule of thumb is to see if the autoregressive coefficient, i.e. that of the LDV, is very close to one.<sup>79</sup> The highest autoregressive coefficient of 0.94 and standard error of .007). I therefore reject the presence of nonstationarity.

Tables 3 and 4 report the results for *Equipment* and *Military Burden* respectively. In Table 4, *Inequality* is associated with a higher percentage of spending on equipment as predicted by the theory. In regressions where no interaction term is present the coefficient is also statistically significant. The effect of *Threat* and *Conflict* are less impressive; examined on their own, none of the coefficients achieve significance.

However including the interaction terms, which most closely resembles the theoretical model, changes the variables' effects dramatically. The consistently positive effect of the interaction term in all four models (8, 20, 12, and 14) supports the theory. Again, a graph provides the best means

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<sup>74</sup>Achen 2000.

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<sup>76</sup>Additionally, when combined with country fixed effects, models with LDVs will always be biased, but multiple Monte Carlo simulations suggest that even in with a small amount of residual serial correlation (less than 0.1) the bias is modest relative to the gains. Beck and Katz 2004.

<sup>77</sup>I tested other specifications of the model, such as an autoregressive distributed lag and error correction (to diagnose cointegration) model. However, because the independent variables and their interactions are obviously highly collinear (confirmed by VIF test); an ADL model, in the words of Beck and Katz 2004 "may be asking too much of the data."

<sup>78</sup>De Boef and Granato 1997. Using an error correction model I did not find convincing evidence of cointegration, thus leaving me with a first differences model as my only option (the LDV's coefficient while significant generally ranged from -0.01. Since my explanatory variables are likely to have long-term rather than immediate effects, I reject this approach.

<sup>79</sup>Beck and Katz 2004.

of presenting the results. Figure 5 presents the effects of *Threat* and *Inequality* on capitalization.<sup>80</sup> The “y axis” shows the coefficient for *Inequality* conditioned on *Threat*, whose value increases along the “x axis.” As the theory suggests, the graph depicts an upwardly sloping marginal effect (shown with 90% confidence intervals) threat grows from its minimum to its maximum values. All but the most egalitarian democracies respond to a threat by increasing the level of capitalization. This effect increases with inequality implying an element of redistribution.<sup>81</sup>

On the other hand, while the coefficients take on the predicted directions when interacting *Conflict* and *Inequality* (Models 8, 10 and 14), the effects are not significant. While the results suggest that inequality leads to military capitalization (a novel finding), and that inequality exacerbates the increase in capitalization in response to a strategic threat, we cannot conclude that involvement in armed conflict results in increased capitalization. Perhaps this is due to the long planning and production times required for weaponry (as opposed to inducting soldiers). Alternatively, peacetime democracies may capitalize their militaries to such an extent that they perform poorly in wartime leading to a shift towards labor mitigating any effect suggested by the papers theory. The shift to a more sophisticated counterinsurgency strategy four years into the U.S. conflict in Iraq may be an example of this.

Turning to the military burden in Table 4, we see a similar relationship, and one more consistently significant statistically. With the exception of Model 15, when not interacted with *Threat* or *Conflict*, *Inequality* leads to an increase in the defense burden, although not always significantly. Likewise, both *Conflict* and *Threat* are positively (and unsurprisingly) associated with higher defense burdens. Turning to the interaction effects, the relationship appears stronger here than in the Equipment regressions. More unequal states respond to a strategic threat by more military spending. As in the models of Table 3 the relationship between *Conflict* and the defense burden supports the theory, but tests allow us to more confidently reject the null of no effect. Figure 6 shows the difference between the wartime and peacetime military burden over the range of inequality with the familiar upward slope predicted by the theory.

Turning to the effects of the control variables for both dependent variables, stronger *Allies* resulted in reduced equipment percentage and lower military burdens (not significantly in the

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<sup>80</sup>See Kam and Franzese 2007 and Brambor, Clark, and Golder 2006.

<sup>81</sup>A graph of *Threat* conditioned on *Inequality*, not shown here, would show the same relationship, significant for all values of *Inequality*, except when the effect is likely to actually be zero.

latter case), providing additional support for the theory. The inconclusive results for *Conscription* should not surprise. A draft obviously produces more labor-intensive militaries (and smaller defense budgets), although the theory would suggest that voters prefer them to be well-protected by capital. Per capita *GDP* not surprisingly resulted in a high equipment percentage and lower defense burden. *Age* resulted in significantly less equipment, a puzzling result given the reduced labor supply of an elderly population. Also surprisingly, while possessing an *Carrier* correlated to higher defense spending, if anything it results in a lower equipment percentage.

## 7 Democratic Militarism?

Democracies respond to threats by investing more of their defense budget in military capital. This investment as well as the overall defense burden is exacerbated by economic inequality, indicating that military capitalization and spending have some redistributive effect. The theoretical micro-foundations underpinning these findings are bolstered by analysis of public opinion on defense spending. This novel set of facts suggests that the paper's theory usefully adds to our knowledge of how democracies provide security for their voters.

The fact that democracies build militaries in order to avoid casualties and attempt to substitute firepower for labor are not new findings. This paper builds on this foundation by arguing that because capital inherently has an inherently redistributive function. The paper's formal model takes a necessarily stylized approach to democracy. The relationship between the government and public opinion are, to say the least, complex.<sup>82</sup> Nonetheless, evidence suggests that the role of the average voter in shaping the incentives for a state's foreign policy is an important one, and in a democracy it plays a normatively essential one. The fundamental insight of the median voter theorem is that the will of voters in the center of an issue preference aggregation exerts a powerful pull on elected officials and therefore on the state's foreign policy.

If democracies can shift the defense burden away from the median voter by developing a certain type of military, one cannot assume that the costs of defense (and ultimately of war) are evenly distributed across society, a crucial assumption of democratic exceptionalism. By relaxing the selectorate theory's assumption that all citizens are identical, this paper takes a first step beyond

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<sup>82</sup>Baum and Potter 2008.

the observation that democracies are “sensitive to costs” and begins to delineate what these costs may be and who pays them.<sup>83</sup> More sophisticated institutional models (proportional representation vs. majoritarian) with multiple issue areas (guns and butter) will improve our understanding of how the burden of defense is spread within a democracy. Even if one’s material condition does affect one’s approach to international security, the middle class are likely to both have something to lose and a means for getting someone even wealthier to pay for its defense. Perhaps like unemployment insurance, security may not be an entirely pure good, but rather may be best described as meeting the needs of the politically powerful middle class<sup>84</sup> Future research should explore defense effort as a form of “Director’s Law” in which those with median income choose their preferred policy, taking taxes from those who have more wealth and labor from those who have less.<sup>85</sup>

Scheve and Stasavage have argued that twentieth century mass warfare led to the shifting of the tax burden onto high income groups, but now that technology helps preclude mobilization of large, labor-intensive armies, what might be the effects of this progressive tax system on warfare?<sup>86</sup> *How* a state intends to fight is likely to influence *when* and *how often* a state will fight. This paper examines the essential first step towards an aggressive grand strategy—developing and implementing a military doctrine. It establishes that redistribution plays a role in its development. A capitalized military not only results in the median voter doing less of the fighting herself, but will generally allow someone else’s resources to fund the costs of arming and of war. While grand strategy usually requires tough choices and prioritization, the lowering or shifting costs may also result in democracies making little effort to develop a coherent grand strategy. Because of its vast resources, Stephen Biddle observes, “the United States can avoid making hard choices and instead pursue ill-defined goals with limited penalties.”<sup>87</sup> When things are not costly, few choices need be made, especially when threats are of a low but persistent level, amorphous or ideological.

In the wake of the Iraq War, several books have diagnosed and examined a form of militarism specific to the United States.<sup>88</sup> Andrew Bacevich attributes the pathology to the perfect storm of military officers, intellectuals, religious leaders, strategists, politicians and purveyors of pop

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<sup>83</sup>Filson and Werner 2004,.

<sup>84</sup>Moene and Wallerstein 2001.

<sup>85</sup>Stigler 1970. This would explain Johnson’s reluctance to mobilize the predominantly middle class Reserves and National Guard during Vietnam and instead relied on conscription.

<sup>86</sup>Scheve and Stasavage 2008.

<sup>87</sup>Biddle 2005.

<sup>88</sup>Johnson 2004; Mann 2003.

culture.<sup>89</sup> The only group not held responsible is the public; militarism—even in a well-established democratic republic like the United States—remains an elite-driven phenomenon. By most accounts if the public plays any role it is that of the fool; Stephen Van Evera observes that, “States whose civilian publics are ignorant of military affairs are more prone to militarism because their civilians more quickly accept militarist myths.”<sup>90</sup> The theory presented in this paper does not let the public off the hook, and challenges the consensus that militarism can only result from the perverse actions of a selfish elite; political economic theory shows that an electorate is just as capable of such self-centered policies.

I do not claim that inequality is the sole source of capitalization in a modern democratic military. Wealth, population age, level of education and geography all play important roles in the building of a military and correlate closely to the level of democracy. Many democracies are insular or trading states and should pursue maritime strategies, which inherently require large amounts of capital. The US and its allies built high quality militaries designed to counteract the quantitative advantage of the Soviet Union, and remain focused on deterring conventional threats. The secular trend in technology since the Industrial Revolution has made labor much more productive. Democracies with large amounts of capital relative to their populations are therefore likely to have an advantage building militaries in which the costs of conflict are relatively low for the median voter. Wealthy democracies will also have the resources to devote towards developing military technology allowing for easy substitution of capital for labor, which reduces the costs of defense both for the median voter and the state as a whole.

The effect is exacerbated by economic inequality. While scholars have speculated that economic inequality can be a source of internal instability in weak states, this paper’s findings suggest that inequality can also lead to *international* instability instigated by mature, developed democracies.<sup>91</sup> Democracies with a particularly unequal distribution of wealth, a highly capitalized military or both (the United States and United Kingdom being two examples) will find the costs of any conflict more bearable, particularly as military technology increasingly favors capital. Wealthy but inequitable democracies with ready access to capital and military technology may be as willing (perhaps even more so) to build large militaries and initiate disputes as authoritarian states, because arming and

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<sup>89</sup>Bacevich 2005, 6.

<sup>90</sup>Van Evera 2001, 3. See Snyder 1991, 35 and Snyder 2003, 39.

<sup>91</sup>Boix 2003; Fearon and Laitin 2003.

war are, in the minds of the voters, cheap.

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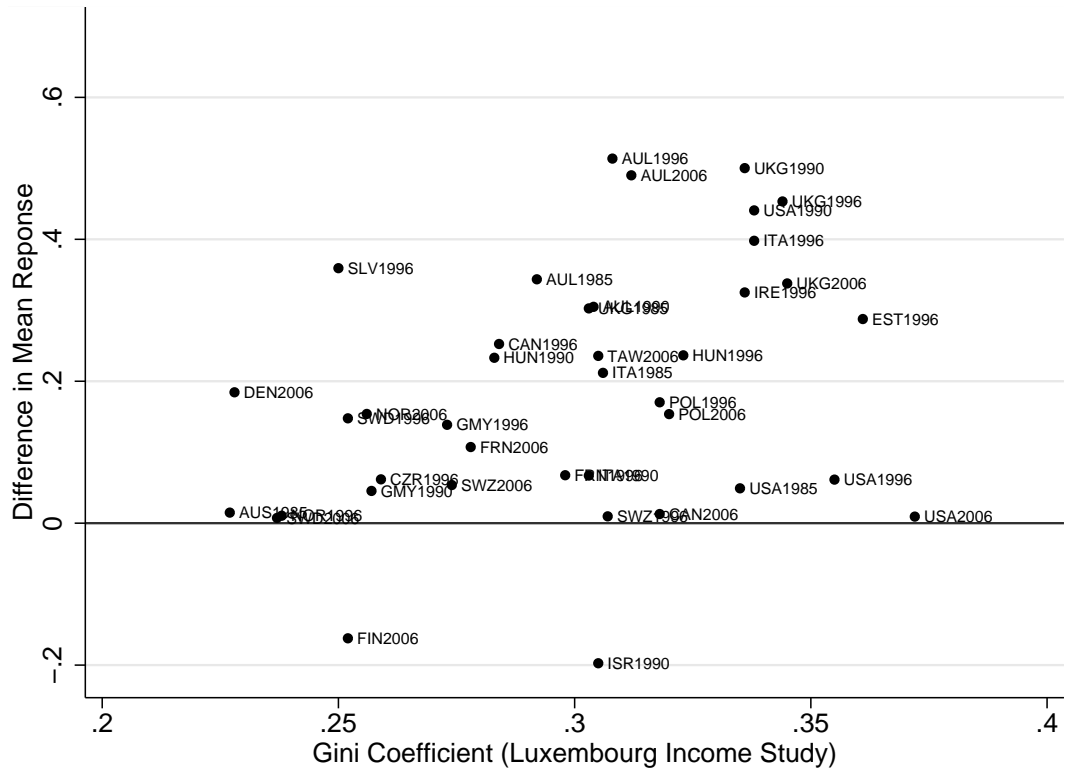
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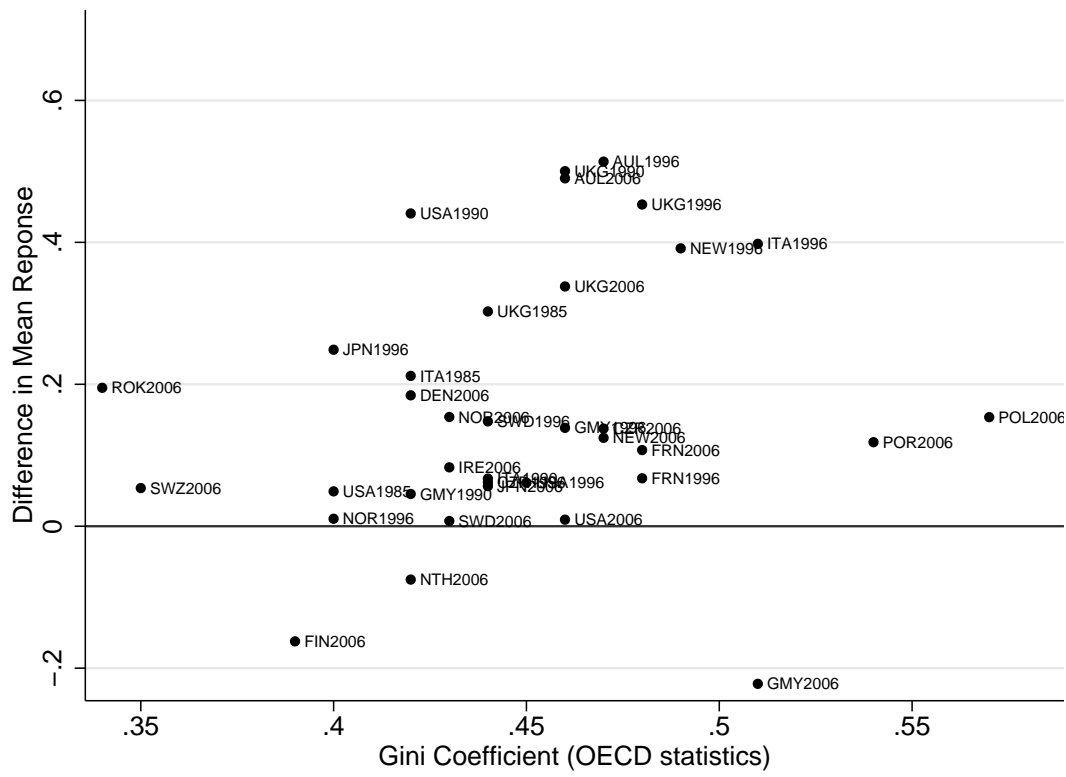
## 8 Tables and Figures

Table 1: Number of International Social Survey Program Respondents by Country and Year

Country	Year					Country	Year				
	1985	1990	1996	2006	2006		1985	1990	1996	2006	
Australia	1,528	2,398	2,151	2,781		Korea, South				1,605	
Austria	987					Latvia			1,505	1,069	
Bulgaria			1,012			Netherlands				993	
Canada			1,182	933		New Zealand			1,198	1,263	
Chile				1,505		Norway	1,517		1,344	1,330	
Croatia				1,200		Philippines			1,200	1,200	
Cyprus			1,000			Poland			1,183	1,293	
Czech Republic			1,100	1,201		Portugal				1,837	
Denmark				1,368		Russia			1,691	2,407	
Dominican Rep				2,106		Slovenia			1,004	1,003	
Estonia			2,494			South Africa				2,939	
Finland				1,189		Spain				2,517	
France			1,312	1,824		Sweden			1,238	1,194	
Germany (W.)	1,048	3,840	3,470	1,643		Switzerland			2,518	1,003	
Hungary			977	1,500	1,010	Taiwan				1,972	
Ireland			1,005	994	1,001	UK	1,530	1,197	989	930	
Israel			991	1,543	1,038	USA	677	1,217	1,332	1,518	
Italy	1,580	983	1,104			Uruguay				1,031	
Japan			1,249	1,231		Venezuela				1,200	



(a)



(b)

Figure 1: Attitudes of Top and Bottom Income Quintiles towards Defense Spending (positive values indicate bottom is more hawkish than top)

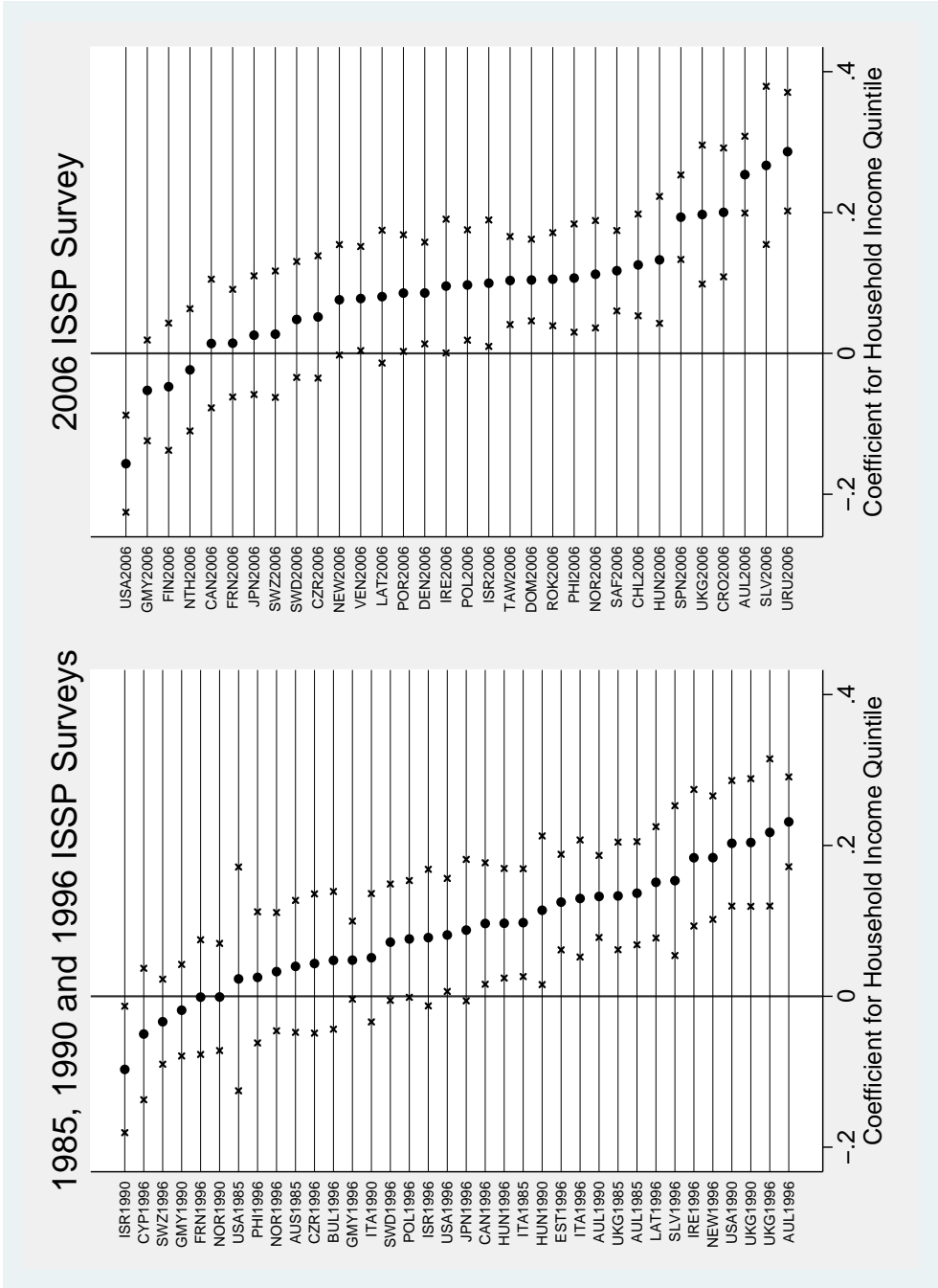


Figure 2: Income's Effect on Support for Defense Spending (Positive Coefficients Imply Dovish Rich) Ordered logit coefficients and 95% confidence interval.

Table 2: Inequality and Opinion on Defense Spending (Negative Values are more Hawkish)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Individual Level</i>						
INCOME QUINTILE	0.0310*** (0.0067)	0.0165*** (0.0052)	0.0196*** (0.0054)	0.0199*** (0.0054)	-0.0262 (0.026)	-0.0329 (0.027)
AGE	-0.00809*** (0.00056)	-0.00380*** (0.00029)	-0.00382*** (0.00033)	-0.00381*** (0.00033)	-0.00382*** (0.00033)	-0.00381*** (0.00033)
EDUCATION	0.135*** (0.0068)	0.0666*** (0.0072)	0.0724*** (0.0089)	0.0724*** (0.0087)	0.0723*** (0.0088)	0.0722*** (0.0086)
MALE	0.0186 (0.017)	0.0119 (0.0087)	0.0163 (0.010)	0.0163 (0.010)	0.0163 (0.010)	0.0164 (0.010)
PARTY (L to R)	-0.327*** (0.0090)	-0.167*** (0.015)	-0.157*** (0.017)	-0.157*** (0.017)	-0.157*** (0.017)	-0.158*** (0.017)
HEALTHCARE SPENDING	0.131*** (0.012)	0.0927*** (0.018)	0.0746*** (0.019)	0.0754*** (0.020)	0.0746*** (0.019)	0.0753*** (0.020)
<i>State Level</i>						
INEQUALITY			-0.0744*** (0.018)	-0.0496*** (0.017)	-0.0758*** (0.018)	-0.0512*** (0.017)
CONSCRIPTION				0.0124 (0.097)		0.0112 (0.096)
GROWTH				0.0202 (0.035)		0.0199 (0.035)
ln GDP				1.024*** (0.23)		1.028*** (0.23)
ln POPULATION				-1.017*** (0.26)		-1.022*** (0.26)
CONFLICT (past 5 years)				-0.0790 (0.20)		-0.0866 (0.20)
<i>Individual × State</i>						
INEQUALITY × INCOME					0.00146* (0.00079)	0.00161** (0.00082)
CONFLICT × INCOME						0.00580 (0.011)
Constant		3.381*** (0.12)	5.748*** (0.57)	-5.440** (2.49)	5.794*** (0.57)	-5.444** (2.48)
<i>cut 1</i>	-2.882*** (0.075)					
<i>cut 2</i>	-1.182*** (0.074)					
<i>cut 3</i>	0.813*** (0.074)					
<i>cut 4</i>	2.413*** (0.074)					
<i>Variance: Income</i>		8.14E-04 2.65E-04	4.66E-04 2.38E-04	4.69E-04 2.38E-04	3.79E-04 2.25E-04	3.86E-04 2.31E-04
<i>Variance: Health Spending</i>		0.0170 0.00371	0.0129 0.00359	0.0132 0.00367	0.0129 0.00359	0.0133 0.00367
<i>Variance: Education</i>		0.00215 5.50E-04	0.00237 6.94E-04	0.00224 6.62E-04	0.00230 6.78E-04	0.00219 6.51E-04
<i>Variance: Party L or R</i>		0.0117 0.00253	0.0097 0.00257	0.0101 0.00268	0.0096 0.00256	0.0100 0.00266
<i>Variance: Constant</i>		0.778 0.152	0.481 0.116	0.320 0.085	0.480 0.116	0.318 0.084
<i>N(individuals)</i>	46460	46460	33074	33074	33074	33074
<i>N(state-years)</i>	58	58	41	41	41	41

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

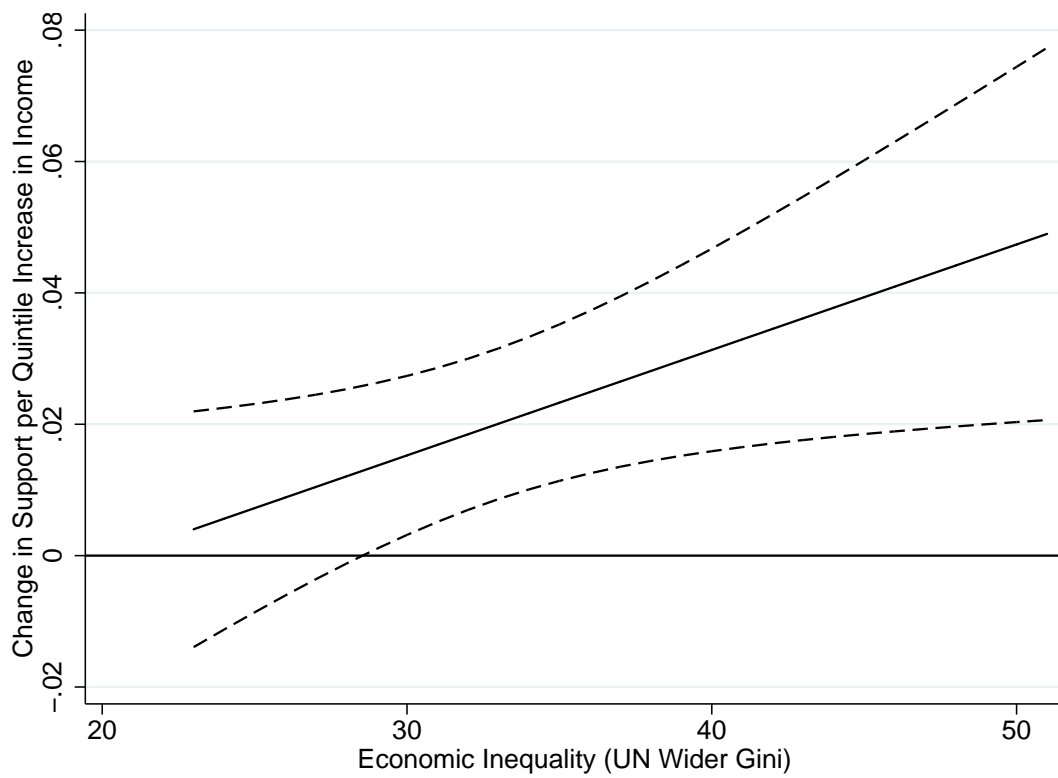


Figure 3: Effect of Individual Income on Support for Defense Spending, conditioned on State Inequality (positive values are more dovish)

Table 3: Inequality and Conflict on Equipment Percentage

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
	1971-2006	1971-2006	1971-2006	1971-2006	1971-2001	1971-2001	1971-2001	1971-2001
INEQUALITY	0.0999** (0.045)	0.0560 (0.053)	0.0863* (0.046)	0.0539 (0.050)	0.112** (0.050)	0.0907* (0.052)	0.111** (0.050)	0.0580 (0.055)
CONFLICT	0.320 (0.32)	-2.746 (2.00)	0.0974 (0.34)	-2.323 (1.94)			-0.106 (0.41)	-3.827 (2.51)
INEQ.×CONFLICT		0.0861 (0.055)		0.0679 (0.057)				0.103 (0.070)
THREAT CAPABILITY					-0.876 (3.13)	-194.9** (90.1)	-0.668 (3.20)	-180.3** (91.2)
INEQ.×THREAT						5.411** (2.52)		5.000** (2.54)
ln GDP per capita			2.578*** (0.85)	2.476** (1.04)	2.917** (1.22)	3.096** (1.21)	2.972** (1.20)	2.673** (1.20)
CARRIER			-0.731 (0.94)	-0.665 (0.58)	-0.221 (0.57)	-0.176 (0.57)	-0.201 (0.57)	-0.114 (0.57)
CONSCRIPTION			0.294 (0.55)	0.201 (0.53)	0.749 (0.63)	1.132* (0.66)	0.748 (0.63)	1.058 (0.66)
POP. OVER 65			-0.274** (0.14)	-0.267* (0.14)	-0.407** (0.18)	-0.434** (0.18)	-0.413** (0.18)	-0.377** (0.18)
ALLIES' CAPABILITIES					-4.867*** (1.84)	-4.802*** (1.69)	-4.904*** (1.84)	-5.058*** (1.69)
LAGGED D.V.	0.774*** (0.030)	0.770*** (0.030)	0.728*** (0.033)	0.727*** (0.048)	0.730*** (0.047)	0.723*** (0.047)	0.731*** (0.047)	0.724*** (0.047)
Constant	1.371 (1.72)	3.008 (2.01)	-69.15*** (23.6)	-65.10** (28.9)	-77.47** (33.6)	-81.77** (33.4)	-79.03** (33.2)	-68.77** (33.3)
Observations	432	432	432	432	355	355	355	355
R-squared	0.87	0.87	0.88	0.88	0.89	0.89	0.89	0.90
N(states)	25	25	25	25	18	18	18	18

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

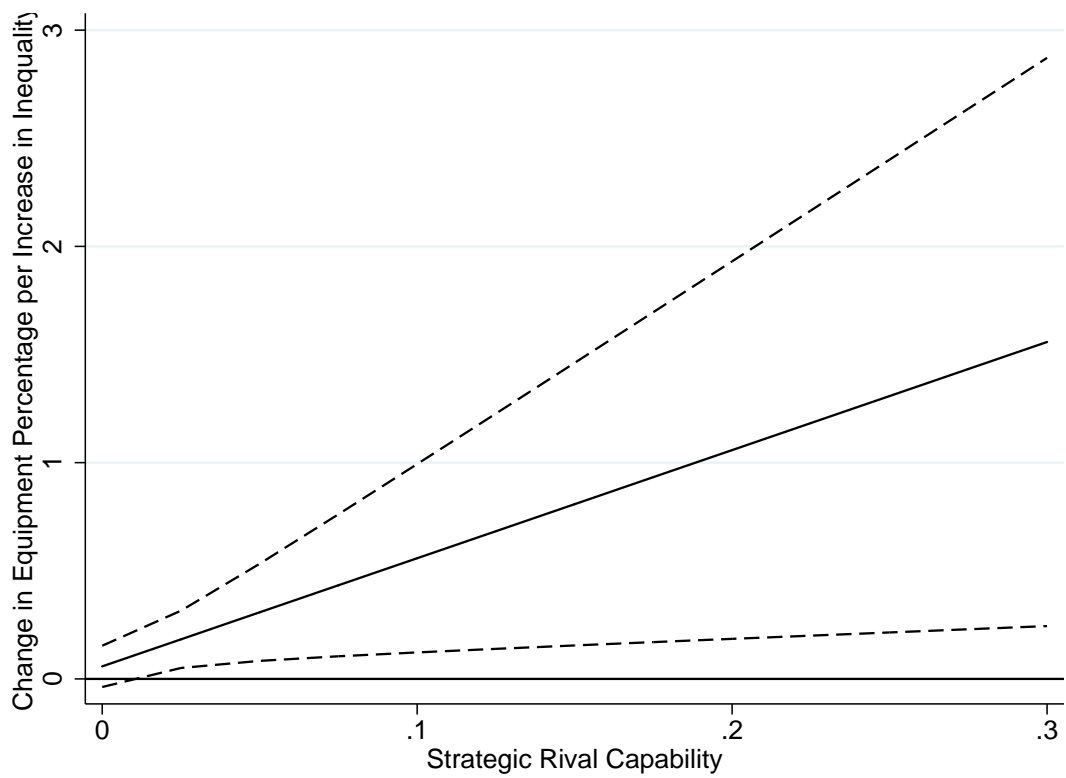


Figure 4: The Effect of Strategic Threat on Percentage of the Defense Budget Spent on Equipment, conditioned on State Inequality

Table 4: Inequality and Conflict on Military Burden

	Model 15 1971-2001	Model 16 1971-2001	Model 17 1971-2001	Model 18 1971-2001	Model 19 1988-2006	Model 20 1988-2006	Model 21 1988-2006	Model 22 1988-2006
INEQUALITY	-0.00649 (0.01)	-0.00942 (0.0099)	0.00616 (0.01)	0.000426 (0.01)	0.00444* (0.0024)	0.0000929 (0.0029)	0.00377* (0.0022)	0.0000936 (0.0027)
CONFLICT					0.0224 (0.02)	-0.273** (0.12)	0.0605*** -(0.019)	-0.189 (0.12)
INEQ.×CONFLICT						0.00917*** (0.0038)		0.00765*** (0.0039)
THREAT CAPABILITY	1.130* (0.63)	-30.06** (13.0)	0.732 (0.70)	-43.05*** (13.8)				
INEQ.×THREAT		0.874** (0.37)		1.223*** (0.39)				
ln GDP per capita			-0.439** (0.18)	-0.442** (0.18)			-0.469*** (0.14)	-0.450*** (0.14)
CARRIER			0.113 (0.0770)	0.133* (0.0780)			1.166*** (0.3200)	1.136*** (0.3100)
CONSCRIPTION			0.0588 (0.1400)	0.1820 (0.1500)			0.0019 (0.0200)	-0.0022 (0.0200)
POP. OVER 65			0.0329 (0.0250)	0.0287 (0.0250)			0.0146 (0.012)	0.0119 (0.012)
ALLIES' CAPABILITIES			-0.475 (0.70)	-0.202 (0.73)				
LAGGED D.V.	0.817*** (0.059)	0.811*** (0.059)	0.778*** (0.061)	0.765*** (0.060)	0.0224 (0.020)	-0.273** (0.12)	0.0605*** (0.019)	-0.189 (0.12)
Constant	0.898** (0.44)	0.974** (0.43)	13.26** (5.16)	13.47*** (5.14)	0.244* (0.14)	0.392*** (0.15)	13.16*** (4.02)	12.77*** (3.98)
Observations	347	347	347	347	276	276	263	263
N(states)	17	17	17	17	26	26	25	25
R-squared	0.93	0.93	0.93	0.93	0.98	0.98	0.98	0.98

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

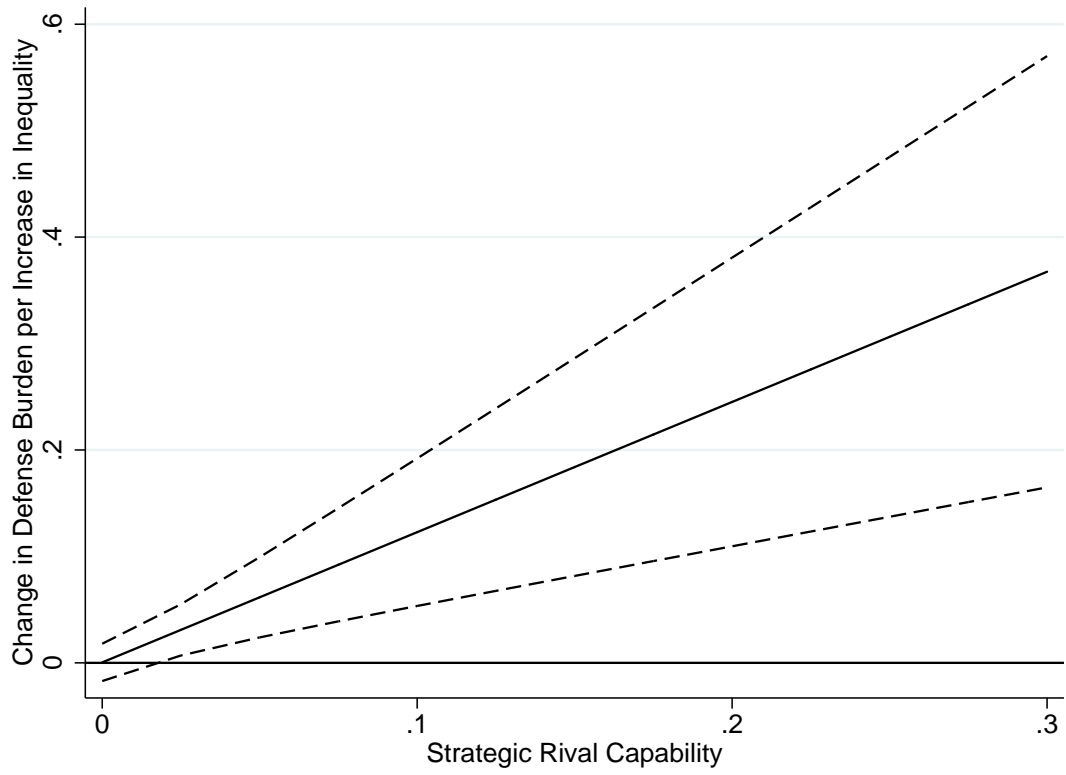


Figure 5: The Effect of Strategic Threat on Military Burden, conditioned on State Inequality

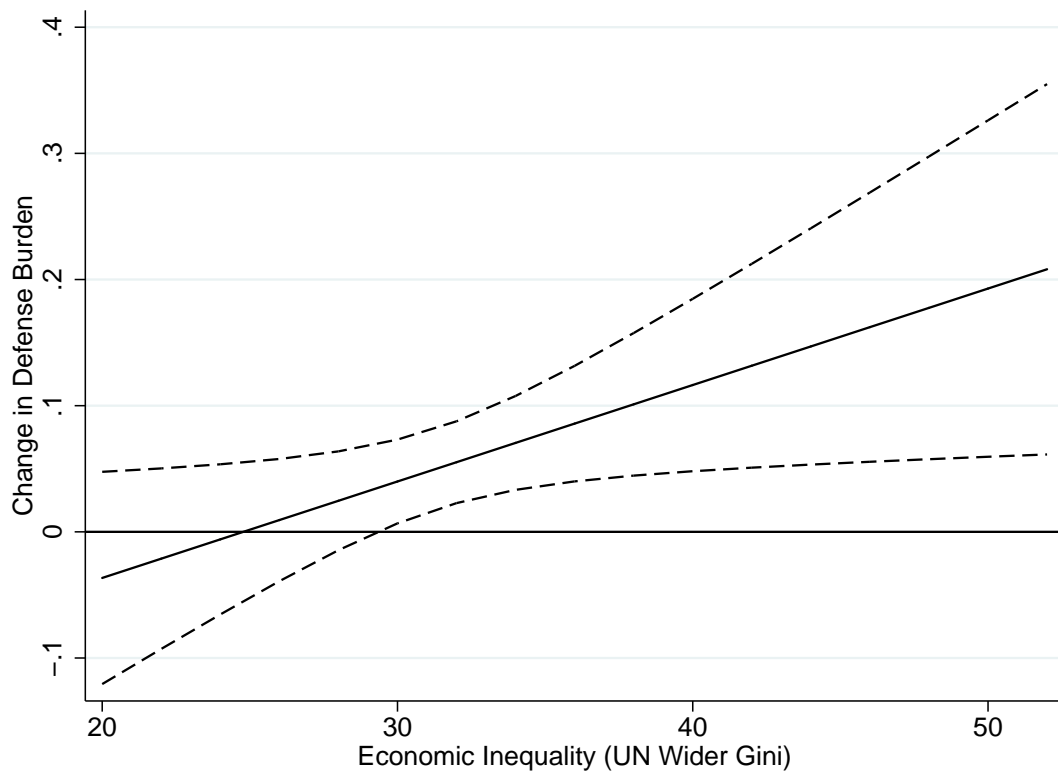


Figure 6: Effect of Conflict on Defense Burden, conditioned on Economic Inequality