Military Conscription and the (Socially) Optimal Number of Boots on the Ground

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Military conscription has been around since ancient times, and it remains remarkably popular today. For example, Jehn and Selden (2002) report that while eight European nations have recently eliminated or are phasing out conscription programs, another 20 nations plan on retaining conscription into the foreseeable future. Mulligan and Schlieffer (2004), meanwhile, report that 95 of the 164 countries that they examined continue to rely upon conscription to man their armies.

The continued popularity of conscription stands in stark contrast to the unpopularity of forced military labor amongst economists. To illustrate this point, Lee and McKenzie (1992) examined 12 textbooks in basic economics and found that all twelve were in agreement that an all-volunteer military (AVA) was more efficient (less socially costly) than the draft.

The seemingly wall-to-wall consensus had its origins in a number of highly influential papers from the 1960s that had compared conscription with a volunteer military and argued that conscription was an inherently inferior method of manning the armed forces. Amongst these early papers are Friedman (1967), Hansen and Weisbord (1967), and Oi (1967). These papers took for granted that the market for military labor would function efficiently under a volunteer approach, and instead focus on explaining why conscription would not. In summarizing the arguments first articulated in these papers, Lee and McKenzie (1992) explain that:

> "First, the draft imposes a discriminatory tax on recruits equal to the difference between their market wages and the below-market military wage. Second, below-market pricing of personnel under the draft leads to a military with "too many" recruits. Third, the all-

volunteer approach attracts those recruits with the lower opportunity costs and hence secures a given number of recruits at less cost."[1]

Over the past 15 years, a number of papers have challenged this perspective. Amongst these papers are Garfinkel (1990), Johnson (1990), Lee and McKenzie (1992), Ross (1994), and Siu (2004). While all of these papers take different approaches and consider alternative assumptions, what they have in common is that they compare conscription with other forms of taxation rather than with the volunteer military, and argue quite reasonably that conscription is a desirable form of taxation if - at the margin – the dead weight welfare losses associated with conscription are lower than those associated with other taxes. [2] In summarizing this approach, Ross writes that:

> "My central thesis is that relative costs are important to these decisions and that the relative costs of the two systems (conscription and volunteer) will vary across countries and over time. A volunteer system may lead to a substantial wage bill if a large number of soldiers are needed and their supply is inelastic. Raising the tax revenue to pay high wages may be quite costly because of the deadweight loss generated by non-lump-sum taxes."[3]

In this paper, the focus will not be on taxation, although our framework makes it easy to integrate consideration of tax efficiency into the analysis. Rather, this paper's first objective is to model the general problem of military manpower mobilization. We then evaluate the efficacy of an AVA approach. We find that, with an AVA approach, the military labor market will generally not attain in a first best social optimum. The reasons for this failure are those that characterize almost all market failures – the presence of externalities and asymmetric information. We then evaluate the efficacy of conscription as a tool in rectifying this market failure. We find that systems that rely on conscription will also generally fail to be first best. In practice, both conscription and the AVA are

[1] Lee and McKenzie (1992), pg. 644

[2] Actually, this idea is hardly new. As far back as 1887, Henry Sidgwick had written that "a nation may unfortunately require an army so large that its ranks could not be kept full by voluntary enlistment, except at a rate of renumeration much above that which would be paid in other industries. In this case, the burden of the taxation requisite may easily be less endurable than the burden of compulsory service."

[3] Ross (1994), pg. 110

inherently flawed second best approaches to the mobilization of military manpower (even in the absence of tax efficiency considerations), and depending on the circumstances, either approach may be preferable to the other.

What are the problems that prevent both conscription and the AVA from achieving a first best social optimum? First, it is the inability of the government to identify the true level of quality of volunteers or draftees. It has always been well understood that this causes problems for systems that rely on conscription. Indeed, in the quote from Lee and McKenzie (1992) that appears above, they specifically mention this problem as one of the flaws in systems of conscription. What has hitherto not been recognized, however, is that the inability to identify the true quality level of recruits leads to serious flaws in systems that rely on volunteers as well. The theoretical framework that will be developed below will clearly illustrate the presence of these flaws.

A second problem is that military service generates a positive externality. The larger the number of soldiers in the field, the easier combat becomes for each and every one of them. This can easily be illustrated by applying the combat attrition equations presented in Lancaster (1916), and still widely used in the modeling of warfare. Following Lancaster, an increase in an army's numbers will reduce the total number of casualties that army will sustain in combat. The benefit to combatants is two-fold. Not only do fewer people get hurt, but the probability that any particular individual will be one of the unlucky ones declines by even more since a smaller number of losses is sustained by a larger number of people.[4] It seems perfectly reasonable that, in addition to seeking higher wages, soldiers

[4] This result only holds when the military in question is destined, due to its larger numbers and/or higher quality, to defeat its enemy. For militaries destined to defeat, Lancaster equations predict a 100% casualty rate. Of course, if larger numbers lead a military to win rather than lose a conflict, than the positive externality associated with larger numbers is extremely large.

– whether volunteers or conscripts – are interested in surviving wars in one piece. Hence, this effect should be taken into account in identifying a social optimum.

Overall, we find that AVA forces will tend to be too small. Forces that rely on conscription, however, will tend to squander high value manpower on low value activities, and they too will tend to be too small. There are, however several special cases that will be addressed in the paper.

Our analysis predicts that countries using the AVA approach will try to find tools that will allow them to pay a higher wage to higher quality recruits. It also predicts that countries using conscription will seek tools that will allow them to excuse exceptionally high quality draftees from service. We will argue that, in practice, countries actually do adopt tools similar to those predicted by our model. We regard this as empirical support for the approach we have articulated.

This paper is divided into 5 sections. In Section Two, we outline the theoretical framework that will be used in our analysis. In Section Three, this theoretical framework is exploited in order to compare the efficacy of the AVA and conscription. In Section Four, we discuss a number of methods that countries could use in order to improve the functioning of their AVA or conscript based systems. Section Five concludes the paper.

Section Two: The Theoretical Framework

There are two types of agents in our model. One type, the young, is eligible for service. They either work or serve, but for the sake of brevity, we assume that they do not bear the monetary costs of service. The other type, the old, merely pays the costs of the armed services.

The young differ in their value in the private economy. Each young person has a type θ, which defines his marginal value product and wage in what we assume to be a competitive private sector. We assume that a young person's type cannot be directly observed by the government, and constitutes private information known only to that person. The distribution of young people's types is uniform on the unit interval.

In its management of the market for military labor, the government must set two parameters - a wage for the military, w, and the probability of being drafted, P. The number of young people that serve, the sum of the draftees and volunteers, is Q.

Let F be the actual amount of military capability fielded. The value of F depends both on Q, the number of people serving in the military, as well as the productivity of each soldier in producing military capability. Let g(θ) be the military productivity of a person of type θ. We assume that the level of force fielded, F, will simply be the sum of the military productivities of those who serve.

A young person's choice to volunteer (his participation constraint) depends upon three things: his type, θ, the military wage, w, and the force level, F. Let U(w,F,) be the young persons willingness to accept to be in the military (that is the dollar value to the individual to serve with a pay of w and a force size of F) . The participation constraint for a young person is $U(w,F) \geq \theta$. U is increasing in military pay, w. It is also increasing in force, F, since – as discussed above - increased force equates to less mortality and morbidity.[5] This model leaves open the question whether military service is distasteful. Hence, no assumption is made about the relative magnitude of U(θ, 0) and θ.

[5] It is also possible that type plays a role in willingness to pay to be in the military. For instance affinity for the military may be decreasing in type. Or type may be two dimensional with a second element of θ being affinity for the military. This generalization is not followed up here.

The participation constraint does determine a critical value of θ.

(1) $U(w,F) = \theta^*$.

Types above that value, θ^*, do not volunteer and types below do volunteer.

Those that do not volunteer have a probability P of being drafted. The number of draftees is thus P (1-θ^*). Hence, the number of military people is

(2) $Q = \theta^* + P(1-\theta^*)$

and the effective force size is

(3) $$F = \int_0^{\theta^*} g(z)dz + P\int_{\theta^*}^{1} g(z)dz .$$

In what follows it simplifies the notation to define

(4) $$G(\theta) = \int_{\theta}^{1} g(z)dz$$

so that **Error! Reference source not found.** is $F = G(0) + (P-1)\, G(\theta^*)$. G is the average contribution to force of the non-volunteers.

Equations (1) - (3) describe the response of the system, the number of volunteers and draftees, to the policy variables w and P. The comparative statics of this system show how F, Q and θ^* respond to w and P.

By substituting (3) into (1) and taking the total derivatives one gets

(5) $d\theta^*/dw = U_w / [1-U_F (1-P)g(\theta^*)]$

and

(6) $d\theta^*/dP = [U_F G(\theta^*)] / [1-U_F (1-P) g(\theta^*)]$.

For these comparative statics to be stable, $1-U_F (1-P)g$ must be positive which implies that both of the above derivatives must be positive.[6] So $1-U_Q (1-P)$ must be positive and less than one. Since $U_F > 0$, the stability requirement bounds U_Q at $1/(1-P)g$. We will return to this issue below.

On the assumption that U is willingness to accept service in the military, $U_w = 1$ (one is willing to pay one dollar to get one dollar). Therefore $d\theta^*/dw$ is greater than one. Using (2) one can find the comparative statics with respect to w and P of F and Q

(7) $dF/dw = (1-P)\, g(\theta^*)\, d\theta^*/dw$

[6] Suppose that w increased. Then more people would want to join the military. Suppose the type of people who join then increased by $d\theta^*$. The unstable case is where the additional joiners raise utility by more than $d\theta^*$ so that ever more people join.

(8) $dQ/dw = (1-P)\ d\theta^*/dw$

and so

(9) $dF/dw = g\ dQ/dw$

and

(10) $dF/dP = (1-P)\ g(\theta^*)\ d\theta^*/dP + G(\theta^*)$.

(11) $dQ/dP = (1-P)\ d\theta^*/dP + (1-\theta^*)$.

As a result,

(12) $dF/dP = g\ dQ/dP + (G - g(1-\theta^*))$.

Again, on the assumption of a stable equilibrium, all of these derivates are positive.

Let the benefits to society of having a military be V(F). These are meant to be the direct benefits from the use or potential use of force. It is assumed that V'(0) is high enough to insure that it is optimal to have some force and that $V'' < 0$. The costs to society are a function of the cost of the force, T(wQ). T includes the deadweight loss of taxation necessary to raise the funds for the force.

Type θ individuals who are in the force have a gain from participation of U(w,Q) - θ. For volunteers, this will be positive. For the conscripted, this is negative. The integrals over the types that volunteer and over the types that are drafted give the value of the gain (or loss in the case of the drafted) from participation in the military.

Let B be the total benefits to society are simply the sum of the benefits and costs to the various groups.

$$(13)\quad B = V(F) - T(wQ) + \int_0^{\theta*} U(w,F) - z\,dz + P\int_{\theta*}^{1} U(w,F) - z\;dz\,.$$

The best a government can do is to maximize (13) subject to (1) through (3).

Let us start by examining how the net benefit, B, changes with changes in the endogenous variables F, Q and θ*.

$$(14)\quad \frac{\partial B}{\partial Q} = -T'w$$

$$(15)\quad \frac{\partial B}{\partial F} = V' + U_F\left[\theta* + (1-\theta*)P\right] = V' + U_F Q$$

$$(16)\,\frac{\partial B}{\partial \theta*} = (1-P)(U-\theta*)$$

Equation (14) is the marginal cost of force, while (15) is the marginal value of force plus the marginal value of the reduced danger multiplied by the size of the force. Equation (16) is the difference in the marginal value product lost in the private sector from the change in draftees and the change in volunteers. It is zero because U = θ* is the participation constraint.

Now we can write the first order conditions for a maximum with respect to wages and draft probability in terms of these intermediate results.

$$(17)\quad \frac{dB}{dw} = \frac{\partial B}{\partial Q}\frac{dQ}{dw} + \frac{\partial B}{\partial F}\frac{dF}{dw} + \frac{\partial B}{\partial \theta^*}\frac{d\theta^*}{dw} - (T' - U_w)Q$$

The last term in this expression is the cost of taxation less the benefit of the wage times the number of soldiers.[7] Now expand the expression for dB/dw out and make use of (9):

$$(18)\quad \frac{dB}{dw} = \left[(V' + U_F Q)g(\theta^*) - T'w\right]\frac{dQ}{dw} - (T' - U_w)Q$$

The first two terms of this expression are the net marginal public and private benefits of increasing the size of the force: V' is the public advantage to having a larger force, while $U_F Q$ is the benefit to soldiers from reduced danger. These terms are multiplied by the amount of force supplied by the marginal soldier (g). The resource cost, including deadweight loss of raising the force, is T'w, with the wage held constant. These terms, the ones in brackets, are multiplied by the number of additional soldiers recruited by raising the wage. The remaining two terms sum to the increased

[7] In the case where there is no deadweight loss from taxation, T'=1. Since we have assumed that U is willingness to serve, $U_w = 1$. As a result, these terms vanish if there is no deadweight loss associated with taxation

deadweight loss associated with raising the wage. The first order condition for determining the socially optimal wage is simply set dB/dw = 0.

Section Three: Comparing an All Volunteer Army and Conscription

Now, let us exploit this framework to evaluate and compare the efficacy of an all volunteer army and conscription. Let us begin by evaluating the AVA approach. To do so, we simply assume that P = 0.

In order to show that the volunteer army is not optimal, we first consider a two part tariff. First, θ^* people are recruited at wage w and then one more person is recruited at a wage slightly higher than w. In this case the change in welfare from recruiting another person is Equation (18) without the last two terms, which account for the deadweight loss of having to raise the wage for all the existing volunteers. Since θ^* is chosen so that dB/dw = 0, it will be positive without the deadweight loss from raising wages. Therefore increasing the wage for only the marginal volunteer will be welfare improving. Thus, an all volunteer army does not produce a welfare maximum. It is too small. Since it is too small, each volunteer encounters more danger than they would in a social optimum.

The source of this market failure is that there are really a continuum of (unobservable) types of labor, yet only one wage. A first best would require a unique price for each labor type, or at least for the supra-marginal types.

Now let us turn to the draft. Following (17), we can find the net benefits of increasing P.

$$(19)\ \frac{dB}{dP} = \frac{\partial B}{\partial Q}\frac{dQ}{dP} + \frac{\partial B}{\partial F}\frac{dF}{dP} + \frac{\partial B}{\partial \theta^*}\frac{d\theta^*}{dP} + \int_{\theta^*}^{1} U(w,F) - z\,dz$$

The last term is the 'tax' that the draft conveys upon the drafted. Making use of U = θ*, the integral simplifies to (1-θ*)(θ*-1)/2 < 0, although it is more convenient to leave it in integral form. Again, expanding this out gives

$$(20)\ \frac{dB}{dP} = \left(V' + U_F Q\alpha\right)\frac{dF}{dP} - T'w\frac{dQ}{dP} + \alpha\int_{\theta^*}^{1} U(w,F) - z\,dz$$

Now make use of the relationship between dF/dP and dQ/dP to get

$$(21)\quad \frac{dB}{dP} = \left[\left(V' + U_F Q\right)g - T'w\right]\frac{dQ}{dP} + \left(V' + U_F Q\right)\left[G(\theta^*) - g(\theta^*)(1-\theta^*)\right] + \int_{\theta^*}^{1} U(w,F) - z\,dz$$

Since U(w,F) = θ*, expanding G back out into an integral gives

$$(22)\quad \frac{dB}{dP} = \left[\left(V' + U_F Q\right)g - T'w\right]\frac{dQ}{dP} + \int_{\theta^*}^{1} \left\{\left(V' + U_F Q\right)\left(g(z) - g(\theta^*)\right) + \left(\theta^* - z\right)\right\}dz$$

Now let us assume that dB/dw = 0 (and that it defines an optimum for a given level of P) and use the common term in dQ/dP to get:

$$(23)\ \frac{dB}{dP} = \left(-(T' - U_w)Q\right)\frac{-\dfrac{dQ}{dP}}{\dfrac{dQ}{dw}} + \int_{\theta^*}^{1}\left\{\left(V' + U_F Q\right)\left(g(z) - g(\theta^*)\right) + \left(\theta^* - z\right)\right\}dz$$

$$(24)\ \frac{dB}{dP} = \left(-(T' - U_w)Q\right)\frac{dw}{dP}\Big|_{Q\,constant} + \int_{\theta^*}^{1}\left\{\left(V' + U_F Q\right)\left(g(z) - g(\theta^*)\right) + \left(\theta^* - z\right)\right\}dz$$

The term dw/dP is given by

$$(25)\ \frac{dw}{dp} = -\left(\frac{1 - \theta^* + U_F(1-P)(G - g(\theta^*)(1-\theta^*))}{U_w(1-P)}\right)$$

Equation (24) is the first order condition to have a draft, given that there is a wage w that will be paid equally to either draftees or volunteers. If a draft should be instituted or expanded, then (24) must be positive. It is best thought of as the marginal benefit of drafting soldiers to replace some volunteers. If the draft were increased a little, say from zero to a small percentage, then the wage needed to maintain the requisite number of volunteers would decrease by dw/dp. The deadweight loss saved by the decrease in required wages is the terms multiplied by dw/dP. The first set of terms under the integral is the gain from increasing the quality of the force and the last set of terms is the cost of drafting people of high type. The result is remarkably similar to the analyses of the past few years that view the efficacy of conscription as being driven by the tradeoff between the deadweight loss of the taxation required finance a volunteer army and the deadweight loss associated with conscription's misallocation of manpower.

Expression (24) generates an interesting special case. To the best of our knowledge, all theoretical explorations of conscription done to date assume that the military gets the same marginal product from all soldiers regardless of type. Mathematically, this means that g = 1 for all z. As a result, the last term in (24) simplifies to (1-θ*)(θ*-1)/2.

But consider the possibility that $g(z) = z/(V'+U_F Q)$. If that is the case, then the terms under the integral in (24) vanish. This would be the case when the value of each soldier exactly matches their value as a civilian. Now, the impact of conscription will only depend on the tradeoff between the benefits of force and the cost (including deadweight loss of taxation) of the wage. There would be no misallocation of high quality manpower to low value activities. By definition, talented conscripts who would have been pursuing high value civilian activities would now be making an equally valuable contribution to national defense.

If this was the case, indeed even if the civilian and military productivity of an individual were not identical but were merely positively correlated, conscription would become a remarkably benign method of mobilizing military manpower. Following similar reasoning, the efficacy of an all volunteer army is enhanced when the correlation between civilian and military productivity is negative.

Section IV: Discussion

Given that both the AVA and conscription are deeply flawed, what steps can be taken to ameliorate their inherent inefficiencies? As we have seen above, the "fatal" flaw of the AVA is the government's inability to pay higher wages to higher quality personnel. There are, however, some tricks that a government may try to alleviate this problem.

One of the most obvious is to pay all recruits the same formal wage, but to encourage them to deposit a portion of that wage in a special savings account that can only be used to pay for college tuition by offering to subsidize the soldier's contribution. Clearly, the value of this offer varies with the θ of the recruit. High ability recruits are likely to go to college following their discharge, while low ability recruits are not. Hence, the value of this generous offer depends on the θ of the recruit. The offer is of no value for low θ volunteers. The offer, however, could be of considerable value for supra-marginal types, who would view this benefit as increasing the financial compensation they receive for their service. In other words, it would be an efficient way to introduce a two-part tariff and pay supra-marginal recruits a higher wage.

It appears that many countries offer such benefits. For example, the US Army – an AVA force – offers recruits up to $72,000 in tuition assistance (via the Montgomery G.I. Bill and the Army College Fund) following discharge. All that is required is for the recruit to deposit $1200 in a special education account during their first year of service. In addition, the US Army offers subsidies to soldiers who wish to accrue college credits during their period of enlistment. Soldiers who participate in the "concurrent enrollment program" receive up to $4500 per year to cover their tuition and other expenses, such as textbooks.[8]

Relative to military pay scales, these sums are very large. American enlisted soldiers earn about $15,000 a year during a typical two years of active service. In other words, the total financial compensation of soldiers interested in attending college after discharge is more than double that of those with no interest in tertiary education. Clearly, the US Army is aggressively pursuing a program that allows it to pay higher wages to higher quality volunteers.

[8] The information reported here was taken from the US Army's recruitment website: www.goarmy.gov

Can such an approach allow an AVA system to attain a first best social optimum? We are not yet sure, but we suspect that the answer is no. The solution seems very "lumpy." If all individuals whose θ are below θ * are uninterested or unable to attend college, while all whose θ are above θ^* intend to pursue higher education, then such a tool may allow the AVA to attain a first best. But if θ^* is so low that individuals with θ just above θ^* are also not attending college, then this solution will lead the army to recruit volunteers that are too talented. Meanwhile, if θ^* is so high that many existing volunteers are already planning to attend college, then the college benefit will work similarly to an increase in the military wage, with the resultant financial losses.

While AVA systems struggle to identify efficient ways to enlist higher quality recruits, systems that depend on conscription struggle with the opposite problem. To enhance the efficiency of the draft, a method must be identified to avoid conscripting individuals whose θ are exceptionally high. There are a number of ways this can be done.

One obvious approach would be to offer draft deferments to individuals who enroll and are accepted into high quality institutions of higher education. Since such individuals are likely to be disproportionately of high θ types, this would reduce the inefficiency of conscription.
Another approach would be to use what are known as "buy outs" or "replacements." In a buy out, an individual who is drafted has the right to pay a sum that allows him or her to be excused from military service. In the more complicated replacement system, an individual may be excused from military service if he or she can find (and pay) someone else to take their place.

Many countries that rely on conscription, such as Russia and South Korea, offer deferments to college students. During the Vietnam War, the last time that the US relied on conscription, such deferments were also exploited. It seems unlikely, however, that such deferments can fully eliminate the manpower misallocation inefficiencies engendered by conscription. After all, some high θ individuals are themselves not really cut out for college (consider Microsoft founder Bill Gates).[9]

The use of buy outs and replacements was once extremely widespread, but is quite rare today.[10] For example, draftees during America's Civil War could be excused in return for a $300 payment. For whatever reason, this approach is now politically unpalatable. Indeed, it wasn't even popular during the Civil War. The use of buy-outs appears to have been a key factor in the violent New York anti-draft riots of 1863.[11]

Ironically, it would seem that a system of buy-outs allows a system of conscription to attain a first best social optimum as long as there are no credit constraints. The government would simply set the required payment at the level that would assure that the socially optimal number of people served in the military. Meanwhile, the financial contribution of those whose high θ made the buy out attractive could be used to offset taxes, reducing the dead weight losses of government revenue generation as well. In addition, such a system could assure that all high θ individuals contribute either directly (through service) or indirectly (through payment) to national defense. In the absence of buy-outs, a system of conscription assures that some portion of society's most capable people escape making any sacrifice at all.

[9] One country that relies on conscription yet refrains from offering buy-outs or college deferments is Israel. There may be good reasons for this. Relative to its size, Israel's military is huge. According to the World Bank, no less than 6.6% of Israel's labor force was serving in the military during 1999 (not including reservists). By contrast, the equivalent numbers for South Korea and Russia were 2.8% and 1.2% respectively. Given these numbers, it is quite possible that Israel is the only example of a country in which the optimal size of the military spans (exceeds) the potential size of the military. Hence, the benefit of requiring even the highest θ conscript to serve in the military may exceed his or her value as a civilian.

[10] The only country that we have heard was still allowing buyouts in recent times was Austria, and we are not yet certain of this information.

[11] See McCague(1968) or Cook (1974)

Conclusion

In this paper, we identified the first order conditions for the maximization of welfare for a general military manpower mobilization problem. We then evaluated the efficacy of all volunteer systems as well as systems based on conscription in solving the manpower problem.

As was shown in the discussion following (11), an army dependent on volunteers cannot attain a first best social optimum. Unable to directly observe the quality of volunteers, the government chooses too small an army by failing to use a two part tariff. The consequences of this decreased size are felt both in the underinvestment in force, V' and also in the privately born increase in danger, $U_Q Q$. Very straightforwardly it is possible that $U_Q Q > T'w$.

This result seems quite timely given that at the time of this paper's submission, the United States is engaged in the first protracted conflict in its history in which is has relied solely on volunteers to man its military. While the United States' AVF (All Volunteer Force) has proven a capable force on the battlefields of Iraq and Afghanistan, it has become increasingly clear that there are an inadequate number of troops committed to the theatre of battle, while the suffering of the individuals – particularly of reservists – has been greater than anticipated by them or by decision-makers.

Clearly, the AVF is too small. If our analysis is correct, all AVA based armies are likely to be "too small." As such, if the US continues to adhere to an all volunteer approach to military manpower mobilization, Americans will simply have to get used to waging war with an insufficient number of troops.

Unfortunately, we have also shown that any solution to the military manpower mobilization problem that requires a draft cannot be a first best solution either. The reasons is that the draft takes all people with private wage over θ^* with equal probability. This misallocation of manpower is expensive, and assures that militaries dependent on conscription will also be "too small" relative to the first best social optimum.

In Section 4, we discussed a number of methods that could be used in order to enhance the efficiency of systems that rely on volunteers or conscription. For systems that rely on volunteers, governments will seek out ways to pay higher wages to higher quality recruits. We find that this does indeed appear to be happening in practice, via programs that offer volunteers subsidized college tuition. Meanwhile, systems that depend on conscripts will seek out ways to "weed out" and eliminate draftees of excessive quality. We argue that this too appears to be happening in practice, via programs that release college students from military service.

Unfortunately, it does not appear that either approach can fully solve the problems associated with military manpower mobilization. One solution, however – the use of "buy outs" – clearly can. Unfortunately, such systems, in which high quality draftees simply pay their way out of service, appear to be a political non-starter.

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