I. Introduction

Economists generally believe that forcing young people to serve in the military is by definition a bad idea. Illustrating this, Lee and McKenzie (1992) reviewed twelve textbooks in basic economics and found that all twelve agreed that an all-volunteer military force (AVF) was inherently more efficient than conscription. In juxtaposition to this seeming consensus amongst economists, however, many countries retain conscription.

A number of papers have sought to offer explanations for conscription's remarkable staying power, including Garfinkel (1990), Lee and McKenzie (1992), Ross (1994), Warner and Asch (1996), Ng (2008), and Berck and Lipow (2011). All these papers identify conditions where conscription can be justified on grounds of social welfare maximization. While each analysis differs, the basic story is that the inefficiencies inherent in conscription may be more than offset by the reduction in taxes - and their associated deadweight welfare losses - that conscription makes possible by allowing militaries to skimp on the wages offered to recruits.

Of the papers that evaluate the efficacy of conscription, only one, Warner and Negrusa (2005), gives serious consideration to the social costs imposed by efforts to dodge the draft. They find that a government's desire to reduce evasion costs can offer a credible explanation for why militaries often offer draftees surprisingly high wages, even though payment of those wages necessitates higher taxes that at least partially offset the fiscal benefits that justified conscription in the first place.

There are, however, many forms of draft evasion. The simplest forms of evasion – responding to a draft notice by fleeing the country, going underground, or simply refusing to serve - are straightforwardly illegal, and the threat of punishment can reduce their incidence (Blumstein and Nagin, 1977). Offering conscripts higher wages - the alternative suggested by Warner and Negrusa (2005) – is also an effective means of reducing illegal draft evasion. Neither draconian punishment nor higher wages, however, offers a solution for what may be the most destructive form of draft evasion – draft dodgers who actually don uniforms but use social or political connections in order to secure "cushy" assignments, often in what used to be known as "silk stocking units," and since the Vietnam War as "champagne units," set up specifically to accommodate the politically well connected.

The phenomenon of champagne units is socially destructive in three ways. First, there are lobbying costs associated with getting access to prized billets. Second, it is clearly wasteful to devote time and money to "make believe" military formations that serve no real purpose. Finally, the existence of such units has a corrosive effect on the morale of those who do not receive such favorable treatment. Referring to this, Colin Powell writes in his autobiography that "I am angry that so many sons of the powerful and well placed and many professional athletes (who were probably healthier than any of us) managed to wrangle slots in Reserve and National Guard units. Of the many tragedies of Vietnam, this raw class discrimination strikes me as the most damaging to the ideal that all Americans are created equal and owe equal allegiance to our country."[1]

[1] Powell (1995), p. 144

In this note, we propose an attractive and practical method of reducing the welfare losses associated with champagne units. We call the proposed method "probability segmenting" – basically a modified draft lottery. In Section Two, we offer a model that illustrates how probability segmenting minimizes welfare losses while assuring mobilization of the required number of recruits. Section Three concludes the paper.

Section 2: The Model

Assume that the military requires the mobilization of n draftees drawn from a pool of potential recruits of size N. Let r be the proportion of the population that, due to family wealth or social connections, has the ability to avoid the draft by pre-emptively volunteering to serve in champagne units specifically created to accommodate them. This arrangement loosely follows arrangements in place during the Vietnam era U.S. draft. At that time, pre-emptive enlistment in National Guard or Army Reserve units would allow a volunteer to avoid being drafted and sent to Vietnam, and "connections" definitely played a role in getting one of these prized billets.

We assume that the pool of potential recruits is homogeneous in every other way. This eliminates any problem of asymmetric information, assuring that draft evasion cannot serve a useful purpose as a signal that particular individuals are poorly suited for service.

The military mobilizes the required number of draftees by sending draft notices to k individuals chosen at random. Prior to receipt of draft notices, up to rN privileged individuals can volunteer for a champagne unit and remove themselves from the pool of potential recruits. Those that join champagne units are not counted towards n, the military's manpower requirement, since champagne units serve no useful purpose.

Let the utility level of an individual who does not or cannot volunteer for a champagne unit and is not drafted be 0. Let U be the utility of those that are drafted and let u be the utility associated with service in a champagne unit. We assume, quite reasonably, that $U < u < 0$. Finally, we assume n and N are large and that $n < (1-r)N$.

Let p equal the probability of a particular individual in the pool of potential recruits being drafted. Every individual who can join a champagne unit will do so if $pU < u$. If $pU \geq u$, then no one will join such a unit. We assume that there is no feasible value for p that will be sufficiently high to mobilize the required number of draftees without $pU < u$. Thus, to obtain enough people, we must select p such that we obtain n individuals given that everyone who can volunteer for a champagne unit and avoid the draft will do so. Hence, $p = \dfrac{n}{N(1-r)}$.

This arrangement is costly in terms of social welfare for three reasons. First, those that volunteer for champagne units sustain a loss of private utility that sums to rNu. The price of avoiding the draft is that volunteers have to spend months training and serving in other units – units that serve no useful purpose. All that private time would be better spent working or studying.

Second, the rest of society must bear the cost of the taxes required to fund the operation of these champagne units. For example, pilots in National Guard air squadrons that will never be used in combat still have to be trained, and their planes still have to procured and maintained. Those funds could clearly be better used if allocated to genuine defense efforts or even if simply returned to taxpayers.

Third, as Colin Powell argues, the widespread use of such units to avoid genuine military service damages the morale of those that have been drafted. While this is certainly the case, we cannot with any certainty assume a linear relationship between the number of volunteers for champagne units and their impact on morale of conscripts. Conceivably, draftees might not even notice the existence of champagne units if they were sufficiently rare. It is also conceivable, however, that the impact on conscript morale would be unchanged as long as draftees perceive any favoritism at all.

Now, let us consider a simple modification of the military's approach to conscription. We will call this modification *probability segmenting*. Probability segmenting involves the addition of what we assume to be a costless preliminary step to the selection procedure. Well in advance of the actual issuance of draft notices, the pool of potential recruits is randomly divided into two groups of predetermined size, N_1 and N_2. Each of these groups is assigned a different selection probability and individuals in each group are informed of those selection probabilities. Let the selection probabilities for the two groups be p_1 and p_2, with $p_1 \leq p_2$. A pair of probabilities p_1, p_2 is feasible if it yields n draftees.

Let p' be the value of p that leaves individuals indifferent between joining a champagne unit or risking conscription. That is, $p' = \frac{u}{U}$. For convenience, we assume that individuals who are indifferent between the two options will not choose to join a champagne unit.

Given the assumption that it can be implemented at no cost, the objective of probability segmenting can be regarded interchangeably as the maximization of social welfare and the minimization of the number of volunteers for champagne unit. Clearly, the aggregate private costs to volunteers are reduced in proportion to any reduction in their number. The cost to taxpayers of raising champagne units also should be proportional to the number of personnel assigned to them. As for morale, while there is no reason to believe that the impact is proportional to the number of volunteers for champagne units, it is more than reasonable to assume that damage to morale does not increase as the number of volunteers for champagne units declines.

Let p_1^* and p_2^* be the values of p_1 and p_2 that minimize the number of potential recruits that volunteer for champagne units. By assumption, if we set $p_1 = p_2$, then every individual who can will volunteer for a champagne unit if the selection probability is large enough to obtain n individuals. Thus, any feasible pair of probabilities with a higher social utility than the simple selection process requires that $p_1 \leq p'$. Since we cannot obtain enough individuals if both p_1 and p_2 are less than or equal to p', any feasible pair of probabilities also requires that $p_2 > p'$. Hence, probability segmenting will result in rN_2 volunteers for champagne units, and p_1^* and p_2^*

are the values for p_1 and p_2 that minimize N_2, which equals $\frac{n - p_1 N_1}{p_2 (1-r)}$. The number of volunteers for champagne units is minimized when p_1 and p_2 are set at the highest possible values, so $p_1^* = p'$ and $p_2^* = 1$.

Section 3: Conclusion

By applying probability segmenting, an unambiguous reduction in the number of volunteers for champagne units is achieved – from rN with the simple draft system to rN_2 using probability segmenting. Associated with this is a reduction in the number of young people that waste their time as non-contributing members of the armed forces, and a reduction in the expenses incurred by taxpayers in fielding champagne units. Hopefully, there is also less damage to the morale of draftees, although that is less certain. But can such an approach realistically be applied in practice?

We believe that question has already been answered. In 1969 and 1970, the U.S. conducted draft lotteries that are remarkably similar to the procedure outlined here. In those lotteries, numbers were randomly assigned to different birthdates. Those born on "low number" days were sure to be drafted eventually, while those born on "high number" days were sure to avoid the draft. Meanwhile, those in the middle faced an uncertain likelihood of being drafted.

To be sure, the Vietnam era lotteries were not designed to lower the cost of legal draft evasion. They were introduced in what is widely regarded as a failed effort to make the U.S. Selective Service system appear fairer. Apparently, however, the overall result was at least some reduction in efforts to evade the draft pre-emptively. For example, one young man with a low (23) lottery number who volunteered for a champagne assignment in the Army Reserves explained that *"at least I didn't have to wonder what to do, as some of my friends had to with numbers around 180...*"[2]

[2] http://www.historynet.com/live-from-dc-its-lottery-night-1969.htm

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