

I WAIVE MY RIGHT  
TO READ THIS RECOMMENDATION:  
A THEORETICAL ANALYSIS  
OF THE BUCKLEY AMENDMENT

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### 1. Introduction

The Family Educational Rights and Privacy Act, 20 U.S.C.A. § 1232g (1978), comonly known as the Buckley Amendment, 1974, gives students the right to inspect letters of recommendation for professional or graduate schools written by their professors. Presumably, the right of inspection affords the individual student protection against damaging reports made by their professors without sufficient substantiation.

Because professors are often reluctant to confront students with evaluations, universities responded to the Buckley Amendment by asking students to waive their newly granted right. Today, most pre-printed recommendation forms specifically invite students to waive their inspectional right, and casual empiricism indicates that a large majority of students do so. Students apparently fear that recipients of recommendations will take failure to waive as a signal that the student has something to hide, or that the professor has been less than frank in his statement. Thus, as a result of the use of waivers, this provision of the Buckley Amendment has been largely circumvented.

Whenever individuals have been granted a right, the legislature or the courts will face the question of whether individual waivers of that right should be permitted. We shall discuss this issue below, and argue that it is naive to treat the ability to waive as a simple extension of individual liberties. Indeed, our analysis of the Buckley Amendment was motivated by our desire to demonstrate that, in this case, at least, waivers of rights should not be permitted. To our surprise, the analysis that follows forces us to the opposite conclusion.

In order to state our results precisely, it is useful to recast the issue in a different way. The letter of recommendation is an instrument for discriminating between students of various qualities. The right of a student to inspect his or her letter of recommendation changes the nature of that instrument. A letter not subject to inspection is a confidential letter, but a letter subject to inspection is an open letter. The government has three major policy options: to allow universities to guarantee confidentiality of letters (no Buckley Amendment); to require use of open letters (the Buckley Amendment); or to allow students to choose either open or confidential letters as they see fit (the Buckley Amendment with waivers allowed). Obviously the correct policy decision will depend on the characteristics of the two instruments.

How do the open and confidential letters of recommendation differ as a means of separating students? As we have said, there is a presumption that the

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open letter would inhibit the unjust downgrading of students by biased, negligent or malicious professors. On the other hand, some professors may lack the courage to make negative comments in an open letter, even when such comments would be fully justified. Thus, for these two reasons, we would expect the open letter of recommendation to be, on average, more favorable than the confidential letter. But whether the open letter is a better screening device than the confidential letter, depends on whether the decrease in unjustified negative comments would generally outweigh the decrease in justified negative comments. Put another way, the open letter would both discourage expression of bias and abet cowardice on the part of professors. The open letter would be a better screening device than the confidential letter if and only if the former effect predominates over the latter.

Suppose the government wishes to follow a policy that would lead to the use of the best screening device. In the absence of government regulation, graduate admissions and fellowship committees have almost universally guaranteed the confidentiality of recommendation letters. One might conclude that at least in the opinion of these university personnel, the confidential letter is a better screening device than the open letter. But the graduate admissions committees may simply be catering to the tastes of the recommendation-writing professors, on whom they depend as a source of students. It is also quite possible that the members of these committees believe that they would share the same biases as their colleagues and so are not disturbed by the bias that may be inherent in the confidential letter. At any rate, there is good reason to believe that the government cannot assume that universities will choose the best screening device on their own.

If the government cannot rely on the universities to choose the best screening device, what alternatives are available? An obvious possibility is direct empirical research hopefully carried out by needy (or greedy) economics professors. If the results of such research were to provide strong evidence that either the confidential or the open device is the better screening instrument, then a new legal rule could be established which unambiguously requires the use of one or the other.

There is however, another possibility which should be investigated: to allow students to freely choose between the two screening devices. It is evident that all things being equal, the best students would prefer that the best screening devices be used by everyone. Unfortunately, inferior students do not want to be separated from good students, and they would prefer that an inferior screening device be widely used.

Because of this confusing situation, we have built a model for the purpose of analyzing what student behavior would be. The results of our analysis surprised us: under reasonable assumptions students would reach an equilibrium in which the great bulk of both good and bad students select the better screening device. This result provides strong support for a legal rule which allows students to choose between confidential and open letters of

recommendation. The Buckley Amendment, with waivers permitted, constitutes such a legal rule.

## 2. Waivers of Rights

The history of the Buckley Amendment raises an old legal question in a new context. If in its wisdom, the legislature endows the citizenry with certain rights, should a citizen be allowed to waive those rights? Or should these rights be treated as inalienable?

The courts and legislature generally have been reluctant to allow the uninhibited alienation of rights and entitlements. They tend to base their arguments on rather vague grounds of public interest or public policy. For example, waivers of the right to recover damages resulting from medical malpractice have been held void on these grounds. [See *Tunkl v. Regents*, 60 Cal.2d 92 (1963).] More often than not, the reasons why such disclaimers would violate public policy are not clearly spelled out.

In their paper on the nature of entitlements, Calabresi and Melamed [1972] adduce various reasons why some rights ought not be subject to sale or to modification by contract. Briefly, these reasons arise because: a) the sale of the right may have significant undesirable effects on third parties; b) the right is a merit good; c) society is paternalistically protecting the citizen from being induced to give up a right he will eventually wish to have. Although headings b) and c) may have some relevance to the right of inspection provided by the Buckley Amendment, our analysis will focus on a), the issue of externalities. In particular, we shall be concerned with the external effects of the information produced by the fact of a waiver, or obversely, the retention of the right.

If some individuals waive a given right, while others retain the right, an observer of this situation will be able to discriminate between them on the basis of this action alone. The motivation for such discrimination need not be the substance of the right; instead, it may be some characteristic whose presence can be statistically correlated with retaining or waiving the right. By creating a basis for discrimination, the widespread use of waivers can materially affect the quality of the right for those who choose to retain it.

Thus, the ability to waive, while seeming to enhance individual liberty, could lead to the destruction of a valued entitlement. This reasoning applies directly to the right to inspect letters of recommendation, for the permissibility of waivers has unquestionably devalued that right. But our analysis below suggests that in a case of this type, waivers can devalue a right only if that right is not in the social interest to begin with. If the right to inspect letters of recommendation had been in the social interest, waivers would have had little effect.

### 3. The Model

For the purposes of our analysis, we have decided to model the allocation of fellowships to student applicants, rather than the process of admissions. Allocation of fellowships is simpler to analyze because it enables us to assume a continuum of possible awards. We believe, however, that the fundamental conclusions we shall reach are generally applicable to either situation.

Let us assume a total population of  $N$  applicants. These applicants can be dichotomized into good students ( $G$ ) and bad students ( $B$ ). The numbers of students in each group,  $N_G$  and  $N_B$ , are known to both the applicants and the decision makers. In what follows we assume  $N_G = N_B = N/2$ ; this assumption simplifies the calculations without affecting the qualitative results.

Each applicant obtains one letter of recommendation which can be either favorable ( $F$ ) or unfavorable ( $U$ ). The applicant can either retain ( $R$ ) his right to inspect the recommendation letter or waive ( $W$ ) that right.

How do professors evaluate good and bad applicants in letters of recommendation? To reflect our previous conclusions as to the differences between the open and confidential letters of recommendation, we assume the following: In open letters, professors always truthfully evaluate good applicants, and, on the average, overstate the quality of bad ones.

Table 1 summarizes the probabilities that an applicant of quality  $G$  or  $B$  will receive the evaluation  $F$  given that he or she took action  $R$  or  $W$ . Thus, the upper-left quadrant of the table gives  $P(F|R,G)$ , the contingent probability that a good applicant will receive a favorable letter given that he or she retains his or her right to inspect the recommendation letter.

TABLE 1

	$R$ (open)	$W$ (confidential)
$G$	1	$1 - y$
$B$	$x$	0

In conformance with our previous discussion, we may think of  $x$  as a measure of professors' cowardice in publically evaluating bad students, and  $y$  as a measure of their bias in privately evaluating good ones.

The relative quality of the open letter and the confidential letter as a screening device depends on the magnitudes of  $x$  and  $y$ . In general, we can define the quality of a screening device with respect to a given population of applicants as being indexed by the number of applicants in the population that the device would label correctly. In this case, because we assume an equal

number of good and bad students in the total applicant population, the open letter ( $R$ ) is better than the confidential letter ( $W$ ) if and only if  $x < y$ .

We assume that a very large number of universities compete for good applicants. Each university is willing to pay at most one dollar in scholarship per good candidate and nothing per bad candidate. Those payments are pure rents, and the students will go to that university which pays the highest scholarship.

Suppose a university fellowship committee is faced with a certain pool of applicants of which a fraction  $\pi$  are good students. Further suppose the committee knows the value of  $\pi$  precisely, but does not have any personalized information on individual students within the pool. Then, as we now demonstrate, rational and risk-neutral administrators would offer a scholarship of  $\pi$  dollars to each applicant in this pool. If the administrators were to pay more than  $\pi$ , the scholarship per good candidate would exceed 1. Thus it remains to show that in a noncooperative (competitive) equilibrium, university administrators will offer no less than  $\pi$  to each member of that pool. But, if the candidates in a pool received only offers of less than  $\pi$ , some university has an incentive to offer a higher scholarship to every member of this group, thereby acquiring all of its good candidates at prices of less than 1 per good student. This argument establishes that the scholarships of the members of each pool of applicants will be bid up to the true average value of those applicants.

We are now in the position to construct the expected scholarships (payoffs) to applicants from retaining or waiving their right to read letters of recommendation. To begin with, let us assume that the percentages of good and bad applicants who take a particular action is given by Table 2.

TABLE 2

	$R$	$W$
$G$	$\alpha$	$1 - \alpha$
$B$	$\beta$	$1 - \beta$

We can now calculate the scholarship  $\pi$  offered by universities to each student in various categories of applicants. Within our model, there are two distinct sources of information about an applicant which can be observed by the university: the quality of the recommendation, favorable ( $F$ ) or unfavorable ( $U$ ), and whether the student has chosen to retain ( $R$ ) or waive ( $W$ ) the right to examine the letter. Consequently, in our model, the university had just enough information to sort all applicants into four categories:  $RF$ ,  $RU$ ,  $WF$ , and  $WU$ .

TABLE 3

	<i>G</i>	<i>B</i>	$\pi(\cdot)$
<i>RF</i>	$\alpha$	$x\beta$	$\frac{\alpha}{\alpha + x\beta}$
<i>RU</i>	0	$(1-x)\beta$	0
<i>WF</i>	$(1-y)(1-\alpha)$	0	1
<i>WU</i>	$y(1-\alpha)$	$(1-\beta)$	$\frac{(1-\alpha)}{y(1-\alpha) + (1-\beta)}$

The entries under columns *G* and *B* of Table 3 represent the fractions of good and bad students, respectively, which will fall into each of the four observable pools. Because  $N_G = N_B$ , these entries are proportional to the absolute numbers of good and bad students in the various pools. Hence, to calculate  $\pi$  for a given category (column 3 of Table 3), we divide the entry in column 1 of Table 3 by the sum of the entries in columns 1 and 2.

The conclusion that universities will offer scholarships in these amounts was predicated on the assumption that each student views all competing universities as homogeneous and will attend the university with the largest offer. Up to now, we have made no assumptions concerning the motivation of students in deciding whether to retain or waive their right of inspection. Of course this is of no direct concern to the universities, they need know only the ratio of good to bad students in each pool of applicants. Presumably, in an equilibrium situation, university committees will learn these ratios by experience, so that every university will offer a given student an identical scholarship.

We now have sufficient data to calculate the expected scholarship offer to a good or a bad student who decides to retain or waive the right of inspection. This will depend on both the probabilities that a particular student will fall into a given pool of applicants as implied by Table 1, and the size of the scholarship offered to members of the pool as given in Table 3. Suppose, for example, we denote by  $v(R|G)$ , the expected scholarship of a good student who retains his or her right. We have

$$v(R|G) = P(F|R,G)\pi(R|F) + (1-P(U|R,G))\pi(R|U) = \frac{\alpha w}{\alpha + x\beta}$$

Table 4 summarizes the expected scholarships from each course of action to individual applicants of a given quality.

TABLE 4

	R	W
G	$\frac{\alpha}{\alpha + x\beta}$	$\frac{y(1-\alpha) + (1-y)(1-\beta)}{y(1-\alpha) + (1-\beta)}$
B	$\frac{x\alpha}{\alpha + x\beta}$	$\frac{y(1-\alpha)}{y(1-\alpha) + (1-\beta)}$

From Table 4 we note that if the open letter ( $R$ ) is used to screen the entire population of students ( $\alpha=\beta=1$ ), then each good student has an expected scholarship of  $\frac{1}{1+x}$ . If the confidential letter ( $W$ ) is used ( $\alpha=\beta=0$ ), each good student has an expected scholarship of  $\frac{1}{1+y}$ . Thus if the open letter is the better screening device than the confidential letter in that it correctly labels a larger number of students ( $x < y$ ), it is also better in the sense that it allocates more money to good students; and *vice versa*.

#### 4. The Existence of Separating Equilibrium

Suppose for the time being that all students decide to retain or waive their right of inspection so as to maximize the size of their expected income (scholarship). What can we say about equilibrium values of  $\alpha$  and  $\beta$ , the percentages of good and bad applicants who chose to retain their right? We must show how any such equilibrium values depend on the parameters of the model.

First, we explore the existence of a separating equilibrium, that is, a stable situation in which all good applicants pursue a different course of action from all bad ones. There are two possible separating equilibria, one in which all good applicants waive and all bad applicants retain, ( $\alpha=0, \beta=1$ ), and *vice versa* ( $\alpha=1, \beta=0$ ). From Table 4 we can easily obtain the relevant expected individual pay-offs. In the latter case:

$$v(R|G) = 1, v(W|G) = 1 - y, v(R|B) = x, v(W|B) = 0.$$

It is apparent that whereas each good applicant has an incentive to retain ( $v(R|G) > v(W|G)$ ); the bad applicants have an incentive to discontinue waiving and to join the good applicants in retaining. It follows, therefore, that  $\alpha = 1$  and  $\beta = 0$  is not an equilibrium situation (for the bad applicants).

In the converse case, when  $\alpha = 0$  and  $\beta = 1$ , the pay-offs are  $v(R|G) = 0, v(W|G) = 1, v(R|B) = 0, v(W|B) = 1$ . Again, it is apparent that this situation cannot be an equilibrium from the standpoint of bad applicants. The bad applicants would prefer to switch from retaining to waiving the right.



Thus we have demonstrated:

*Proposition 1:* Given the assumptions of the model, a separating equilibrium does not exist.

The underlying logic of this result is easy to explain. Good applicants prefer to be together, whatever they do. Bad applicants prefer to be with good applicants rather than with each other. Consequently, full separation is the most desirable arrangement for the  $G$ 's and the least desirable arrangement for the  $B$ 's. The  $B$ 's will, to some extent, imitate the  $G$ 's in whatever the  $G$ 's do.

There is another way of looking at the above proposition which is, we think, particularly revealing. Notice that in our model, there are two distinct sources of information about the applicant -- his action and the quality of the recommendation letter. However, whenever one action is taken by one group of applicants exclusively, as it would be in a separating equilibrium, the action itself carries with it all possible information. The quality of the recommendation becomes uninformative; indeed it may become misleading. Since in our model actions are free, the inferior applicants will quickly imitate the actions of the superior applicants. This again explains why a separating equilibrium cannot exist.

## 5. The Existence of Mixed Equilibrium

At this point let us make the model more realistic by assuming that while some students are income maximizers there may also be some students who are "moralists." These moralists maintain either principle of the retaining their right or that of waiving their right irrespective of whether the alternative course of action would have yielded a higher expected scholarship. Both good and bad students may be among the moralists. As a result of the presence of moralists, the proportions  $\alpha$  and  $\beta$ , of good and bad students, respectively, who retain their right is bounded as follows:

$$\underline{\alpha} < \alpha < \bar{\alpha}$$

$$\underline{\beta} < \beta < \bar{\beta}$$

where  $0 < \underline{\alpha} < \bar{\alpha} < 1$  and  $0 < \underline{\beta} < \bar{\beta} < 1$ .

A mixed equilibrium is any equilibrium which is not separating, that is, an equilibrium in which some action is pursued by both good and bad students. The purpose of this section is to show that a unique mixed equilibrium always exists. In this equilibrium the bulk of the students, good and bad, select by their action that type of a letter of recommendation open or confidential which is more informative for the purposes of separating good students from bad.

We will now proceed with a systematic demonstration of this result. We begin by noting that in any stable situation, all income-maximizing good applicants choose the same strategy. If one  $G$  finds a certain course of action preferable to the other, and changes his action in consideration of this fact, the

relative value of the more desirable action is thereby further increased. This will motivate more  $G$ 's to shift.

We have a classic "neighborhood tipping" situation, (see Schelling [1969, 1972]). Whatever the allocation of the bad applicants all income maximizing good applicants would prefer to cluster in one camp with only moralists remaining in the other. This result formally demonstrated later in the paper.

The situation of the  $B$ 's is opposite to that of the  $G$ 's. Their movement toward one type of action generates negative externalities for those pursuing that action. Therefore it may be possible to find a stable equilibrium configuration with income maximizing  $B$ 's pursuing both actions. In fact, the following can be shown

*Proposition 2:* Let the function  $\hat{\beta} = \hat{\beta}(\alpha, x, y)$  be defined as follows. Given  $\alpha$ ,  $x$  and  $y$ ,

- a. if  $v(R|B) < v(W|B)$  for all  $\beta \in [\underline{\beta}, \bar{\beta}]$ , we define  $\hat{\beta} = \underline{\beta}$ ;
- b. if  $v(R|B) > v(W|B)$  for all  $\beta \in [\underline{\beta}, \bar{\beta}]$ , we define  $\hat{\beta} = \bar{\beta}$ ;
- c. otherwise,  $\hat{\beta}$  is defined as the unique value of  $\beta$  at which  $v(R|B) = v(W|B)$ .

Then, given the distribution of good students described by  $\alpha$ ,  $\hat{\beta}(\alpha, x, y)$  describes a unique stable equilibrium in the distribution of bad students.

*Proof:* Given the assumption of a., all income-maximizing bad students will waive; given the assumption of b., all will retain. The proposition follows for those two cases.

Given case c., the continuity of  $v(R|B)$  and  $v(W|B)$  as functions of  $\beta$  implies the existence of a value of  $\beta$  at which  $v(R|B) = v(W|B)$ . From Table 4, note that for all  $\beta$ ,

$$\frac{\partial v(R|B)}{\partial \beta} = - \frac{x^2 \alpha}{(\alpha + x\beta)^2} < 0$$

and

$$\frac{\partial v(W|B)}{\partial \beta} = \frac{y(1-\alpha)}{[y(1-\alpha) + (1-\beta)]^2} > 0$$

The signs of these derivatives imply that  $v(R|B) < v(W|B)$  when  $\beta > \hat{\beta}$ , so that more students will waive causing  $\beta$  to decrease. Conversely, if  $\beta < \hat{\beta}$ ,  $\beta$  must increase. This guarantees that  $\hat{\beta}$  is a unique stable equilibrium.

The next series of propositions characterizes more precisely the optimal distributions of good and bad applicants between those who waive and those who retain their right. We assume throughout that  $\underline{\beta} < \hat{\beta} < \bar{\beta}$ , so that case c. in Proposition 2 prevails. This makes the model more tractable without changing the qualitative nature of the results.

The simplest situation to analyze is when  $x = y$ . In this instance the bias against good students who opt for a confidential letter is equal to the inflation

in the quality of recommendations of bad students who opt for an open letter. We can easily demonstrate.

*Proposition 3:* If  $x = y$ , then for any  $\alpha \in [\underline{\alpha}, \bar{\alpha}]$ ,  $\hat{\beta}(\alpha, x, y) = \alpha$ .

*Proof:* From Table 4 it follows that if  $x = y$ ,  $v(R|B) = x/(\alpha+x\beta)$  and  $v(W|B) = x(1-\alpha)/[x(1-\alpha)+(1-\beta)]$ . Since in an interior equilibrium  $v(R|B) = v(W|B)$ , we must have  $\hat{\beta} = \alpha$ .

We can use Proposition 3 to establish the following:

*Proposition 4:* Given  $x = y$ , and given any value of  $\alpha$ ,  $\beta = \hat{\beta}(\alpha, x, y)$  implies  $v(R|G) = v(W|G)$ .

*Proof:* Noting that  $x = y$  implies  $\hat{\beta}(\alpha, x, y) = \alpha$ , it trivially follows from Table 4 that  $v(R|G) = v(W|G)$ .

Proposition 4 indicates that when  $x = y$  any distribution  $\alpha$  of good students between the two screening devices becomes an equilibrium once the distribution  $\beta$  of bad students adjusts to its equilibrium value  $\hat{\beta}(\alpha, x, y)$ .

The interesting problem is the characterization of equilibrium distributions  $\alpha^*$ ,  $\beta^*$  of good and bad students when the two screening devices are not of equal quality, i.e. when  $x \neq y$ . Let us first explore the sensitivity of the equilibrium distribution of bad applicants,  $\hat{\beta}(\alpha, x, y)$  to changes in the value of  $x$ , when  $y$  and  $\alpha$  are given.

*Proposition 5:* Given any values of  $\alpha$  and  $y$ , if  $x > y$ , then  $\hat{\beta}(\alpha, x, y) > \alpha$ ; if  $x < y$ , then  $\hat{\beta}(\alpha, x, y) < \alpha$ .

*Proof:* Recall that  $\hat{\beta}$  is normally defined by the condition  $v(R|B) = v(W|B)$ . Equating the expressions as given in Table 4, and totally differentiating with respect to  $x$  and  $\beta$ , while holding  $y$  and  $\alpha$  constant, we find that

$$\frac{\partial \hat{\beta}}{\partial x} = \frac{\alpha y (1-\alpha)}{x^2 [\alpha + y(1-\alpha)]} > 0$$

Since  $\hat{\beta} = \alpha$  when  $x = y$ , we can conclude that  $\hat{\beta} > \alpha$ , when  $x > y$ . This proposition states that for any given distribution of good students, if the quality of one screening device deteriorates relative to that of the other, the inferior device will draw an increasing number of bad students. This is because the inferior screening device increases the chance that bad students will be mistaken for good ones.

It only remains to examine the equilibrium allocation of good applicants in the situation when  $x \neq y$ . We shall now prove.

*Proposition 6:* Given  $x$ , let  $\hat{\beta}(\alpha, x, y)$  be the equilibrium allocation of bad students as a function of  $\alpha$ . Let  $(\alpha^*, \beta^*)$  describe the joint equilibrium allocation of both good and bad students. Then if

- (i)  $x > y, \alpha^* = \underline{\alpha}, \beta^* > \underline{\alpha}$ ;
- (ii)  $x < y, \alpha^* = \bar{\alpha}, \beta^* < \bar{\alpha}$ .

In either case the equilibrium is unique.

*Proof:* We shall demonstrate only part (i) of this proposition. First note that with  $\alpha$  and  $y$  held constant, and with  $\beta = \hat{\beta}(\alpha, x, y)$  we have

$$\begin{aligned} \frac{\partial v(R|G)}{\partial x} &= \frac{\partial v(R|G)}{\partial x} \Big|_{\beta=\text{const}} + \frac{\partial v(R|G)}{\partial \beta} \cdot \frac{\partial \hat{\beta}}{\partial x} \\ &= - \frac{\alpha \hat{\beta}}{(\alpha + x \hat{\beta})^2} - \frac{\alpha x}{(\alpha + x \hat{\beta})^2} \cdot \frac{\partial \hat{\beta}}{\partial x} \end{aligned}$$

From Proposition 5 we have  $\partial \hat{\beta} / \partial x > 0$ , so that  $\partial v(R|G) / \partial x < 0$ . Similarly

$$\begin{aligned} \frac{\partial v(W|G)}{\partial x} &= \frac{\partial v(W|G)}{\partial \beta} \frac{\partial \hat{\beta}}{\partial x} \\ &= \frac{y(1-y)(1-\alpha)}{[y(1-\alpha) + (1-\beta)]^2} \frac{\partial \hat{\beta}}{\partial x} > 0. \end{aligned}$$

Since at  $x = y$ ,  $v(R|G) = v(W|G)$  for all  $\alpha$ , the above results imply that  $v(R|G) \begin{matrix} < \\ > \end{matrix} v(W|G)$ , for all  $\alpha$ , whenever  $x > y$ . For  $x > y$ , it follows that  $\alpha^* = \underline{\alpha}$  and  $\beta^* = \hat{\beta}(\underline{\alpha}, x, y)$ . Bad applicants are in equilibrium by the definition of  $\hat{\beta}$ , and all income maximizing good applicants are obtaining the highest possible scholarship by waiving their right. Furthermore, the equilibrium is unique: if  $\beta \neq \hat{\beta}(\alpha, x, y)$  then  $(\alpha, \beta)$  cannot be an equilibrium by Proposition 2, and if  $\beta = \hat{\beta}(\alpha, x, y)$  but  $\alpha > \underline{\alpha}$ ,  $(\alpha, \beta)$  cannot be an equilibrium because good applicants would wish to change their action. Lastly, by Proposition 5,  $\beta^* = \beta(\underline{\alpha}, x, y) > \underline{\alpha}$ . This demonstrates (i). The demonstration of (ii) is similar.

Proposition 6 implies that when the quality of the two screening devices differ, there is a unique equilibrium distribution of students. In this equilibrium, all (income-maximizing) good students will select the better screening device. The proportion of bad students who select the better device will be smaller than the proportion of good students who select it. However, if the proportion of the moralists in the total population of good students is small, then almost all income maximizing bad students will select the better screening device. This is established in

*Proposition 7:* For any given  $x$  and  $y$

$$\lim_{\alpha \rightarrow 0} \hat{\beta}(\alpha, x, y) = 0,$$

and

$$\lim_{\alpha \rightarrow 1} \hat{\beta}(\alpha, x, y) = 1.$$

*Proof:* Equating  $v(R|B)$  with  $v(W|B)$  from Table 4 yields the following equation

$$\hat{\beta}(\alpha, x, y) = \frac{xy(1-\alpha) + x\alpha - y\alpha(1-\alpha)}{xy(1-\alpha) + x\alpha} \quad \text{for } 0 < \alpha < 1.$$

[Note:  $\hat{\beta}(\ )$  is not defined for  $\alpha=0$  or  $\alpha=1$ .] The proposition follows by taking limiting values of the expression for  $\hat{\beta}$ .

From Propositions 6 and 7 we may now conclude that given  $x > y$  and  $\underline{\alpha}$  close to zero, the unique equilibrium distribution of students is described by  $\beta^* \cong \alpha^* = \underline{\alpha}$ , and given  $x < y$  and  $\bar{\alpha}$  close to one,  $\beta^* \cong \alpha^* = \bar{\alpha}$ .

## 6. Concluding Remarks

Our preceding analysis suggests that it is socially desirable to allow students the unencumbered choice of waiving or retaining their right to inspect letters of recommendation. Under reasonable assumptions, the great bulk of both good and bad students will select that type of letter, open or confidential, which most accurately evaluates them. This is true despite the fact that bad students would all prefer that everyone be evaluated by the least accurate method. This conclusion lends support to the currently applied interpretation of the Family Education and Privacy Act of 1974, where waivers are permitted.

Thus, we find that the selfish actions of individuals in selecting the method by which they will be evaluated, approximates the choice that would be made by knowledgeable authorities acting in the social interest as we have defined it. In as much as the authorities may lack the requisite information for such a choice, individual selection may be preferable.

It is difficult to assess the implications of our findings on the general question of whether the alienation of rights should be permitted. The case of the Buckley Amendment has special features which do not necessarily carry over to other instances of the alienation of rights, (See Ordover (1978)). Nevertheless counterintuitive results of our analysis suggest that governmental restrictions on the alienability of rights should be imposed only after careful analysis of their probable effects.

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