DISCUSSION PAPER SERIES

No. 4113

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PUBLIC POLICY

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ISSN 0265-8003

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Discussion Paper No. 4113
November 2003

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CEPR Discussion Paper No. 4113

November 2003

ABSTRACT

A Note on Optimal Law Enforcement with Legal Aid

The economic literature on enforcement is generally pessimistic concerning the use of legal aid. In this Paper, we show that legal aid can be part of optimal law enforcement. The rationale behind our result is that with legal aid, in a system with legal or judicial error, both guilty and innocent individuals are better off because the marginal cost of defense expenditure is reduced. If, on average, legal aid helps the innocent more than the guilty a government seeking to maximize social welfare will want to use it in order to increase deterrence.

JEL Classification: K40
Keywords: legal aid, sanction and self-reporting

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Submitted 30 September 2003

1 Introduction

The economic literature on enforcement is generally pessimistic concerning the use of legal aid. There are fundamentally three arguments against legal aid as part of optimal law enforcement.

A first line of reasoning highlights the effect of legal aid on deterrence. By subsidising defence expenditure, the expected cost from committing an offence is reduced thus diluting deterrence (Gravelle and Garoupa 2002). At the same time, the incentives for self-reporting, before detection, and for plea-bargaining, after detection, are distorted thus increasing enforcement costs (Grossman and Katz 1983; Reinganum 1988; Kaplow and Shavell 1994a; Miceli 1996; Innes 1999, 2000, 2001; Adelstein and Miceli 2001).

Still in context of deterrence, there is a second line of reasoning against legal aid due to further distortions of the market for criminal defence. Legal aid not only dilutes deterrence, it also creates more inequality in terms of different expected sanctions for the same underlying crime. The argument is based on the observation that poorer individuals are under-deterred and wealthy individuals are over-deterred, thus legal aid would increase under-deterrence for the poor whereas limitations on defence expenditure would increase over-deterrence for the wealthy (Friedman 1981; Lott 1987, 1992; Garoupa and Gravelle 2003).

Finally, a more substantive and general argument against the use of legal aid relates to the debate over the use of the legal system to tackle redistribution and equity (Kaplow and Shavell 1994b, 2000; Sanchirico 2000). Legal aid is a subsidy to defence expenditure that could be replaced by a more efficient income subsidy.

In spite of the above theoretical arguments considerable public funds continue to be expended in many jurisdictions to provide publicly funded subsidies to legal expenses incurred by those on modest incomes. Whilst, for example, there has been a vigorous policy debate in the two main UK jurisdictions (Scotland and England & Wales) in recent years on legal aid expenditure this has been different in nature. It has concerned the rising cost of both civil and criminal legal aid expenditure but not the principle of public subsidy. Legislators have changed the nature of the contractual relationship between providers of legally aided services and its funders (Bowles 1996,

Stephen 2001) and even removed some types of civil cases from eligibility (Yarrow 2001). Whilst in England & Wales the focus has been very much on reducing civil legal aid expenditure, in Scotland it has focussed on criminal legal aid expenditure (Stephen 2001). Nowhere in this policy debate has there been any suggestion that there should be a removal of the public subsidy to those accused of criminal offences whose incomes are low.

This paper aims at filling the gap between the theoretical literature on enforcement and public policy perceptions. We show that legal aid can be part of optimal law enforcement. The rationale behind our result is that with legal aid, in a system with legal or judicial error, both guilty and innocent individuals are better off because the marginal cost of defence expenditure is reduced. However, if an individual is more willing to self-report or plead guilty when guilty than when innocent, legal aid may help the innocent more than the guilty. If the benefit generated by this effect is substantial, a government seeking to maximise social welfare will want to use legal aid.

Notice that we have not included any "fairness" argument which of course will reinforce the result in favour of more legal aid since subsidising defence expenditure lowers the expected sanction for the innocent (Miceli 1991). However "fairness" arguments are controversial in law and economics (Kaplow and Shavell 1999, 2001).

The paper most related to ours is Png (1986). In the context of torts, he shows that in the presence of judicial error, optimal damages may require a subsidy to be paid to all potential injurers in order to achieve efficient decisions on whether to comply or not with due care. The need of such subsidy comes from the chilling effect caused by the possibility that an injurer who has taken due care and meets an accident may be required to pay damages (i.e., he is wrongly punished).

The paper is structured as follows. In section two, we present the model and the main proposition. Final remarks and policy implications are addressed in section three.

2 Model

Within the Garoupa (1997) and Polinsky and Shavell (2000) set-up, we use a version of the model with legal error (Png 1986), plea-bargaining (Miceli 1996; Adelstein and Miceli 2001), and defence expenditure (Gravelle and Garoupa 2002). The model we present could be easily extended for self-reporting (Kaplow and Shavell 1994a) but to save on notation and simplify the analysis we focus on plea-bargaining.

Assume the following notation:

b: illegal gain;
h: social harm;
m: defence expenditure;
$p_1(m)$: probability of conviction if guilty;
$p_2(m)$: probability of conviction if innocent, $p_2 < p_1$ for a given m;
θm: defence cost function, where θ varies with the quality of the attorney (not observable by the government);
q_1: probability of detection if guilty;
q_2: probability of detection if innocent, $q_2 < q_1$.
f: sanction;
z: subsidy to defence (legal aid);
s: sanction in plea-bargaining.

The probabilities of conviction satisfy: $p_{1m} < 0$ and $p_{2m} < 0$, $p_{1mm} > 0$ and $p_{2mm} > 0$. The timing of the game and information sets are the following:

(1) Government announces legal aid policy z. The probabilities of detection, q_1 and q_2, and the menu of sanctions, f and s, are assumed to be given. We focus on optimal legal aid since the optimal enforcement effort and the optimal sanctions (f is maximal whereas s can be less-than-maximal) are similar to other papers, e.g., Kaplow and Shavell (1994a) and Garoupa (1997).

(2) Potential offenders decide whether or not to become criminals without accurate information concerning the quality of defence. They have a gain b and generate a social harm h.

(3) Criminals are detected with probability q_1 and prosecuted. Innocent individuals are apprehended with probability q_2 and prosecuted. Each prosecuted

individual hires an attorney with quality $\theta \in [0,1]$.

(4) Prosecuted individuals decide whether or not to plead guilty in return for a certain conviction s.

(5) Prosecuted individuals who rejected plea-bargaining decide defence expenditure m. Criminals are convicted with probability $p_1(m)$ and innocent prosecuted individuals are convicted with probability $p_2(m)$.

(6) Government pays legal aid z. The government can observe defence expenditure in order to pay legal aid (subsidy to defence). However we assume it is too costly for the government to make any inference concerning being guilty or not.

We must solve the model backwards for subgame perfection, starting with the optimal choice of defence expenditure. An individual will choose m to minimise $p_1(m)f+(1-z)\theta m$ if guilty and $p_2(m)f+(1-z)\theta m$ if not guilty. The optimal choices of defence expenditure (m_1, m_2) satisfy $p_{1m}f + (1-z)\theta = 0$ and $p_{2m}f + (1-z)\theta = 0$ respectively. Notice that, for the same θ, the guilty will spend more on defence than the innocent if $p_{1m} < p_{2m}$, that is, defence expenditure is more productive for the guilty. However, if defence expenditure is more productive for the innocent ($p_{1m} > p_{2m}$), the innocent will spend more on defence than the guilty.

Given the optimal choices of m, each individual compares the payoff of deciding to plead guilty with the risk of a conviction in court. Thus, we can define critical θs, say θ_1 and θ_2 such that above them, an individual will always prefer to plead guilty. The critical levels are defined implicitly by:

$$\begin{aligned} p_1(m_1(\theta_1, z, .))f + (1-z)\theta_1 m_1(\theta_1, z, .) &= s \\ p_2(m_2(\theta_2, z, .))f + (1-z)\theta_2 m_2(\theta_2, z, .) &= s \end{aligned} \tag{1}$$

Both critical levels increase with legal aid z, meaning that fewer people will plead guilty and more people will prefer to try their luck in the courtroom because the marginal cost of not engaging in plea-bargaining decreases. Notice however that θ_1 can be lower or higher than θ_2. If θ_1 is higher than θ_2, the guilty is less willing to plead guilty than the innocent. However, if θ_1 is lower than θ_2, the guilty are more willing to plead guilty than the innocent.

Intuitively we should expect the guilty to be more willing to plead guilty than the innocent (essentially due to the probability of conviction of the

guilty being higher than that of the innocent). In fact our results will depend crucially on this being true. Nevertheless, we should recognize that this not always true since, for example, if the guilty spend more on defence than the innocent, the probability of conviction of the guilty may actually be lower than that of the innocent, thus overturning the previous conclusion.

In order to illustrate these results, consider an example where $p_1(m) = 1/m$ and $p_2(m) = p_1(m)/2$. The optimal choices are given by $m_1 = \sqrt{f/((1-z)\theta)}$ and $m_2 = m_1/\sqrt{2}$, where for the same quality of legal service, the guilty spends more on defence than the innocent. The critical θs are $\theta_1 = s^2/(4(1-z)f)$ and $\theta_2 = 2\theta_1$. In this example, it is always true, once prosecuted, that a criminal is more willing to plead guilty than an innocent individual and an innocent individual is more willing to go to court than a criminal.

Suppose at the moment of deciding whether or not to commit a crime, an individual is not sure about θ (due to the fact that he does not know his defence attorney or the judge that will preside over the trial), but knows the distribution $G(\theta)$ with support $[0, 1]$. The expected payoff from committing an offence is:

$$b - \int_0^{\theta_1(z,.)} q_1(p_1(m_1(\theta, z, .))f + (1-z)\theta m_1(\theta, z, .))dG(\theta) - \int_{\theta_1(z,.)}^1 q_1 s dG(\theta) \quad (2)$$

And from not committing an offence is:

$$-\int_0^{\theta_2(z,.)} q_2(p_2(m_2(\theta, z, .))f + (1-z)\theta m_2(\theta, z, .))dG(\theta) - \int_{\theta_2(z,.)}^1 q_2 s dG(\theta) \quad (3)$$

Rearranging terms, we can show that an offence will be committed as long as b is higher than $\Phi(f, s, z, q_1, q_2)$, where:

$$\begin{aligned}\Phi &= \int_0^{\theta_1(z,.)} q_1(p_1(m_1(\theta, z, .))f + (1-z)\theta m_1(\theta, z, .))dG(\theta) + \int_{\theta_1(z,.)}^1 q_1 s dG(\theta) \\ &- \int_0^{\theta_2(z,.)} q_2(p_2(m_2(\theta, z, .))f + (1-z)\theta m_2(\theta, z, .))dG(\theta) - \int_{\theta_2(z,.)}^1 q_2 s dG(\theta)\end{aligned}$$

The effect of legal aid on deterrence is ambiguous. By making use of the envelope theorem and Leibniz's formula, the first derivative of $\Phi(.)$ with respect to z is:

$$\Phi_z = \int_0^{\theta_2(z,.)} q_2\theta m_2(\theta, z, .)dG(\theta) - \int_0^{\theta_1(z,.)} q_1\theta m_1(\theta, z, .)dG(\theta) \quad (4)$$

With legal aid, both when guilty or not guilty, an individual is better off because the marginal cost of defence expenditure is reduced. The ambiguity arises because it is not straightforward under which situation an individual is "more" better off if there is legal aid. We can say that legal aid has a positive effect on deterrence if, on average, it helps an innocent individual more than a guilty individual:

$$\int_0^{\theta_2(z,.)} q_2 \theta m_2(\theta, z, .) dG(\theta) > \int_0^{\theta_1(z,.)} q_1 \theta m_1(\theta, z, .) dG(\theta) \tag{5}$$

Consider the example we have introduced previously and let us assume that θ is uniformly distributed. Easy computation will show that the following condition is indeed satisfied as long as q_2 is not lower than $q_1/2$:

$$\int_0^{2\theta_1(z,.)} q_2 \sqrt{\theta f/(2(1-z)}) d\theta > \int_0^{\theta_1(z,.)} q_1 \sqrt{\theta f/(1-z)} d\theta$$

There are three effects to be considered and conveniently illustrated by the example. First, it is true that if prosecuted and not engaging in plea-bargaining, an individual is more subsidised if guilty than if innocent for the same θ, that is, $\theta m_2 < \theta m_1$ in (5). Second, if prosecuted, the criminal is more willing to plead guilty than the innocent, hence the likelihood of a criminal being actually subsidised is lower than that for the innocent ($\theta_2(z,.) > \theta_1(z,.)$ for all z in (5)). Finally, more criminals than innocent individuals will be prosecuted ($q_2 < q_1$). The sign of the relationship between legal aid and deterrence will depend on which effect dominates. In our example, the second effect always dominates the first as long as q_2 is not substantially lower than q_1. Legal aid promotes criminal deterrence if legal or judicial error is important. Notice that if there were no legal or judicial error, or if it occurs very infrequently, legal aid would always dilute deterrence.

Social welfare is as usual the sum of illegal gains minus social harm minus defence expenditure minus enforcement costs (Garoupa 1997, Polinsky and Shavell 2000):

$$\begin{aligned} W &= \int_\Phi^\infty (b-h) dR(b) - \int_0^\Phi \int_0^{\theta_2(z,.)} \theta m_2(\theta, z, .) dG(\theta) dR(b) \\ &- \int_\Phi^\infty \int_0^{\theta_1(z,.)} \theta m_1(\theta, z, .) dG(\theta) dR(b) - e(q_1, q_2) \end{aligned} \tag{6}$$

where $R(b)$ is the distribution of illegal gains across the population with support $[0, \infty)$ and $e(q_1, q_2)$ is the cost of enforcement and prosecution for the government.

We focus on optimal legal aid. The government will choose z that maximizes $W(z)$ given the other legal policy instruments. There are three aspects of legal aid (z) in terms of social welfare to be considered: (a) effect on deterrence (Φ); (b) effect on expected costs (defence expenditures m_1, m_2); (c) effect on plea-bargaining (the critical levels θ_1, θ_2). The optimal level of legal aid should satisfy the following first-order condition (assuming second-order condition is satisfied for convenience):

$$\begin{aligned} W_z &= [h - \Phi + \int_0^{\theta_1(z,.)} \theta m_1(\theta, z, .) dG(\theta) - \int_0^{\theta_2(z,.)} \theta m_2(\theta, z, .) dG(\theta)] r(\Phi) \Phi_z \\ &- \int_0^{\Phi} \int_0^{\theta_2(z,.)} \theta \frac{\partial m_2}{\partial z} dG(\theta) dR(b) - \int_{\Phi}^{\infty} \int_0^{\theta_1(z,.)} \theta \frac{\partial m_1}{\partial z} dG(\theta) dR(b) \\ &- \int_0^{\Phi} \theta_2 m_2(\theta_2) g(\theta_2) \frac{\partial \theta_2}{\partial z} dR(b) - \int_{\Phi}^{\infty} \theta_1 m_1(\theta_1) g(\theta_1) \frac{\partial \theta_1}{\partial z} dR(b) \leq 0 \end{aligned} \quad (7)$$

Legal aid increases defence expenditure which is a social waste (second line in (7)) and has a negative impact on plea-bargaining (last line in (7)), both effects reducing social welfare. As a consequence, legal aid will be part of optimal law enforcement only if it has a substantial positive effect on deterrence (first line in (7)) that more than compensates for the other two effects. Clearly, if there were no legal or judicial error, or if it occurs very infrequently, the optimal value of z would be zero (no legal aid).

3 Conclusion

In this paper we have shown that legal aid can be part of optimal law enforcement. As in previous literature, our model predicts that legal aid increases defence expenditure and makes plea-bargaining (or self-reporting) less likely. However these welfare diminishing effects could be more than offset by an increase in deterrence. If, on average, legal aid helps the innocent more than the guilty, the effect of legal aid on deterrence is positive and socially valuable.

Our model is consistent with the actual concern with the rising cost of legal aid expenditure. However, we point out a positive effect of legal aid on deterrence which should be the object of attention from policy-makers. If such an effect exists and is substantial justifying legal aid on the grounds of efficiency becomes an open empirical question.

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