# Dismissal vs. Fines as a Discipline Device: Comment on Shapiro-Stiglitz

by

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#### Introduction

In their recent article "Equilibrium Unemployment as a Worker Discipline Device," Carl Shapiro and Joseph Stiglitz (1984) have analyzed what happens in a labor maket if firms use dismissal as a sanction for workers detected shirking. Since dismissal must bite in order to serve as an effective threat, dismissal must cause a utility drop for the worker. Hence firms must offer wages above the opportunity wage level. In a cleared labor market, they have to offer wages above the prevailing wage rate, but if unemployment is sufficiently high, the utility drop caused by dismissal will suffice to render the threat of dismissal effective even without paying wages above the average, and the system settles down at such an equilibrium.

There is, however, the possibility of using a fine instead of dismissal as a discipline device (Shapiro/Stiglitz 1984:442; Yellen 1984:202).

The purpose of this note is to contrast dismissal and fines as discipline devices. I shall argue that the firm would prefer to choose a fine rather than dismissal in the Shapiro/Stiglitz setting (Sect. 2). This conclusion is, however, unwarranted since dismissal is widely used as a threat (often as a threat of the last resort) and fines seem to be rather uncommon. Hence I propose, in Sect. 3, that there are strong psychological reasons which suggest that fines undercut the workers' motivation, whereas the threat of dismissal does not. If the Shapiro/Stiglitz analysis is modified in order to take this into account, it becomes possible to indicate under which conditions dismissal rather than fines will be chosen. If these conditions are met, the Shapiro/Stiglitz analysis goes through. Since the analysis of Sect. 3 proceeds by replacing the fixed parameter e describing the disutility of effort in Shapiro/Stiglitz by an appropriate function capturing the effect of motivation, I shall introduce this change in Sect. 1.

#### 1. Disutility of Effort and Motivation

If e describes the effort of a worker, we usually conceive the disutility of effort, as measured in money equivalents, as an increasing function d(e) of effort. (By normalizing appropriately, Shapiro/Stiglitz actually use d(e) = e, but let us stick to the more explicit formulation.) The function  $d(\cdot)$  describing the disutility of effort is written down ceteris paribus: Its shape is determined by the preference of the worker for performing his task; it is determined by what psychologists call his <u>intrinsic motivation</u>. Hence we might view the function d(e) as being generated by fixing the intrinsic motivation m of the worker in the more comprehensive disutility function D(e,m), i.e., we use d(e) as a shorthand notation for "D(e,m), m fixed."

Intrinsic motivation is, however, often highly manipulable. It has been shown, for instance, that the development of intrinsic motivation over time is systematically influenced by the presence and shape of extrinsic rewards and penalities.<sup>1</sup> Hence the certeris paribus clause "intrinsic motivation is fixed" seems to be highly questionable. Motivation seems to be influenced by what it ought to explain in traditional analysis: It is influenced by incentives. Hence I propose to use D(e,m) rather than d(e) or e in the following.

#### 2. Dismissal vs. Fines with Fixed Intrinsic Motivation

In this section, I compare dismissal and fines in the Shapiro/Stiglitz model while keeping intrinsic motivation m fixed. The worker has the choice to shirk (e=0)or not to shirk (e=1). The lifetime utility  $V_N$  of a nonshirking worker is determined (as in Shapiro/Stiglitz Eq. (2)) by

(1) 
$$rV_N = w - D(1,m) + b(V_U - V_N)$$

where r denotes the rate of interest, w denotes the wage rate, b denotes the (exogeneous) quit rate and  $V_u$  denotes the expected lifetime utility of an unemployed worker.

If shirking is detected with probability q and is threatened with dismissal, the lifetime utility of a shirking worker is analogously given by

(2) 
$$rV_{SD} = w - D(0,m) + (b+q)(V_u - V_{SD})$$

where "D" Stands for the threat of dismissal.

If dismissal is used as a discipline device the firm has to assure  $V_N > V_{SD}$  in order to prevent shirking. This gives rise to the <u>no-shirking</u> condition under the threat of dismissal

(NSCD) 
$$w > w_{D} := rV_{u} + D(1,m) + \frac{r+b}{q} (D(1,m)-D(0,m))$$

If, however, a fine f is introduced, which is to be paid by the worker if he is detected shirking, the lifetime utility of a shirking worker is given by

(3)  $rV_{SF} = w - D(o,m) + b(V_u - V_{SF}) - q \cdot f$ 

In order to prevent the worker from shirking, the firm has to choose the fine such that  $V_N > V_{SF}$ , which gives rise to the <u>no-shirking condition</u> under the threat of a fine

#### (NSCF) f > (D(1,m)-D(0,m))/q

i.e., the expected value of the fine qf must compensate the gains from shirking (D(1,m)-D(0,m)). If a fine is chosen which satisfies the NSCF, this ensures that the workers are not shirking and the firm can behave as a utility taker, setting the wage as

(4) 
$$w_F = V_u + D(1,m)$$

is less than the wage  $w_D$  which must be paid if dismissal is used as a discipline device. Hence the firm will prefer fines.

Shapiro and Stiglitz (1984:442) have argued, however, that fines might be not feasible for two reasons: First, the necessary fines might be so high that workers can't afford them and second, the presence of fines might create an incentive for the firm to pretend a worker has shirked although he has not. But these reasons are not convincing: First, in the extreme case fines might be shaped strictly parallel to the utility drop created by dismissal by paying parts of the fine monthly until a successful draw from a lottery terminates the payment, where the lottery mimics the chances of getting a new job if unemployed. (This is both unnecessarily complicated and unrealistic but might serve to illustrate that equivalent fines always exist.) Second, fines might be transferred not to the firm but rather to some outside agency such as the Statue of Liberty Foundation in order that the firm cannot gain by imposing fines.

Hence the conclusion is that the introduction of another variable which controls shirking does eliminate in fact the shirking problem and wages can serve their market clearing function. This solution is dominant

the individual firm since it permits capturing the rents accruing to incumbent workers if dismissal were used as a discipline device, and it is socially better since it avoids unemployment.

### 3. Dismissal, Fines, and Intrinsic Motivation

Dismissal is, however, used as a threat quite often, and fining is rare. But the argument has neglected a possible impact of the fining threat on intrinsic motivation. If we take this into account, this might help us to understand why dismissal rather than fining is used as a threat in many cases.

Consider the impact of fines on the worker's intrinsic motivation, drawing on the psychological theory of attribution and motivation. The mere presence of the fine induces the worker to see himself as not shirking because of the fine. Hence he attributes his effort to the presence of the fine (extrinsic motivation) rather than to his liking of the job (intrinsic motivation). Extrinsic motivation, however, destroys intrinsic motivation, as has been demonstrated in various experiments.<sup>2</sup> The argument is, in fact, a simple application of the "overjustification paradigm" in psychology. Hence in the presence of a fine, intrinsic motivation m is gradually reduced to some low equilibrium motivation m<sub>F</sub>. This pushes the utility-taking wage level up to

(5)  $w_F = rV_u + D(1, m_F)$ 

Consider now the threat of dismissal. This is much better concerning motivation. The worker might still view himself as being motivated by the extrinsic threat of dismissal, but his argument runs as follows: "I do not shirk because I do not want to lose my job." But this implies that he prefers holding the job against losing it, whereas the argument "I do not shirk because I do not want to be fined" does not involve the question of holding the job or losing it. Hence if the worker avoids shirking under the threat of dismissal, he must attribute it to the

attractivity of the job, and this implies that the job actually <u>is</u> attractive. In order to avoid cognitive dissonance, he is bound to view it as such and to see also the duties associated with the job as attractive.<sup>3</sup> Hence the intrinsic motivation will settle down at an equilibrium level  $m_D$ which can be expected to be higher than  $m_F$ , and the resulting wage rate is given by the NSCD as

(6) 
$$w_D = rV_u + D(1,m_D) + \frac{r+b}{q} (D(1,m_D)-D(0,m_D))$$

 $w_D < w_F$ , the dismissal threat will be adopted. The condition is

(D) 
$$\frac{r+b}{q} (D(1,m_D)-D(0,m_D)) < D(1,m_F)-D(1,m_D)$$

Since  $D(1,m_D)-D(0,m_D)$  measures the utility gain from shirking with dismissal, it can be taken to be positive; the expression  $D(1,m_F)-D(1,m_D)$ gives the utility gain associated with replacing fines by dismissal for the non-shirking worker, and since  $\partial D/\partial m < 0$ ,  $m_D > m_F$ , this can be taken to be positive, too.

Hence it turns out that dismissal will be preferred if (r+b)/q is low: A low rate of time discount r, a low quit rate b and a high monitoring intensity q favor dismissal. Furthermore, if dismissal is much better concerning motivation than fining,  $D(1,m_F)-D(1,m_D)$  will be large,

this also favors dismissal. The same holds true if the disutility of effort under the threat of dismissal  $D(1,m_D)-D(0,m_D)$ , i.e., the advantage of hanging around rather than working, is not too big. If condition D is met, dismissal rather than fining will be used as a discipline device, and the argument of Shapiro/Stiglitz goes through.

#### Notes

1. A survey of the theory of motivation is given in Arkes/Garske (1982). For the purpose of the argument of Sect. 3, Chap. 11 of this book is of particular relevance. Amabile (1983) gives an excellent state-ofthe-art account of the theories and experiments relevant here. (The book focusses, however, mainly on creativity.)

2. See note 1.

3. For cognitive dissonance arguments in various economic contexts, see Akerlof/Dickens (1982) and Schlicht (1984) for surveys.

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