Workfare versus Welfare: Incentive Arguments for Work Requirements in Poverty-Alleviation Programs

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Many would agree with Samuel Johnson that "a decent provision for the poor is a true test of civilization." Yet still there is much debate about what form poverty relief should take. Particularly controversial is the claim that recipients of relief should be required to work in exchange for benefits.

The use of work requirements in poverty-alleviation programs is of widespread significance. Perhaps the most notorious historical example is the English system, instituted by the Poor Law of 1834, in which poor relief was granted through residence in a workhouse. Workfare was also common in ancien régime France, where relief was granted in "charity workshops." But workfare schemes are by no means just relics from the past. They remain popular in both developed and less developed countries today. In the United States, for example, a number of states now demand that welfare claimants enroll in either a training or work program in order to receive benefits.[1] Similarly, current practice in India relies heavily on public-works projects as a tool for providing poor relief.[2]

There are many arguments made in favor of work requirements in poverty-alleviation programs. One consistent theme, however, is that work requirements serve to provide the "appropriate incentives" for recipients of poor relief. Thus, this paper provides a detailed exploration of the incentive case for workfare. We analyze two distinct incentive arguments: a *screening* argument that work requirements may serve as a means of targeting transfers and a *deterrent* argument that they may serve as a device to encourage poverty-reducing investments. Familiar notions from the economics of incentives[3] are shown to provide insights into modern-day social policy and historical debates.

The screening argument is motivated by a desire to direct poor support toward the truly needy. In developing economies, it is typically too costly for the government to set up a sophisticated administrative machinery to determine whether a particular individual is in need of poor support. Even information about individuals' incomes is unlikely to be available in this way. In such situations, it may be better to make the relief system *self-targeting* by laying down conditions for claiming support such that only the truly needy present themselves. A work requirement is one such test. As Jean P. Dreze (1990) makes clear, this logic lay behind British administrators' reliance on public works to relieve famines in colonial India. Moreover, as confirmed by Michael B. Katz (1986), it was also a common theme in early arguments for work requirements in the United States.

There may even be a screening role for work requirements in developed countries, where the administrative infrastructure makes it easier to assess the circumstances

[1]For some recent discussion of such programs see Judith M. Gueron (1990).

[2]See, for example, Martin Ravallion (1991), which considers the screening potential of the Maharastra Employment Guarantee scheme in India.

[3]See, for example, Jean-Jacques Laffont (1990) for an overview of the main ideas on which our analysis draws.

of individuals on a case-by-case basis. While, in contrast to LDC's, it may be possible for the government to attain a reliable estimate of an individual's earnings, it is not always possible to observe his earning *opportunities*. Thus, the government may not be able to tell whether an individual has deliberately chosen not to work or, more generally, reduced his work hours in order to qualify for benefits. We shall investigate the screening arguments for work requirements in both the developing- and developed-country context, pointing out the differences between them.

The deterrent argument for work requirements focuses on the origins of poverty. Are individuals poor just because they have experienced bad luck or because of choices made earlier in life? If the latter is true, then public assistance may lead individuals to make choices that increase the likelihood that they will have to draw on such support in future. This old idea has emerged again in recent discussions of U.S. social policy. Conservatives have argued that increased expenditure on social programs since the 1950's has created a greater dependency on state support. More specifically, it has been suggested that welfare programs have reduced individuals' incentives to acquire the human capital necessary to avoid poverty and may even have led to irresponsible parenting decisions.[4]

To avoid this problem, it is argued, poor relief must be made relatively less attractive. One way of doing this is to impose a work requirement. This logic clearly underpinned the 1834 Poor Law Commissioners' proposal to place the poor in workhouses. The idea was that the "condition of the able-bodied pauper be 'less-eligible'—desirable, agreeable, favorable—than that of the 'lowest class' of independent labourer" (Gertrude Himmelfarb, 1984 p. 163). The Poor Law regarded this as essential: "It is only ... by making relief in all cases less agreeable than wages, that anything deserv-

ing the name of improvement can be hoped for" (Himmelfarb, 1984 p. 165). The same argument can be found in both historical and contemporary discussions of U.S. welfare policy.[5]

The purpose of our analysis is to explore these two arguments for work requirements in greater detail. We use a simple model to illustrate their logic and to bring out the assumptions on which they depend. Along the way, we are also able to draw some conclusions about the optimal design of workfare programs under various conditions.

The idea that work requirements can serve a screening role has been noted previously. Albert L. Nichols and Richard J. Zeckhauser (1982), for example, mention that the imposition of "ordeals" on welfare claimants may improve targeting. George A. Akerlof (1978) also points to the value of manpower-training programs in targeting benefits more accurately. However, neither of these papers provides any detailed analysis of the screening argument for workfare. We characterize the optimal workfare program for screening purposes and give a sufficient condition for this to be less costly than welfare. A further difference is that we concentrate on poverty alleviation rather than welfare maximization as an objective. In light of the focus of the policy debate in this area, this seems entirely reasonable. We do, however, discuss the difference between these two approaches below. As far as we know, the deterrent argument for workfare has not been explored previously.

The structure of the paper is as follows. The next section presents the basic model which provides the framework for our discussion. Section II provides a benchmark by describing the optimal poverty-alleviation program when individuals' earning abilities are both observable to the policymaker and beyond individuals' control. Sections III and IV analyze the screening and deterrent arguments for workfare. Section V discusses

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[4]See, for example, the controversial work of Charles Murray (1984). David Ellwood (1988) and Ellwood and Lawrence Summers (1986) provide dissenting voices on this issue.

[5]See Katz (1986) for the historical discussion and Mickey Kaus (1986) for a more recent argument along these lines.

extensions, and conclusions are presented in Section VI.

I. The Model

In our analysis, we follow John Stuart Mill's characterization of the poverty-alleviation problem as "how to give the greatest amount of needful help, with the smallest encouragement to undue reliance on it" (Mill, 1848 p. 334). We capture this by supposing that the government is concerned to ensure that each individual gets a minimum income level, denoted by z, at minimum fiscal cost.[6] Thus, it wishes to assist only those who would earn less than z without intervention, while preserving incentives for individuals to make choices that will put them in a position to earn more than z.

We consider a population consisting of n individuals, divided into two types according to their *income-generating ability*, $a \in \{a_L, a_H\}$, where $a_L < a_H$ and where H stands for high and L stands for low. A fraction γ has ability a_L. In what follows, we shall take a_L and a_H to be individuals' wage rates.[7] Each individual has identical quasi-linear preferences defined over income y and work l. Thus, utility is given by $y - h(l)$ where $h(\cdot)$ is increasing and strictly convex.[8]

Throughout the analysis, we shall set aside the revenue-raising implications of the budget required to finance government transfers, in order to focus directly on poverty-alleviation issues. We have in mind, therefore, a world in which the individuals considered here form a target population, expenditures on whom are financed by taxation of the remainder of the population or by aid flows.

A *poverty-alleviation program* (PAP) is a pair of benefit packages $\{b_i, c_i\}_{i=L,H}$ where

b_i denotes a cash transfer for individuals of ability type i and c_i denotes a cost in terms of a public-sector work requirement needed to obtain this transfer. In order to focus exclusively on incentive arguments for workfare, we will assume that the work done in the public sector is unproductive.[9] Thus, the cost of the program to the government is just $n[\gamma b_L + (1-\gamma)b_H]$. The government's objective will be to minimize this cost subject to the constraint that each individual obtains an income of at least z.

Individuals of ability a_i must choose whether or not to claim the benefit package $\{b_i, c_i\}$ that is intended for them. Even if they do so, they may continue to supply some labor to the private labor market. Let $l(b, c, a_i)$ denote the private-sector labor supply of an individual with wage rate a_i who accepts a package $\{b, c\}$. It is easy to show that

$$(1) \quad l(b,c,a_i)$$
$$= \begin{cases} \hat{l}(a_i) - c & \text{if } c \le \hat{l}(a_i) \\ 0 & \text{otherwise} \end{cases}$$

where $\hat{l}(a_i)$ is the amount of labor that would be supplied to the private sector in the absence of any program [i.e., $h'(\hat{l}(a_i)) = a_i$]. Thus, a work requirement smaller than $\hat{l}(a_i)$ would cause an equal reduction in private-sector labor supply, while a work requirement in excess of $\hat{l}(a_i)$ would cause the individual to cease private-sector work altogether. Note from (1) that labor supply is independent of b (i.e., there is no income effect). This inessential, but analytically convenient, simplification allows us to write the individual's private-sector labor supply as $l(c, a_i)$.

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[6]A similar approach is taken in Ronald Dye and Richard Antle's (1986) analysis of in-kind transfers, although they specify their objective in utility terms.

[7]Here, we do not consider the possibility that wages change because of the supply effects of workfare programs. This is studied in an LDC context by Ravallion (1990).

[8]This simplifies the analysis without substantially altering the character of the results.

[9]Workfare programs have both costs and benefits. The former include costs of equipping and supervising workers, while the latter include direct provision of services and benefits to claimants in the form of enhanced productivity. For further discussion, see Gueron (1990).

Given this labor supply, the individual's total private-sector earnings will be

$$(2) \quad y(c, a_i)$$

$$\equiv \begin{cases} a_i\left(\hat{l}(a_i) - c\right) & \text{if } c \leq \hat{l}(a_i) \\ 0 & \text{otherwise} \end{cases}$$

and he will enjoy a utility level

$$(3) \quad v(b, c, a_i) \equiv b + y(c, a_i)$$

$$- h\big(l(c, a_i) + c\big).$$

The individual will voluntarily take up the package $\{b_i, c_i\}$ intended for him if and only if he is better off so doing, that is, if and only if $v(b_i, c_i, a_i) \geq v(0, 0, a_i)$.[10]

To make the problem interesting, we shall assume that only one group in the target population (type L) is poor without government intervention. Hence, we assume that

$$(4) \quad y(0, a_H) > z > y(0, a_L).$$

We next examine the optimal PAP for a benchmark case.

II. Poverty Alleviation with Observable and Exogenous Abilities

To establish a benchmark case for the subsequent analysis, we consider the optimal PAP when individuals' earning abilities are observable to the policymaker and beyond individuals' control. In this case, it is straightforward to ensure that each individual receives the benefit package designed for him. However, the policymaker does not have complete freedom in his choice of a PAP. As policymakers in 19th century Britain and India found to their cost, if the PAP is made too arduous, then even the very poorest may choose not to participate. Thus, the PAP must offer individuals at least their no-intervention utility levels: participation must be voluntary.[11]

The policymaker's problem is therefore to choose a PAP that minimizes the costs of poor relief and satisfies two constraints. First, individuals must be willing to participate in the program: $v(b_i, c_i, a_i) \geq v(0, 0, a_i)$ for $i = L, H$. Second, those with wage rate a_L must escape poverty: $b_L + y(c_L, a_L) \geq z$. We can ignore the constraint that high-wage individuals get at least z, since voluntary participation implies that they get an income at least as great as they would have had without intervention.

The solution to this problem is straightforward. High-ability individuals should be given no government transfer, since they are already earning more than the poverty line. Low-ability individuals should be given a transfer equal to the difference between the poverty line and their private-sector earnings [which is $z - y(0, a_L)$], but should not be required to work for this transfer. As (2) makes clear, imposing a work requirement would only reduce their private-sector earnings and increase the gap between their income and the poverty line. This would increase the transfer necessary to get them out of poverty and increase the cost of the program. This argument is summarized in the following proposition.

PROPOSITION 1: *If income-generating abilities are observable and beyond individuals' control, the cost-minimizing PAP is a welfare program (i.e., imposes no work requirements). Low-ability individuals are offered a cash transfer that is just high enough to get them out of poverty, $z - y(0, a_L)$, and high-ability individuals are offered no benefits.*

In the sequel, we will refer to the PAP described in Proposition 1 as the *benchmark PAP*.

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[10] We are assuming here that individuals are only able to choose the package intended for their own ability type. This is dealt with in more detail in Section III of the paper.

[11] Even in economies in which policymakers are able to coerce individuals into paying taxes, it is hard to force them into accepting income transfers if they do not wish to. Hence, the requirement of voluntary participation seems reasonable in most contexts.

III. The Screening Argument

Suppose now that, while the government knows the distribution of abilities in the population, it is unable to observe each individual's income-generating ability. Thus, it knows that a fraction γ of the target population can earn a wage of a_L and that a fraction $1 - \gamma$ can earn a wage of a_H, but it cannot tell whether any specific individual is of high or low ability. It is clear that the benchmark PAP might no longer be implementable. High-ability individuals may find it worthwhile to claim to the policymaker that they are of low ability in order to obtain the transfer of $z - y(0, a_L)$.

For the PAP to be implementable, the policymaker must also respect the requirement of *incentive compatibility*, which is that high-ability (low-ability) individuals prefer their own benefit package to masquerading as low-ability (high-ability) individuals and receiving the other's benefit package.[12] The precise form of these constraints will depend on the government's information. We consider two polar cases. The first, which is most relevant for developing countries, is that in which individuals' private-sector earnings cannot be observed by the policymaker. In this case, it is possible for the nonpoor to claim the benefits intended for the poor yet continue to work as much as they would like in the private sector. The second arises when the government can observe individuals' earnings. In this situation, a high-ability individual who masquerades as poor must also reduce his private-sector earnings in order to pass as being poor. This case is perhaps more relevant for developed countries, where the problem is often seen as one of individuals opting not to work or, more generally, reducing their work hours in order to collect welfare.[13]
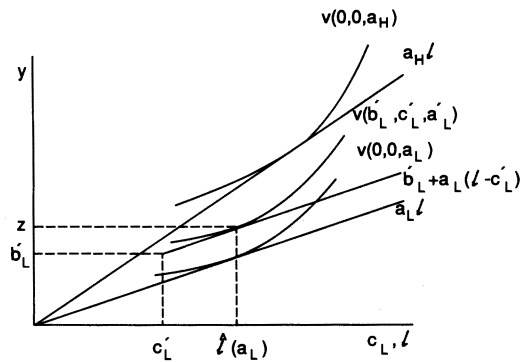
FIGURE 1. THE PACKAGE (b_L', c_L') SEPARATES
THE TWO TYPES OF INDIVIDUALS

A. Unobservable Private-Sector Earnings

We begin with the case in which private-sector earnings are unobservable. Since individuals can masquerade and continue to work as much as they like in the private sector, the incentive-compatibility constraints are $v(b_L, c_L, a_L) \geq v(b_H, c_H, a_L)$ and $v(b_H, c_H, a_H) \geq v(b_L, c_L, a_H)$. The policy problem is now to choose a PAP to minimize costs subject to voluntary participation, poverty alleviation, and incentive compatibility.

If the policymaker had no recourse to work requirements, the incentive constraints would necessarily imply that $b_L = b_H$, so that the PAP could not discriminate between types. By imposing a work requirement on those who claim to be of low ability, however, the policymaker may achieve self-selection. This is because high-ability individuals have a higher opportunity cost of supplying hours of their time than do low-ability individuals. Figure 1 illustrates the basic idea. In the absence of benefits, low-ability individuals face a budget line $a_L l$ and choose to work $\hat{l}(a_L)$ hours.

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without reporting their earnings. Indeed, recent work by Christopher Jencks and Kathryn Edin (1990) suggests that a sizable fraction of Aid to Families with Dependent Children (AFDC) claimants fall into this category.

High-ability individuals face a more favor-able trade-off between income and leisure represented by the budget line $a_H l$. Sup-pose now that individuals who claim to be of low ability are offered the package (b'_L, c'_L). If a low-ability individual took up this package, he would face a budget line with slope a_L emanating from the point (b'_L, c'_L). As illustrated, he would work $\hat{l}(a_L) - c'_L$ in the private sector and enjoy a posttransfer income of z. By contrast, if a high-ability individual were to take up this package, he would face a budget line with slope a_H emanating from (b'_L, c'_L). This is everywhere below his status quo budget line, and thus he has no incentive to mas-querade. Thus, the PAP described by $\{(b'_L, c'_L), (0, 0)\}$ is incentive-compatible, de-spite offering different transfers to the two ability types.

There is a cost to using work require-ments to achieve self-selection, since the poor will be working less in the private sector as a consequence of the work re-quirement and therefore will require a higher transfer to get them to the poverty line. Thus, the key trade-off is between the cost savings due to lower transfers to the nonpoor and the cost increases resulting from higher transfers to the poor. To de-scribe how this trade-off is optimally re-solved, we need the concept of a *separating work requirement*, denoted by c_L^s. This is the work requirement that, if coupled with a benefit sufficient to get the poor to the poverty line, makes high-ability individuals indifferent between claiming to be of low ability and receiving no benefit at all. For-mally, it is defined by

$$v(0, 0, a_H) = v(z - y(c_L^s, a_L), c_L^s, a_H).$$

The reader may easily verify that c_L^s exists, is unique, and is greater than zero.

PROPOSITION 2: *If both income-gener-ating abilities and incomes are unobservable, one of the following two PAP's is cost-mini-mizing: (i) (welfare) impose no work require-ments and offer both ability groups a transfer of $z - y(0, a_L)$; (ii) (workfare) offer self-cate-gorized high-ability individuals no benefits and*

offer self-categorized low-ability individuals a transfer of $z - y(c_L^s, a_L)$ in exchange for a work requirement of c_L^s. A sufficient con-dition for the workfare solution to be cost-minimizing is that $a_L < (1 - \gamma)a_H$.

Thus, we can restrict attention to one of two possible solutions.[14] The first pools the two ability groups and involves no workfare. All individuals are given a transfer sufficient to get the poor to the poverty line, namely $z - y(0, a_L)$. The second separates the two groups. Those claiming to be of low ability are offered a transfer $z - y(c_L^s, a_L)$ in ex-change for a work requirement of c_L^s. High-ability individuals are offered no bene-fits but have no incentive to masquerade by definition of the separating work require-ment. The choice between these two solu-tions trades off the savings from giving no transfers to the nonpoor against the cost of reducing the poor's private-sector earnings. This boils down to a comparison between relative wage rates and the fraction of the population who are of low ability. Workfare is more likely to be the optimal solution if the truly poor represent a small fraction of the target population and if their earnings potential is small relative to that of the nonpoor. Both of these conditions mean that the loss in the poor's private-sector earnings caused by implementing the work-fare program will be small.

The two PAP's described in Proposition 2 are depicted in Figure 2. The transfer $z - y(0, a_L)$ is that which is just sufficient to get the poor to the poverty line in the absence of work requirements. For the case illus-trated, we find c_L^s from the intersection of the low-ability budget line starting at $z - y(0, a_L)$ and the status quo high-ability bud-get line.[15] It is clear that this work require-ment, when coupled with a transfer $z -$

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[14]Formal proofs of this and the remaining proposi-tions can be found in our discussion paper (Besley and Coate, 1991a).

[15]Figure 2 depicts a case in which c_L^s is to the left of $\hat{l}(a_L)$. This need not be true. However, the reader should find it straightforward to illustrate the workfare solution and verify the sufficient condition for the other case using a similar approach to that used here.
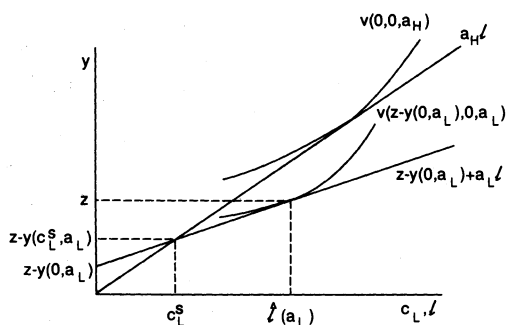
FIGURE 2. ILLUSTRATION OF THE SOLUTION
DESCRIBED IN PROPOSITION 2

$y(c_L^s, a_L)$, makes high-ability individuals in-
different between masquerading as low-abil-
ity types and receiving no benefits. If a
high-ability individual were to masquerade,
his budget line would emanate from $(z - y(c_L^s, a_L), c_L^s)$, and he would end up on the
same indifference curve as in the absence of
any transfer. The figure can also be used to
verify that the cost comparison hinges on
the condition stated in Proposition 2. Sim-
ple geometry reveals that $z - y(c_L^s, a_L) = a_H c_L^s$ and that $z - y(0, a_L) = (a_H - a_L)c_L^s$.
Thus, the workfare solution will be cheaper
if $\gamma a_H c_L^s < (a_H - a_L)c_L^s$ or, equivalently, if
$a_L < (1 - \gamma)a_H$.

B. Observable Private-Sector Earnings

Suppose now that the policymaker can
observe individuals' earnings. In contrast to
the case that we have just discussed, it may
now be possible to implement the bench-
mark PAP. This is because a high-ability
individual who claims to be poor must have
earnings of $y(c_L, a_L)$, which requires labor
supply of $y(c_L, a_L)/a_H$. This suboptimal
labor-supply choice reduces the value of
masquerading. The benchmark PAP is im-
plementable if and only if $v(0, 0, a_H) \geq z - h(y(0, a_L)/a_H)$ [i.e., a high-ability individ-
ual prefers claiming no benefit to reducing
his labor supply to $y(0, a_L)/a_H$ and con-
suming z].
The problem of implementability will re-
main, however, when this condition is not
satisfied. The relevant incentive-compatibil-

ity constraint now takes the following form:[16]

$$v(b_H, c_H, a_H) \geq b_L + y(c_L, a_L)$$

$$- h(y(c_L, a_L)/a_H + c_L).$$

The solution to the government's problem
has the same basic structure as in the previ-
ous case. We can again define a separating
work requirement (denoted in this case by
$\hat{c}_L^s$), which is now given by the equation
$v(0, 0, a_H) = z - h(\hat{c}_L^s + y(\hat{c}_L^s, a_L)/a_H)$. It
exists, is unique, and is positive provided
that $v(0, 0, a_H) < z - h(y(0, a_L)/a_H)$. Since
the gains from masquerading are smaller
when earnings are observable, $\hat{c}_L^s$ will be
smaller than the separating work require-
ment of the previous case. Then, we state
the following proposition.

PROPOSITION 3: *If income-generating
abilities are unobservable, individuals' in-
comes are observable, and the benchmark
PAP is not implementable, one of the follow-
ing two programs is cost-minimizing: (i)
(welfare) impose no work requirements and
offer self-categorized high-ability individuals a
transfer of $z - h(y(0, a_L)/a_H) - v(0, 0, a_H)$
and offer self-categorized low-ability individu-
als a transfer of $z - y(0, a_L)$; (ii) (workfare)
offer self-categorized high-ability individuals
no benefits and offer self-categorized low-abil-
ity individuals a transfer of $z - y(\hat{c}_L^s, a_L)$ in
exchange for a work requirement of $\hat{c}_L^s$. A
sufficient condition for the workfare solu-
tion to be cost-minimizing is that $\gamma a_L < (1 - \gamma)h'(y(0, a_L)/a_H)(1 - a_L/a_H)$.*

Notice that, in contrast to the previous
case, the welfare solution does not involve
paying out the same benefit to both ability
groups. Since the government can observe
individuals' incomes, it can offer what
amounts to a benefit schedule. Those with
incomes $y(0, a_L)$ are offered a transfer $z - y(0, a_L)$, while those with incomes $y(0, a_H)$

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[16]There will also be an analogous incentive compati-
bility constraint for low-ability individuals, but this is
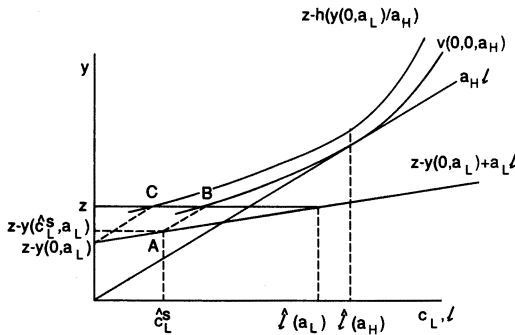effectively redundant.

FIGURE 3. ILLUSTRATION OF THE SOLUTION
DESCRIBED IN PROPOSITION 3

receive a (smaller) transfer, equal to $z - h(y(0, a_L)/a_H) - v(0, 0, a_H)$.

Recall that the term $h'(y(0, a_L)/a_H)$ represents the marginal disutility of labor at the level supplied by a nonpoor individual who is claiming to be poor. Since this is lower than they would like to supply at their wage rate, $h'(y(0, a_L)/a_H)$ is less than a_H. The sufficient condition for workfare when earnings are observable is thus more stringent than the requirement that $a_L < (1 - \gamma)a_H$ in Proposition 2. Indeed, it can be shown that whenever workfare is optimal in the case of earnings being observable, it is also optimal when they are unobservable.[17] Thus, the demand for work requirements will be less acute when it is possible to combat the incentive to masquerade by monitoring individuals' incomes.

The two PAP's described in Proposition 3 are illustrated in Figure 3. We can determine $\hat{c}_L^s$ by referring to the dashed line AB. If a "masquerading" high-ability individual were to take up the package $(z - y(\hat{c}_L^s, a_L), \hat{c}_L^s)$, he would have to end up with total income equal to z in order to be consistent with his claiming to be of type L. Thus, he must consume at point B in the figure. However, at B, a high-ability individual is on the same indifference curve as he would be in the status quo. Thus, he is

indifferent between masquerading and receiving no benefits. A similar procedure allows us to illustrate the transfer given to high-ability individuals in the welfare solution. If a high-ability individual takes the low-ability cash transfer $z - y(0, a_L)$ he must consume at point C on indifference curve $z - h(y(0, a_L)/a_H)$. The transfer given to high-ability individuals in Proposition 3 is just sufficient to deter them from masquerading [i.e., is equal to the vertical distance between the indifference curves $z - h(y(0, a_L)/a_H)$ and $v(0, 0, a_H)$ at $\hat{l}(a_H)$].

This completes our main discussion of the screening argument for work requirements, although we shall discuss the robustness of the results to changes in the assumptions in Section V.

IV. The Deterrent Argument

In this section, we revert to the case of observable abilities. However, to capture the idea that poverty depends not only on luck but also on choices made earlier in life, we allow each individual to make an *ex ante* choice which influences his future earning ability. Specifically, we suppose that the probability that an individual is of high ability is given by $\pi(e)$, where e denotes effort. The function $\pi(\cdot)$ is assumed to be increasing and strictly concave, so that higher levels of effort increase the probability of being high-ability, but at a diminishing rate. Effort is measured in units of (dis)utility.[18]

Individuals are assumed to know the structure of the government's poor-support program when they make their effort choices. Thus, given the existence of a PAP of the kind discussed above,[19] individuals

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[17]The interested reader is referred to our discussion paper (Besley and Coate, 1991a).

[18]To make this setup more concrete, the reader might imagine that an individual's earning ability depends on graduating from high school and that the likelihood of this depends not only on "luck" in the form of genetic endowment and quality of teachers, but also on how hard an individual works. Alternatively, in the AFDC context, one might imagine that a young woman's income-generating ability depends on whether or not she has a child. The likelihood of this event depends not only on luck, but also on preventive effort.

[19]We are implicitly assuming that individuals' efforts are unobservable to the policymaker. If this were not

will choose their effort level, e, to maximize

(5) $\pi(e)v(b_H, c_H, a_H)$

$$+ [1 - \pi(e)]v(b_L, c_L, a_L) - e.$$

Given our assumptions, there exists a unique effort level, e^*, which solves this problem. This will be an increasing function of the *ex post* difference between the utility levels of high- and low-ability individuals. Thus, $e^* = e^*(\chi(\cdot))$, where

(6) $\chi(b_L, c_L, b_H, c_H)$

$$\equiv v(b_H, c_H, a_H) - v(b_L, c_L, a_L).$$

The function $\chi(\cdot)$ represents the *ex post* utility difference between being a high-ability individual and being a low-ability individual.

The (expected) cost of a PAP is now given by $n\{[1 - \pi(e^*(\chi))]b_L + \pi(e^*(\chi))b_H\}$, and the policy problem is to minimize this, subject to the constraints of voluntary participation and poverty alleviation. The main difference between this and the case examined in Section II is in the endogeneity of the expected number of poor. The benchmark PAP is now problematic because it reduces the *ex post* utility difference between high- and low-ability types and thereby reduces the returns to effort. Individuals will thus choose a lower level of effort, and the number of poor will increase. Thus, poor relief may, in the words of Mill, create an "undue reliance" on state support.

Before we can state the solution to the policy problem in this instance, we need to define the *maximal work requirement*, denoted c_L^m. This is the work requirement which, if coupled with a transfer sufficient to get the poor to the poverty line, would make them just indifferent between the status quo and participating in the program. It is defined by the equation

$$v(z - y(c_L^m, a_L), c_L^m, a_L) = v(0, 0, a_L).$$

Again, it can be verified that c_L^m exists and is unique. Note also that c_L^m must exceed $\hat{l}(a_L)$, since in the status quo, low-ability individuals earn less than z. Thus, at the maximal work requirement, low-ability individuals do no work in the private sector, and hence, $y(c_L^m, a_L) = 0$. We now state our final proposition.

PROPOSITION 4: *If income-generating abilities are observable but depend partly on choices made earlier in life, the cost-minimizing PAP either imposes no work requirements and offers low-ability individuals a transfer of* $z - y(0, a_L)$, *or imposes the maximal work requirement* c_L^m *on low-ability individuals and offers them a transfer of* z.

The logic behind this proposition is straightforward. The benchmark PAP decreases the *ex post* utility difference between high-ability and low-ability individuals from $v(0, 0, a_H) - v(0, 0, a_L)$ to $v(0, 0, a_H) - v(z - y(0, a_L), 0, a_L)$. This reduces the returns to effort, increases the number of poor, and raises the cost of poverty alleviation. This problem can be mitigated by reducing the poor's gain from the PAP, and introducing a work requirement may be able to do this.[20] However, if the work requirement is chosen to lie between 0 and $\hat{l}(a_L)$, for example at c_L' in Figure 4, it will have no such effect. This is because, to meet the poverty-alleviation objective, it must be coupled with a transfer of b_L'. But this policy will not alter the *ex post* utility level of poor individuals. They will continue to receive an income of z and do $\hat{l}(a_L)$ units of work. The only difference is that c_L' units of their work is now done in the public sector. Thus, imposing a small work requirement will not reduce the poor's

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the case, then the government should offer effort-contingent transfers.

[20] It may also be mitigated by increasing the payoff to becoming high-ability. This may be achieved by offering transfers to high-ability individuals. Note that Proposition 4 tells us nothing directly about the role of this instrument. All we have been able to establish is that, if there is a benefit offered to high-ability individuals, then it will be higher in the welfare than in the workfare solution.
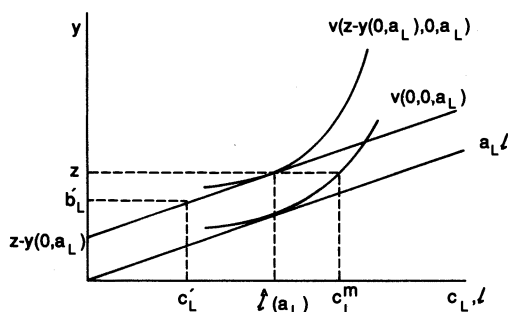
FIGURE 4. ILLUSTRATION OF THE MAXIMAL
WORK REQUIREMENT, c_L^m

gain from the PAP. At the same time, however, the government must increase the transfer given to low-ability individuals, since their private-sector earnings will have fallen. Hence, the costs of poverty alleviation are increasing in c_L in this range.

With work requirements in excess of $\hat{l}(a_L)$, low-ability individuals do no work at all in the private sector and receive a transfer of z. Further increases in the work requirement thus necessitate no further increases in the transfer. Moreover, since individuals no longer respond by reducing their private-sector labor supply, raising the work requirement does reduce their utility. Thus, the poor's gain from the PAP is decreasing in c_L for values of the latter above $\hat{l}(a_L)$. The expected number of poor is therefore falling and so are the costs of poverty alleviation. There is, however, a limit to the size of the work requirement that can be imposed, given by the maximal work requirement c_L^m, which is also illustrated in Figure 4. Clearly, if the work requirement were set above this level, the poor would be better off not participating in the program.

Since costs are increasing in c_L below $\hat{l}(a_L)$ and decreasing thereafter, we obtain the result reported in Proposition 4. This seems consonant with the logic of the English Poor Law. By all accounts, those who ended up in the workhouse worked much harder than in a laissez faire equilibrium. On the other hand, many have argued that c_L actually exceeded c_L^m for many of the poor and the objective of poverty alleviation was not met.

The choice between the two solutions trades off the incentive benefits against the loss in the poor's private-sector earnings. The workfare solution will be preferable when, in the absence of intervention, the fraction of low-ability individuals in the population is small and when the low-ability individuals' wage is low. Both of these conditions imply that the loss in private-sector earnings from implementing workfare would be smaller.

V. Extensions

In the previous two sections, we have shown that work requirements can play both a screening and a deterrent role in poverty-alleviation programs. Our arguments were, however, developed under very specific assumptions. The purpose of this section is to assess how robust they are to different environments.

Our analysis took a "nonwelfarist" definition of poverty. To be poor in the sense of our model is to have insufficient *income* rather than too little *utility*. This is consonant, we believe, with the way in which most governments view poverty. Whatever its theoretical merits, they do not, for the most part, attempt to measure the value of leisure when deciding who is poor. Nonetheless, it is interesting to consider how our arguments would be changed if the policy objective were to provide a minimum level of utility.

Although the details of the argument are changed slightly, the screening argument goes through largely unscathed. While with the income-based view of poverty the trade-off is between the screening gains from work requirements and a higher gap between poor individuals' private-sector earnings and the poverty line, in the welfarist case it is between the screening gains and a higher gap between poor individuals' actual utility and the minimum level. The deterrent argument does not, however, make sense under a welfarist objective. If the government cared about utility, then work requirements would be self-defeating; they would necessitate a compensating increase in income to preserve individuals' utility levels.

Our model also assumed that the cause of poverty lay in a low income-generating ability. This must be contrasted with the case in which poor individuals simply have a high disutility of labor. If this were true, then the screening argument would be in jeopardy, since, controlling for earning ability, a work requirement would discourage those with a high leisure preference most of all from participating in a PAP. A work requirement would therefore target benefits to exactly the wrong group! While it seems unreasonable to assume that poverty is primarily due to high leisure preferences, this point does underscore a genuine difficulty with the screening argument for work requirements. Imposing mandatory work requirements might cause those poor with high preferences for leisure to opt out of the program at the cost of poverty being alleviated. Even so, some would doubtless argue that society has no obligation to help those able-bodied individuals who are unwilling to work for benefits.

Our model also assumed that the poor were capable of work. Some fraction of the poor may, however, be *unemployables* (i.e., those whom either cannot work due to physical or social disability, or those whom society deems should not work, such as mothers with very young children). If such individuals can be identified at reasonable cost, they can be *tagged* in the way suggested by Akerlof (1978) (i.e., offered categorical benefits). However, absent this possibility, work requirements may be flawed as a means of achieving more accurate targeting of benefits. By imposing them, one would risk deterring part of the needy population from claiming poor support.

How important this is as a practical matter is moot. There clearly are categories of unemployable individuals who are easily identified. These include mothers with infants and individuals with obvious physical or mental disabilities. Nonetheless, there is a significant gray area, encompassing individuals with bad backs and certain mental ailments. Following Nichols and Zeckhauser (1982) and Charles Blackorby and David Donaldson (1988), however, there remains the possibility of offering such in-

dividuals other in-kind transfers (such as medical treatments) valued only by those individuals with the relevant disability. Employable poor individuals could still be required to work and would have no incentive to pretend that they had the unobservable disability, since they would receive what amounts to a transfer of lower value.

Finally, our model assumed that the government could offer only lump-sum cash transfers in exchange for work requirements in the public sector. This neglects the use of earnings subsidies, which have had numerous proponents in the U.S. context.[21] The availability of earnings subsidies would weaken both of the arguments for workfare discussed above because they could be used to design a program that involved lower transfers to the poor, was less attractive to the nonpoor, and offered the poor less utility. If, instead of giving the poor a cash transfer of $z - y(0, a_L)$, the government were to offer them an earnings subsidy just sufficient to get them to the poverty line, this would induce a higher level of private-sector earnings and hence necessitate a smaller total transfer. Moreover, it would also make masquerading less attractive to the nonpoor. A masquerader would still have total income of z but would have to work harder to get it. Finally, offering support to the poor in the form of an earnings subsidy would also reduce the poor's utility compared with a cash transfer. This would reduce the relative attractiveness of poverty, thereby lessening the adverse incentive impact on effort choice.[22]

Our PAP also ruled out the use of private-sector work requirements. Rather than demanding unproductive work in the public sector, it might seem more sensible to require that individuals work a certain amount in the private sector in exchange for benefits. Unfortunately, however, there will be

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[21] The merits of this policy have been stressed, *inter alia*, by Ellwood (1988), Kesselman (1969), and Zeckhauser (1971).

[22] For a more complete treatment of this issue, see Besley and Coate (1991b).

substantial practical difficulties involved in implementing such work requirements if, as is likely, there is uncertainty about individuals' private-sector employment opportunities. Individuals may then be unable to fulfill their private-sector work requirements through no fault of their own, and policymakers would be faced with the awkward task of distinguishing those who have tried to fulfill their work requirement from those who have shirked.

VI. Conclusion

This paper has explored the incentive case for workfare. We have analyzed two distinct arguments: a *screening* argument that work requirements serve as a means of targeting transfers and a *deterrent* argument that they may serve as a device to encourage poverty-reducing investments. These arguments have been advanced to support the use of work requirements both historically and in recent policy discussions in developing and developed countries. The main points of the analysis may be summarized as follows.

The cost of using workfare in our model is that public-sector work "crowds out" private-sector work, increasing the size of the poverty gap and the costs of poverty alleviation. The screening argument for workfare relies on the benefits due to reduced transfers to the nonpoor exceeding the costs stemming from reduced private-sector earnings. This is more likely to be true when the government has limited ability to monitor individuals' earnings, since masquerading is likely to be more widespread. Thus, the screening case for workfare seems likely to be strongest in the context of developing countries. It should also be noted that the screening argument rests on the dual assumptions that the causes of poverty reside in inadequate earning opportunities (rather than a high disutility of leisure) and that the poor are, in principle, capable of work.

For there to be a deterrent argument for workfare, the benefits from a reduced number of poor must exceed the costs due to lower private-sector earnings. This will not be the case if the government imposes only a small work requirement. Workfare can only be an effective deterrent if the amount of work demanded is considerably in excess of that which poor individuals would do in the absence of intervention. Finally, it should be noted that the deterrent argument rests critically on the government adopting a nonwelfarist definition of poverty. If poverty is defined as having too little utility, rather than too little income, then this argument is not coherent in our framework.

REFERENCES

Akerlof, George A., "The Economics of 'Tagging' as Applied to the Optimal Income Tax, Welfare Programs, and Manpower Planning," *American Economic Review*, March 1978, *68*, 8–19.

Besley, Timothy J. and Coate, Stephen, (1991a) "Workfare versus Welfare: Incentive Arguments for Work Requirements in Poverty Alleviation Programs," John M. Olin Program for the Study of Economic Organization and Public Policy at Princeton University Discussion Paper No. 73, 1991.

_____ **and** _____, (1991b) "The Design of Income Maintenance Programs," unpublished manuscript, Princeton University, 1991.

Blackorby, Charles and Donaldson, David, "Cash versus Kind, Self-Selection, and Efficient Transfers," *American Economic Review*, September 1988, *78*, 691–700.

Dreze, Jean P., "Famine Prevention in India," in Jean P. Dreze and Amartya K. Sen, eds., *Hunger: Economics and Policy*, Oxford: Oxford University Press, 1990, pp. 13–122.

Dye, Ronald and Antle, Richard, "Cost Minimizing Transfer Programs," *Journal of Public Economics*, April 1986, *30*, 259–63.

Ellwood, David, *Poor Support: Poverty in the American Family*, New York: Basic Books, 1988.

_____ **and Summers, Lawrence,** "Poverty in America: Is Welfare the Answer or the Problem?" in Sheldon Danziger and D. Weinberg, eds., *Fighting Poverty: What*

Works and What Doesn't, Cambridge, MA: Harvard University Press, 1986, pp. 78–105.

Gueron, Judith M., "Work and Welfare: Lessons on Employment Programs," *Journal of Economic Perspectives*, Winter 1990, *4*, 79–98.

Himmelfarb, Gertrude, *The Idea of Poverty*, New York: Knopf, 1984.

Jencks, Christopher and Edin, Kathryn, "The Real Welfare Problem," *American Prospect*, Spring 1990, *1*, 31–50.

Katz, Michael B., *In the Shadow of the Poorhouse*, New York: Basic Books, 1986.

Kaus, Mickey, "The Work Ethic State," *The New Republic*, 7 July 1986, *194*, 22–33.

Kesselman, Jonathan R., "Labor-Supply Effects of Income, Income-Work, and Wage Subsidies," *Journal of Human Resources* Summer 1969, *4*, 275–92.

Laffont, Jean-Jacques, *The Economics of Information and Uncertainty*, Cambridge, MA: MIT Press, 1990.

Mill, John Stuart, *Principles of Political Economy*, Books IV and V, Harmondsworth, U.K.: Penguin, 1848.

Murray, Charles, *Losing Ground: American Social Policy 1950–1980*, New York: Basic Books, 1984.

Nichols, Albert L. and Zeckhauser, Richard J., "Targeting Transfers through Restrictions on Recipients," *American Economic Review*, May 1982 (*Papers and Proceedings*), *72*, 372–7.

Ravallion, Martin, "Market Responses to Anti-Hunger Policies: Effects on Wages, Prices and Employment," in Jean P. Dreze and Amartya K. Sen, eds., *Hunger: Economics and Policy*, Oxford: Oxford University Press, 1990, pp. 241–78.

_____, "Reaching the Rural Poor through Public Employment: Arguments, Evidence and Lessons from South Asia," *The World Bank Research Observer*, July 1991, *6*, 153–75.

Zeckhauser, Richard J., "Optimal Mechanisms for Income Transfer," *American Economic Review*, June 1971, *61*, 324–34.