

Optimal Workfare with Voluntary and Involuntary Unemployment*

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Abstract

This paper analyzes the welfare implications of introducing workfare into unemployment benefit policy. We consider a population composed of employed and unemployed workers and of individuals who do not seek employment. Job search behavior is unobservable, which means that voluntarily unemployed individuals can claim unemployment insurance (UI) benefits intended for unemployed workers. As a consequence, pecuniary benefit schemes underinsure workers against unemployment. We show that requiring unproductive activities (workfare) in exchange for UI benefits may generate a Pareto improvement by facilitating better unemployment insurance for workers, and we characterize the situations where this is the case.

Keywords: Active Labour Market Policy, Unemployment, Unemployment Insurance

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I. Introduction

Traditionally workfare has been employed in poverty alleviation programs. In particular, many states in the US have a long history of requiring some type of workfare activity in exchange for poverty relief payments. In the last two decades this practice has been expanded to other types of benefits, and today workfare is often used in connection with joblessness in general. For example, many unemployment insurance (UI) experiments in the US have included requirements that recipients make some sort of effort. In these experiments benefit recipients need to show up at the Employment Service frequently or participate in part-time courses on how to search and apply for jobs (see Meyer, 1995). Activities like these expropriate time from unemployed workers and thus reduce their current utility, independently of whether their job search skills improve. This is also the case in the European countries where participation in Active Labor Market Programs is now compulsory for recipients of unemployment benefits:¹ after a given period of unemployment, individuals have to fulfill some effort requirements in order to continue receiving benefits. If we define workfare as broadly being benefits given conditionally upon the recipients fulfilling some obligations, then in effect, workfare is being introduced into the unemployment benefit system.

The existing studies on workfare focus entirely on its use in poverty alleviation programs. More specifically, these studies have analysed whether workfare should be

¹The countries of the European Union have committed themselves to require work or educational effort in return for unemployment benefits after the first year of unemployment (The European Council, 1997). In many countries participation in Active Labor Market Programs has been required for years, but without the requirement actually being enforced in practice. For example, the Netherlands did not start to sanction individuals who did not participate before 1992 (van den Berg *et al.*, 2004).

used as a mean of preventing the non-poor from claiming relief payments. The overall conclusion is that there is no obvious welfare argument for requiring (unproductive) workfare activities in exchange for poverty relief (Besley and Coate, 1992, 1995).² In Cuff (2000) and Beaudry and Blackorby (2001) workfare may be socially optimal, but this requires a special combination of heterogeneity in abilities and work-disutility. In fact, workfare may only serve as an optimal screening device if low-ability individuals also have a low disutility of labour compared to high-ability individuals.

While the existing literature has examined the role of workfare in redistributive policies, our goal is to analyse the optimality of introducing workfare in the unemployment insurance system. That is, we investigate whether there is a welfare argument for the new practice of requiring workfare activities of unemployed individuals in general. This practice means that it is not only individuals on the margin of the labor market who are a target, but that the average worker is also subject to workfare requirements when unemployed. To investigate this new role of workfare, we assume that individuals who wish to work cannot be sure of having employment at all times. The reason may be, for example, standard search frictions. Economic changes cause some jobs to disappear, and because of incomplete information about available jobs and workers it takes time before unemployed workers are matched with new firms. The unlucky workers without jobs are *involuntarily unemployed*, and their existence provides a reason for implementing an unemployment insurance system.

²In Besley and Coate's framework, where individuals differ only with respect to productivity, workfare is an inefficient instrument for ensuring a minimum *utility* level for all. Workfare may, however, be used to provide a minimum *income* level for all, thereby ignoring the disutility of performing workfare activities.

In addition to the group of workers, who are either employed or unemployed, we consider a group of individuals who are without a job because they prefer not to work. Although these individuals are *voluntarily unemployed*, they may receive some transfers from the government. More specifically, we assume that voluntarily unemployed individuals are entitled to a minimum transfer level, defined as the amount the government is willing to give individuals who are of working age but who do not wish to take on regular work.³ However, these voluntarily unemployed individuals may actually succeed in claiming UI benefits (assuming that UI benefits are more generous than the minimum transfer level), because job search behavior is private information and thus it is impossible to know whether they are genuinely seeking unemployment.⁴

The group of voluntarily unemployed is not necessarily composed only of individuals who live their entire lives outside the labor force. The group may also consist of otherwise hard-working individuals who at some point in time may prefer not to work, perhaps because there are small children in the household, or because they have an urge to take some time off in between jobs, etc. The important assumption we make is that the government faces a sorting problem. It wishes to implement different schemes for

³In most advanced countries, there exist defacto income transfers to jobless individuals who could work but prefer not to. In principle, this minimum level of transfers is often zero, but in reality it is not. In Denmark, for example, the level is zero in principle, but in practice it is equal to social assistance in the short run and is at a lower but still non-trivial level in the long run. In the United States, the minimum transfer level is also strictly positive in the long run since people without an income can always claim food stamps.

⁴There are clear indications that this actually happens. For instance, in the Netherlands in the early nineties only 55 per cent of benefit recipients indicated that they wanted a job and were actively searching for one (Angenent *et al.*, 1994). In Denmark, over the business cycle from 1995 to 2001, between 60 and 70 per cent of benefit recipients indicated that they were available to the labour market according to the ILO criteria (Statistics Denmark and the Danish Employers Federation). See also the discussion in Karni (1999).

voluntary and involuntary jobless individuals, but has to make identical offers to the two groups because they are indistinguishable. Thus, the government will have to rely on self selection.

This kind of adverse selection may explain the absence of privately-provided unemployment insurance, as shown by Chiu and Karni (1998). In the publicly-provided benefit system we study here, the existence of adverse selection implies that workers will become underinsured against unemployment. In this case, a government may choose to use unproductive workfare as a device to separate the involuntarily and voluntarily unemployed in order to provide better unemployment insurance for workers. In fact, we show that this can Pareto-improve the unemployment benefit policy of the government.

The adverse selection problem in our model with involuntary unemployment is completely different from the adverse selection problem faced in poverty alleviation programs. In the latter, workfare is used to prevent highly productive individuals from claiming poverty relief, while in our analysis workfare is used to discourage voluntarily jobless individuals from claiming unemployment benefits intended for involuntarily unemployed workers.⁵ As a consequence, the conditions for workfare to be Pareto optimal are also very different. In our case, individuals only have to differ with respect to

⁵There is some evidence pointing to this discouragement effect of workfare. Meyer (1995) evaluates a number of UI experiments, some of which have an element of effort requirement to them, and finds that such requirements can easily influence the take up rate. The most compelling evidence probably comes from a randomized UI experiment in Kentucky. Black *et al.* (2003) identify a sharp increase in the early exit from UI for recipients who are faced with effort requirements. What triggers the exits seems to be the letter which informs recipients that the continuation of their benefits is conditional upon their participation in certain programs. Similar results have been found in a randomized UI experiment in Maryland (Benus and Johnson, 1997). Another strong piece of evidence that "activation" has a deterrent effect is in Gerdsen (2003). He documents that the tail of the unemployed hazard rate function out of unemployment shifted to the left as activation in Denmark during the 1990s was required earlier and earlier in an unemployment spell.

disutility of work – with voluntarily unemployed individuals having the *high* disutility of work. In poverty alleviation programs, a necessary condition for the optimality of workfare is that those not working have both a low productivity and a *low* disutility of labour.

Our results also show that the scope for implementing Pareto-improving workfare benefit systems is larger if voluntary unemployment constitutes a large fraction of overall unemployment, and if the minimum income transfer level of the government is low. On the other hand, if individuals have the same tastes for work, it is never optimal to require that UI benefit recipients spend a certain number of hours on workfare activities in exchange for benefits (time workfare). But in this case, it may be optimal to require that the recipients perform a specific task in exchange for their benefits (task workfare), namely when the productiveness of the individuals differ.

To make our points more transparent, we assume that the workfare activities themselves do not bring about any valuable product. Nevertheless, workfare may Pareto-improve a pecuniary unemployment benefit policy. It is, of course, an extreme assumption that workfare activities are totally unproductive. However, there are also substantial costs associated with setting up and running a workfare system. So strictly speaking, our assumption is that costs and benefits cancel out. If workfare activities provide a net product, there is certainly much greater scope for moving towards a workfare benefit system (see Brett, 1998).

The remaining part of the paper is organised as follows. The next section presents the model. The third section derives the Pareto-optimal benefit policies and provides

the conditions under which pecuniary benefit systems are dominated by benefit systems with workfare. The last section discusses the results.

II. The Model

We study the problem of a benevolent government who wishes to construct a benefit system for unemployed individuals. We assume that the population is composed of two types of individuals: workers who wish to work and non-workers who do not. As a consequence, the unemployed population consists of both involuntarily and voluntarily unemployed. Individual characteristics, such as productivity and taste for work, are private information. In addition, the government cannot observe whether or not an individual has received a job offer. Hence, the government cannot distinguish a voluntarily unemployed person from an involuntarily unemployed person; joblessness may be a matter of bad luck, or a matter of choice. This may create an incentive for the government to introduce workfare in order to separate the involuntarily unemployed from the voluntarily unemployed.

The optimal benefit policy depends on how much weight the government puts on each type of individual. However, instead of solving for the optimal policy of the government, our aim is to characterize the Pareto-optimal benefit policies and study whether these policies include workfare.

The Timing of Events

First, each individual decides whether or not to join the labor force. Second, job offers are received, with all members of the labor force having a probability $\rho \in (0, 1)$ of

receiving a job offer.⁶ Those individuals who receive a job offer either accept or reject the offer. Individuals who reject job offers and individuals who do not get any offers are unemployed and can claim unemployment compensation, which is a package $\{b, \ell^e\}$ consisting of a monetary transfer, b , and an effort requirement, ℓ^e , measured in time units. In a pecuniary compensation scheme $\ell^e = 0$ and in a workfare scheme $\ell^e > 0$. Hence, to collect benefits under a workfare scheme, unemployed individuals have to spend a certain amount of time on workfare activities. We assume that these activities are completely unproductive in order to isolate the potential role of workfare in separating the voluntarily and involuntarily unemployed.

Individuals who choose to stay outside the labor force receive a transfer, $\hat{b} \leq b$, and, without loss of generality, we assume that \hat{b} is not accompanied by any effort requirements.⁷

Individual Characteristics

A fraction η of the population are workers (type w), while the remaining individuals are non-workers (type n). The preferences of an individual of type i are represented by

$$u_i = v^i(y_i, \ell_i), \quad i \in \{w, n\},$$

where y_i is net income, ℓ_i is forgone leisure, and $v^i(\cdot)$ is a utility function with standard properties. Let $v_j^i(\cdot)$ denote the partial derivative of the utility function with respect to argument j . Then the marginal rate of substitution between income and leisure is

⁶We assume that unemployment is exogenous in order to simplify the analysis. The importance of this assumption is discussed in the last section.

⁷It is never Pareto optimal to require effort of those outside the labor market. It would always be possible to reduce the effort requirement and the benefit level of those outside the labor market keeping their utility level fixed while increasing the utility of workers through a lowering of the tax rate.

defined as $MRS^i \equiv -v_2^i(y_i, \ell_i) / v_1^i(y_i, \ell_i)$. We wish to study situations where workers are more eager to work than non-workers. Thus, for a given combination of income and leisure, we assume that type w requires less income compensation than type n in order to work an additional hour, i.e. $MRS^w(y_i, \ell_i) < MRS^n(y_i, \ell_i)$.

An employed individual of type i earns a net income of $\omega_i \ell_i - t$ where ω_i is an exogenous hourly wage rate and t is a tax levied on employed individuals in order to finance the benefit system. We assume that the utility function of workers fulfill the boundary conditions $\lim_{y_w \rightarrow 0} v_1^w(y_w, l_w) = \infty$ and $\lim_{l_w \rightarrow \infty} v_2^w(y_w, l_w) = -\infty$, implying that there is a solution, ℓ_w^* , to

$$\omega_w = MRS^w(\omega_w \ell_w^* - t, \ell_w^*), \quad (1)$$

which determines the optimal number of working hours for a type w individual *if* he decides to work. For type n we assume that $MRS^n(0, 0) > \omega_n$ which is a sufficient condition to ensure that type n will never work.⁸

Constraints on Feasible Benefit Policies

When choosing a benefit policy $\{t, b, \ell^e, \hat{b}\}$ the government knows the distribution of individual characteristics but cannot observe the characteristics of any particular individual or whether an individual has received a job offer. This imposes some restrictions

⁸This condition is sufficient but not necessary for our results. If the inequality is not fulfilled our results still hold provided that non-workers do not want to work at the minimum transfer level chosen by the government, \underline{b} (defined in the next section).

on the implementation of government policies:

$$v^w(\omega_w \ell_w^* - t, \ell_w^*) \geq v^w(b, \ell^e), \quad (2)$$

$$v^n(\hat{b}, 0) \geq v^n(b, \ell^e), \quad (3)$$

$$\eta[\rho t - (1 - \rho)b] - (1 - \eta)\hat{b} \geq 0. \quad (4)$$

The first constraint reflects the fact that the government has to make sure that workers prefer employment to unemployment, because it is impossible to observe whether a worker rejects a job offer in order to claim benefits. If inequality (2) does not hold, the only benefit system that can exist is the trivial one where $t = b = \hat{b} = 0$.

The second constraint states that the benefit policy needs to be incentive compatible. The model may have either a separating equilibrium or a pooling equilibrium depending on whether non-workers choose the benefit package $\{b, \ell^e\}$ or the package $\{\hat{b}, 0\}$. However, it turns out that it is sufficient to focus only on the separating equilibrium where non-workers prefer to be outside the labor market receiving \hat{b} . Notice that it is never optimal for the government to require workfare in a pooling equilibrium as this reduces the utility of both workers and non-workers. So formally, any optimal pooling equilibrium is a special case of a separating equilibrium where $b = \hat{b}$ and $\ell^e = 0$, and an optimal pooling equilibrium is therefore not excluded by inequality (3).

The last inequality is a government budget constraint where the first term is the net revenue of workers and the last term is the costs of transfers to non-workers.

III. Optimal Benefit Policies

In this section, we derive the Pareto-optimal benefit policies and investigate whether optimal pecuniary benefit policies may be Pareto-improved by the introduction of workfare. To characterize the Pareto-optimal policies, we maximize the expected utility of workers,

$$E(u_w) = \rho v^w(\omega_w \ell_w^* - t, \ell_w^*) + (1 - \rho) v^w(b, \ell^e), \quad (5)$$

subject to a minimum utility level for non-workers or, equivalently, subject to a given minimum level of transfers:

$$\hat{b} \geq \underline{b}. \quad (6)$$

Now, we may solve for the (constrained) Pareto-optimal benefit policies by maximizing the objective (5) subject to the individual labour supply of workers (1), the constraints (2)-(4), the minimum utility requirement of non-workers (6), and the requirement that all variables are non-negative. In this way, we obtain all the Pareto-optimal benefit policies parameterized on \underline{b} . A government that cares a lot about non-workers has a high \underline{b} and therefore chooses a Pareto-optimal benefit policy with a relatively high utility level for non-workers.

Pecuniary Benefit Systems

A pecuniary benefit policy is characterized by $\{b, \hat{b}, t\}$ and $\ell^e = 0$. To solve for the optimal policies, note first that both the incentive compatibility constraint (3) and the budget constraint (4) are binding. The incentive compatibility constraint then means that the benefit levels are identical for the two types of individuals, $b = \hat{b}$. Without

workfare, it is simply impossible to separate workers and non-workers. From the budget constraint, we then obtain $t = \frac{1-\eta\rho}{\eta\rho}b$. Now, if the two remaining constraints (2) and (6) are not binding, the optimal solution may be found by inserting the above relationships between benefit levels and taxes in the objective (5) and maximizing with respect to b . After having used the optimal choice of working hours in equation (1), we obtain

$$1 - \frac{v_1^w(y_w^*, \ell_w^*)}{v_1^w(b^*, 0)} = \frac{1 - \eta}{1 - \eta\rho} \equiv \Psi \leq 1, \quad (7)$$

where $y_w^* = \omega_w \ell_w^* - \frac{1-\eta\rho}{\eta\rho}b^*$. The fraction on the left hand side of this equation measures the amount of money the worker is willing to pay (in the unemployed state) in order to obtain additional unemployment insurance. The worker may, for example, be willing to pay 10 cents in order to obtain an additional Euro in the unemployed state and a Euro less in the working state. Hence, the left-hand side is a measure of the marginal benefit of providing additional unemployment insurance for the workers. The right-hand side measures the proportion of voluntary unemployment in overall unemployment, which is also a measure of the marginal cost of additional unemployment insurance for the workers. When taxes are raised for workers in order to provide a higher level of unemployment insurance benefit, Ψ measures the proportion of the extra tax revenue which is paid out in benefits to non-workers instead of unemployed workers. Hence, if the population contains many non-workers (η is low) and if the likelihood of unemployment is low among workers (ρ is high), voluntary unemployment will be relatively high, implying that unemployed workers, *ceteris paribus*, obtain less unemployment insurance.

In the full optimization problem, the benefit level determined by condition (7) may

be in conflict with the labor market participation constraint (2) or with the government minimum transfer level (6). The solution to the full optimization problem is therefore described by

$$b^* = \underline{b} \quad \text{or} \quad 1 - \frac{v_1^w(y_w^*, \ell_w^*)}{v_1^w(b^*, 0)} = \Psi \quad \text{or} \quad b^* = \bar{b}, \quad (8)$$

where \bar{b} is defined as the maximum level of benefits where workers still prefer to work.

Notice that it is always (constrained) Pareto optimal to have some level of benefits for non-workers. A government that does not care about non-workers, corresponding to $\underline{b} = 0$, will always end up giving benefits to non-workers. The reason is that the government cannot give the workers any unemployment insurance without giving the same amount in transfers to the non-workers.⁹

Workfare Benefit Systems

After having characterized the Pareto-optimal pecuniary benefit policies, we now ask whether these policies may be Pareto-improved by the introduction of workfare. More specifically, we derive the conditions under which small increases in b , t and ℓ^e are able to increase the expected utility level of workers for a given utility level for non-workers (i.e., for a given \hat{b}).

We first total-differentiate the incentive compatibility constraint (3) with respect to b and ℓ^e for a given level of \hat{b} . After evaluating the result for some given initial pecuniary

⁹In the model, some insurance is always optimal. The marginal utility of insurance approaches infinity when $b \rightarrow 0$ because of one of the boundary conditions. Without this condition, it may not be optimal to have any unemployment benefits for $\underline{b} = 0$. This corresponds to the non-existence of market-provided unemployment insurance studied in Chiu and Karni (1998).

benefit system where $b = \hat{b} = b^*$ and $\ell^e = 0$, we obtain

$$\frac{d\ell^e}{db} = \frac{1}{MRS^n(b^*, 0)}. \quad (9)$$

This relationship measures the extent of workfare activities that has to accompany a rise in UI benefits in order to discourage the non-workers from claiming the benefit package intended for the unemployed workers.

Next, we total-differentiate the utility function of workers (5) and insert the above relationship as well as the required increase in taxes, $dt/db = (1 - \rho)/\rho$, obtained from the budget constraint (4). The result shows that a pecuniary benefit system with $b^* < \bar{b}$ may be Pareto-improved by the introduction of workfare if

$$1 - \frac{v_1^w(y_w^*, \ell_w^*)}{v_1^w(b^*, 0)} > \frac{MRS^w(b^*, 0)}{MRS^n(b^*, 0)}. \quad (10)$$

This expression has the same left-hand side as expression (7) reflecting the fact that the marginal benefit of additional unemployment insurance is the same as in the pecuniary system. However, the marginal costs are different, which may be seen by comparing the right-hand sides of (7) and (10). In the pure pecuniary benefit system, the marginal cost reflects an income loss to workers because non-workers also receive a rise in benefits. In the workfare benefit system, on the other hand, the marginal cost of additional insurance reflects a loss inflicted upon workers due to the introduction of workfare. The size of this loss depends on the taste for leisure of workers relative to non-workers. After an increase in unemployment benefits, non-workers become tempted to claim the benefits intended for the unemployed workers. The relationship (9) measures the time unemployed workers have to spend on workfare activities in order to discourage the voluntarily unemployed

from claiming the higher benefit level. By multiplying this relationship with the workers' marginal rate of substitution between consumption and leisure as done on the right-hand side of inequality (10), we obtain the amount of money an unemployed worker would be willing to give up in order to avoid the workfare activities.

To conclude, inequality (10) shows that a pecuniary benefit system can be Pareto-improved if the insurance incentive of workers is sufficiently large and if the marginal value of leisure differs sufficiently between workers and non-workers. In addition, the inequality reveals that if workers and non-workers had the same valuation of leisure, but possibly different productivity, workfare would never be optimal.

By combining the solution for the optimal pecuniary benefit system in (8) with the workfare condition (10), we readily obtain

Proposition 1 *An optimal pecuniary benefit system with $b^* < \bar{b}$ can be Pareto-improved by the introduction of workfare if*

$$\Psi > \frac{MRS^w(b^*, 0)}{MRS^n(b^*, 0)} \quad \text{for } b^* > \underline{b}, \quad (11)$$

$$1 - \frac{v_1^w(y_w^*, \ell_w^*)}{v_1^w(\underline{b}, 0)} > \frac{MRS^w(\underline{b}, 0)}{MRS^n(\underline{b}, 0)} \quad \text{for } b^* = \underline{b}. \quad (12)$$

In the unconstrained solution to the pecuniary benefit system ($\underline{b} < b^* < \bar{b}$), the optimal insurance level is found by equilibrating marginal benefits and marginal costs where the marginal costs are determined by the proportion of voluntary unemployment in overall unemployment (Ψ). Condition (11) shows that this pecuniary system may be improved by the introduction of workfare provided that the marginal costs of insurance in the workfare system are below the costs in the pecuniary system. This condition is

always fulfilled if individuals who do not want to work constitute a sufficiently large proportion of the unemployed. In that case, the utility loss to workers of being on workfare is small relative to the number of non-workers discouraged from claiming UI benefits.

If the minimum transfer level is binding, it is still optimal to use workfare as long as condition (12) is satisfied. To see that it may be optimal to apply workfare when the minimum transfer level is binding, consider an initial situation where the minimum transfer level and the unconstrained benefit level are equal and where the workfare condition (11) is met. In this case, the two conditions (11) and (12) are identical. This implies that the workfare condition (12) is also satisfied after a small rise in the minimum transfer level \underline{b} . Hence, if workfare is optimal when \underline{b} is not binding, it is also optimal to use workfare in some cases where \underline{b} is binding.

On the other hand, if individuals who are unemployed by choice are viewed as very important by the government (corresponding to a high value of \underline{b}), workfare is less likely to be implemented. In that case, both UI benefits and transfers are high in the pecuniary system, implying that the marginal benefit of additional UI insurance is low. If the government's preferred minimum transfer level \underline{b} is raised to the upper benefit bound \bar{b} then the labour market constraint (2) becomes binding. In this case, the implementation of workfare is never optimal. If workfare is used to relax the labour market participation constraint, the worker may obtain additional unemployment benefits. However, this can only continue until the pre-workfare utility level is reached, in which case the labour market participation constraint binds again. Thus, the worker is not able to obtain any

utility gain in the unemployed state but experiences a strictly lower utility level when working because of an increase in the tax rate needed to finance the higher benefits.

To conclude, the analysis demonstrates that the introduction of unproductive workfare creates a Pareto improvement if individuals who do not want to work constitute a sufficiently large proportion of the unemployed (high value of Ψ) and if the government does not put too much weight on the well-being of non-workers (low value of \underline{b}).¹⁰

Time Workfare vs. Task Workfare

In the preceding analysis, the benefit recipients had to spend a certain amount of time in workfare activities, henceforth called “time workfare”. Alternatively, one could require that the recipients performed a particular task, “task workfare”. This would not change any of the previous results if both workers and non-workers used the same amount of time performing the task. However, if workers and non-workers have different skills, it is – at least in principle – possible to devise tasks that high-productivity individuals can perform faster than low-productivity individuals. For example, if the two types are both bricklayers, where one of them is faster than the other, the task could simply be laying bricks.

An analysis of task workfare requires only a small modification of the model. Suppose that benefit recipients have to perform a specific task, T , for which their level of productivity in an ordinary job matters such that the time required to perform the task

¹⁰This would not be correct if the benefit level in the pecuniary system, b^* , was equal to the upper bound \bar{b} . Notice, however, from solution (8) that $b^* < \bar{b}$ if Ψ is sufficiently high and \underline{b} is sufficiently low.

is given by

$$\ell_i^e = T/\omega_i.$$

We may now recalculate the workfare condition (10) with the modified time requirement, and combine the new condition with the optimality conditions of the pecuniary benefit system in (8). Proposition 1 is then replaced by

Proposition 2 *An optimal pecuniary benefit system with $b^* < \bar{b}$ can be Pareto-improved by the introduction of task workfare if*

$$\Psi > \frac{MRS^w(b^*, 0)}{MRS^n(b^*, 0)} \cdot \frac{\omega_n}{\omega_w} \quad \text{for } b^* > \underline{b}, \quad (13)$$

$$1 - \frac{v_1^w(y_w^*, \ell_w^*)}{v_1^w(\underline{b}, 0)} > \frac{MRS^w(\underline{b}, 0)}{MRS^n(\underline{b}, 0)} \cdot \frac{\omega_n}{\omega_w} \quad \text{for } b^* = \underline{b}. \quad (14)$$

A comparison with Proposition 1 shows that the scope for using workfare is enlarged if it is possible to demand a specific task instead of a simple input of time in exchange for benefits. In fact, in contrast to the situation with time workfare, it may actually be Pareto optimal to use task workfare if the workers and non-workers differ only with respect to productivity. This occurs if the productivity level of the workers is sufficiently high compared to the level of non-workers, i.e. $\Psi > \omega_n/\omega_w$. The reason is that task workfare requires more time of less productive persons, implying that effort-contingent UI benefits are less attractive to non-workers than to workers even if they place equal value on leisure. Thus, task workfare is a better screening device than time workfare. It is therefore easy to prove that any given time workfare benefit system is weakly Pareto-dominated by a corresponding benefit system with task workfare.

IV. Discussion

The analysis demonstrates that the use of workfare activities for UI recipients, as embedded in the latest labor market reforms in many countries, may enhance welfare by facilitating better insurance against unemployment.

If individual characteristics are known, the UI problem is straightforward: with risk-averse workers, the UI scheme should simply insure workers fully against unemployment and no workfare should be required. But when preferences and productivity are private information and job search behavior cannot be observed, the optimal UI does not yield full insurance: voluntarily unemployed workers claim UI benefits, so that only part of the tax revenue goes to compensate the involuntarily unemployed. This is the situation where workfare becomes useful. If individuals differ with respect to their preferences for leisure, the time spent on workfare activities will affect them differently. This may facilitate better income smoothing for workers by keeping the voluntarily unemployed from claiming UI benefits. Thus, workfare may Pareto-improve the benefit system.

Our analysis shows that the gains from using workfare are large if voluntary unemployment constitutes a large proportion of overall unemployment and if the minimum transfer level offered by the government to voluntarily unemployed individuals is low. At a high minimum transfer level, corresponding to a situation where the government places great weight on the welfare of the voluntarily unemployed, workers can be offered a UI scheme with high monetary benefits without the use of workfare. The gains from additional insurance are therefore small and workfare becomes less advantageous.

On the other hand, when voluntarily jobless individuals are not eligible for benefits of any kind (the minimum transfer level is zero), the case for using workfare to improve unemployment insurance is particularly strong.

It is never possible to Pareto-improve a benefit system by the use of a time requirement if individuals differ only with respect to productivity.¹¹ In this case, (time) workfare is not a usable screening device, as involuntarily and voluntarily unemployed individuals experience the same disutility from being on workfare. However, if specific tasks can be required of the benefit recipients, workfare may be part of an optimal benefit policy even when individuals differ only with respect to productivity. This occurs because a task requirement is a better screening device, which also implies that, in principle, it is better to base a workfare benefit system on task requirements than on time requirements.

In practice, task workfare is probably more difficult to administer than time workfare. In a time workfare system, everybody just has to participate for a certain number of hours in some kind of workfare activities. In a system with task workfare, a specific task has to be devised for each type of skill, so that the unobserved productivity of the recipients will determine different performance times. Thus, the gains from better screening when using task workfare should be balanced against the higher administrative costs of running such a system.

¹¹This complements the findings on workfare in poverty alleviation programs. Besley and Coate (1992, 1995) show that, when individuals differ only with respect to productivity, it is never Pareto optimal to use (time) workfare to discourage individuals with high abilities from claiming benefits intended for low-ability individuals. We demonstrate that workfare is also suboptimal when used to discourage low-ability individuals from claiming UI benefits intended for high-ability individuals.

Our aim in this paper has been to focus entirely on the role of workfare as a screening device. In order to simplify the analysis, we have assumed that both involuntary and voluntary unemployment are constant. The only impact on unemployment captured within our framework is that workfare may remove voluntarily unemployed individuals from the unemployment statistics. In that respect, workfare may reduce the natural rate of unemployment. Obviously, workfare is likely to influence other important aspects of the labor market, such as search behavior and wage setting. In itself, workfare can be expected to increase search intensity and reduce wage claims of workers, thereby decreasing involuntary unemployment.¹² In our analysis, the effects may go in the opposite direction because workfare is accompanied by a rise in benefits. Workfare provides a Pareto improvement by increasing the utility of the involuntarily unemployed. This increase in the well-being of unemployed workers may well increase unemployment through adverse effects on wage setting and search behavior. However, these behavioral effects are of second order and should therefore not jeopardize our normative results.

Our analysis disregards other potential ways of improving the incentives in the benefit system: see Fredriksson and Holmlund (2003) for a recent review. A key assumption behind our results is that the government cannot observe people's tastes or intentions, which creates a sorting problem. Workfare solves the sorting problem by making it costly for voluntarily jobless individuals to mimic the involuntarily unemployed workers. Depending on the nature of the problem, there might be other ways of doing this. For instance, if it is the same group of people who are voluntarily jobless all the time, then

¹²This theme is discussed in a union bargaining framework in Hansen and Tranæs (1999).

a combination of time-limited UI benefits and a long qualifying period might be able to do the sorting more efficiently than workfare. Similarly, a combination of monitoring and sanctions could be an efficient way of sorting the two groups if it is possible to verify whether job search is sincere and whether jobs are lost involuntarily. In a situation where people are moving stochastically between wanting or not wanting a job, monitoring needs to be both accurate and cheap in order to be an attractive instrument. Here workfare is particularly effective, while time-limited benefits and long qualifying periods are of little use. Thus, workfare is relevant in situations with expensive monitoring and a continuous inflow of voluntarily jobless people. The later assumption is relevant if a proportion of each cohort do not want to work, or if some people do not have constant preferences for leisure over the course of their lives but rather experience periods with very high utility associated with not working, for instance, due to there being small children in the household, or because they feel an urge for some time off in between jobs.

In our view, workfare should be seen as a complement to other instruments in the labour market policy. In that respect, it is interesting that many European countries have moved towards welfare systems combining time limits and qualifying periods, monitoring and sanctions, as well as different types of workfare activities.

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