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WORKFARE IN AN EFFICIENCY WAGE MODEL

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Abstract

The impacts of introducing work requirements for welfare recipients are studied in an efficiency wage model. If the workfare package is not mandatory, it will reduce employment, profits, and utility levels of employed and unemployed workers. In contrast, mandatory effort requirements will generally raise both employment and profits and reduce the tax rate. The impact on the net wage is ambiguous. Changes of utility levels of employed and unemployed workers have the same sign as the variation in the net wage. The possibility of a Pareto improvement may explain the widespread support for welfare to work experiments.

JEL Classification: E24, H53, I30, J41, J60.

Keywords: workfare, welfare, efficiency wages, shirking.

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1 Introduction

The last decade has witnessed a renewed interest in changing welfare schemes towards workfare. Noting strong increases in the number of recipients during the eighties and nineties, many states in the U. S. have started welfare to work programs. The basic idea is that high benefits are paid only if the recipient works. Otherwise, cash benefits will be reduced substantially. Physical subsistence may then be achieved, if necessary, by benefits in kind. In addition to the work requirement, time limits on welfare use have been introduced. The rule that social assistance payments may be cut if the recipient is unwilling to do some public sector work is embodied in welfare legislation in many countries. Such jobs usually have to be unproductive in order not to compete with private firms. Therefore, the work obligation is often not enforced. Interestingly, the number of welfare recipients the U. S. has fallen drastically in the last few years. Surveys of the details of the U. S. welfare reform and problems of implementing them in practice have been provided by Ellwood (2000) and Haveman and Wolfe (2000).

This paper addresses the impacts of introducing workfare institutions on employment, wages, profits, and utility levels of employed and unemployed workers. In contrast to the bulk of the literature, which mainly focuses on labor supply incentives for the social assistance recipients, a framework of involuntary unemployment is chosen. The contribution can be seen as complementary to analyses in which the success of workfare programs depends on changes of the behavior of welfare recipients. If jobs are available, the logic behind possible employment increases is easily understood. Welfare recipients being asked to deliver a positive work effort will reduce their reservation wage. Under involuntary unemployment, labor demand will react to the modified incentive structure of the employed who see unemployment as a more severe threat. New job opportunities affect the well-being of forward-looking welfare recipients. These may compensate them for the imposed work effort.

The theoretical literature on workfare programs has extensively dealt with screening issues. Redesigning welfare programs towards workfare may induce individuals with a strong preference for leisure or a high earnings capacity to increase their labor supply. It has been shown that a given welfare level of heterogeneous social assistance recipients can be ensured at a minimum cost by offering distinct packages. At least one of these packages should have additional components apart from a pure monetary transfer (Dye and Antle

1986; Blackorby and Donaldson 1988). Besley and Coate (1992) have demonstrated that achieving a minimum income for all individuals at a minimum cost often requires the use of some mandatory public work for transfer recipients. First, this practice is compatible with relatively high transfers while deterring those with high earning capacities to take up benefits. The cost of this program, the lower income of the poor from ordinary productive jobs, is compensated by being able to target the transfers to the needy. Second, the treatment provides an incentive to acquire human capital. The stricter the work requirement, the stronger this incentive will be.

Efficiency properties of workfare designs under voluntary unemployment have also been discussed within optimum income tax frameworks. Chambers (1989) has argued that maximizing a social welfare function with high weights on individuals with a low productivity implies the use of programs in which benefits are tied to delivering some public work. In a more general treatment, Cuff (2000), contradicting Besley and Coate (1995) and Brett (1998), points out that workfare may be used by an utilitarian government even if required work, unlike regular work, is not productive. If people differ with respect to both ability and preferences for leisure, a work requirement for welfare recipients may drive low ability individuals with strong preferences for leisure into regular work, while the truly needy can be helped by compensating them for their low disutility of work. Even if this scenario is not relevant, a political majority interested in both seeing a high income of the poor and high work efforts may be willing to finance unproductive welfare to work programs associated with relatively high transfers (Moffitt 1999).

Another view of workfare states that it can constitute a preventive instrument against future dependency on welfare. Since potential welfare recipients do not exhibit demand for such preventive activities, these will be provided by the state (Coate 1995). One main argument against welfare to work programs in a dynamic perspective is that participation may contribute to depreciation of human capital. This may happen if qualified people have to work rather than choosing a training program (Peck and Theodore 2000).

Surprisingly little has been said about welfare effects in a general equilibrium context. Solow (1998) stresses that measures reducing the well-being of the welfare recipients will usually lead to an increase in employment. However, he suspects that the low skilled workers will be the losers of such a reform due to falling wages.

The current paper analyzes an efficiency wage model where workers may shirk. Since unemployment insurance is neglected, all unemployed are welfare

recipients. Welfare is financed by a proportional income tax. Workfare may be productive, but will also be associated with a monitoring cost for ensuring that the participants in the program do not shirk. All individuals are identical with respect to ability and preferences.

It is shown that the elements of a workfare program have the expected impacts on employment. While decreasing the benefits to welfare recipients or increasing the effort requirement in the workfare program raises employment, a higher price of monitoring participants of the program will lead to more unemployment due to a higher tax rate. Introducing a workfare program on a voluntary basis requires that participants have to be compensated for their disutility of work by raising their benefits. This implies that there are no direct repercussions on the incentive structure in firms. However, the necessary increase in taxes has adverse consequences on employment and profits. It can be shown that both net wages and welfare of the employed and the unemployed will fall. The analysis thus suggests that offering public work for welfare recipients on a "fair" basis will not be effective. In fact, Rose (2001) states that such voluntary "fair work" programs have generally been regarded as unsuccessful in history.

Raising the work requirement without compensating the welfare recipients will lower both taxes and wages. Profits will increase while the impact on net wages is ambiguous. Expected lifetime utility levels of employed and unemployed will move in the same direction as net wages. The unemployed are compensated for their increased disutility of labor by their improved job opportunities, where the change in net wages decides on their net gain. The result indicates that imposing workfare can even lead to a Pareto improvement.

The remainder of the paper is organized as follows. After introducing the model in section 2, the following section 3 analyzes problems of existence and stability of equilibria. Comparative static results are derived in section 4. The final section 5 discusses the results and indicates directions for future research.

2 The Model

The model is based on Shapiro and Stiglitz (1984). We consider N identical workers whose preferences are described by the utility function $U(w, e) = w - e$, where w denotes the monetary compensation and e is the effort exerted at

the activity. With probability b per unit of time, an employment relationship breaks down for exogenous reasons. Workers are infinitely lived and maximize $W = E\int_0^\infty U(w(s), e(s))\exp(-rs)ds$, where s denotes time, $r > 0$ is the discount rate, and E represents the expectations operator. Workers can either shirk ($e = 0$) or choose the expected effort level ($e = 1$). Shirking workers are detected with probability q per unit of time. Detected shirkers are fired immediately.

The unemployed are expected to work under a workfare policy. Working under such conditions is not productive and associated with a monitoring cost m, which guarantees that no welfare recipient can shirk. Alternatively, m can be interpreted as the difference between the monitoring cost and the value of the output of an individual participating in the program. Haveman and Wolfe (2000) report strong increases in monthly cost per family after Wisconsin has introduced its workfare program. While part of the additional cost may not be attributed to enforcing the work obligation, this piece of evidence suggests that $m > 0$.

Welfare recipients choosing the work option receive $\overline{w}$, while the others get $\underline{w}$, where $\overline{w} > \underline{w} \geq 0$. We assume that the disutility of working depends on the question whether it takes place within a regular employment relationship or, alternatively, in a workfare program. A welfare recipient choosing to take part in the welfare to work program has to deliver effort e_u. While the disutility of labor might be higher in the workfare program due to its compulsory character, the low output in such programs, set to zero in our framework, suggests the opposite inequality. Welfare is financed by a proportional tax on wages and profits, where the tax rate is t.

Let V_E^S ,V_E^N, and V_u denote expected lifetime utility of an employed shirker, employed non-shirker, and unemployed individual, respectively. The asset equations for shirkers and non-shirkers are given by

$$rV_E^S = (1-t)w + (b+q)(V_u - V_E^S) \tag{1}$$

and

$$rV_E^N = (1-t)w - e + b(V_u - V_E^N). \tag{2}$$

The asset equations have the structure that the return in a period is equal to the flow benefit plus the expected change of the value of the asset. An employed worker will not shirk if $V_E^S \leq V_E^N$, which is equivalent to

$$(1-t)w \geq rV_u + \frac{(r+b+q)e}{q}, \tag{3}$$

the non-shirking condition.

Firms produce under decreasing returns. Output of the representative firm is given by $Q = F(L)$ where L denotes effective labor, i.e. the number of employed workers not shirking. The production function satisfies $F'(L) > 0, F''(L) < 0$ and $F'(N) > e$. The latter assumption implies that full employment would be efficient.

An unemployed worker will get a job with probability a per unit of time. The asset equation of an unemployed worker taking part in the welfare to work program is

$$rV_u = \overline{w} - e_u + a(V_E - V_u) \tag{4}$$

with $V_E = \max\left\{V_E^S, V_E^N\right\}$. Assuming that the chances of getting a job do not depend on any past events, it follows that $\overline{w} - \underline{w} \geq e_u$ is necessary for participation in a voluntary workfare program. If both not shirking and participating in the workfare program is optimal, (2) and (4) can be solved. We obtain

$$V_E - V_u = \frac{(1-t)w - \overline{w} - (e - e_u)}{r + a + b}, \tag{5}$$

$$rV_u = \overline{w} - e_u + a\frac{(1-t)w - \overline{w} - (e - e_u)}{r + a + b}, \tag{6}$$

$$rV_E = (1-t)w - e - b\frac{(1-t)w - \overline{w} - (e - e_u)}{r + a + b}. \tag{7}$$

Inserting (6) into the non-shirking condition yields

$$(1-t)w \geq \overline{w} + e - e_u + \frac{r + a + b}{q}e. \tag{8}$$

Inducing workers not to shirk requires a higher wage w if the welfare benefit $\overline{w}$ is higher, the rate of exogenous splits b increases, the rate of obtaining a new job a goes up, the tax rate t increases, the rate of time preference r rises or the quality of shirking detection, measured by q, falls. The inequality shows that $(1-t)w - e > \overline{w} - e_u$ must be valid to deter shirking. Recalling (6) and (7), employed workers will display a higher expected remaining lifetime utility than those being unemployed at any given point in time. Thus, unemployment is involuntary. Employed workers earn the information rent $\frac{r + a + b}{q}e$ due to the fact that the shirking dectection technology is imperfect, i.e. q is finite.

In equilibrium, the number of entries into unemployment is equal to the number of exits:

$$a(N - L) = bL. \tag{9}$$

Substituting for a leads to

$$(1 - t)w \geq \overline{w} + e - e_u + \frac{r}{q}e + \frac{b}{q}e\frac{1}{u} \tag{10}$$

with $u = \frac{N - L}{N}$ denoting the unemployment rate. The right-hand side of (10) is equal to $\overline{w} - e_u + \frac{r + b + q}{q}e$ at $L = 0$. It increases in L and tends to infinity if $L \to N$.

If workers do not shirk, the representative firm will set its labor input to the point where the marginal product of labor is equal to the gross wage, that is, $w = F'(L)$. Utilizing this relationship and the government budget equation

$$tF(L) = (\overline{w} + m)(N - L) \tag{11}$$

shows that feasible allocations require

$$(1 - t)w = F'(L)(1 - \frac{\overline{w} + m}{F(L)}(N - L)) \tag{12}$$

Note that the right-hand side of (12) will be equal to $F'(N) > 0$ if $L = N$. Moreover, provided that $F(0) = 0$, an employment level $L_0 \in (0, N)$ exists which satisfies $(1 - \frac{\overline{w} + m}{F(L)}(N - L)) = 0$.

3 Equilibria and Stability

An equilibrium is described by an employment level that satisfies both the non-shirking condition (10) with equality and the feasibility condition (12).

Figure 1 depicts the equilibrium conditions. The non-shirking condition holds on and above the curve *NSC*, while the feasibility curve G displays the budget constraint of the government combined with the marginal productivity rule of pay. If the two curves intersect, and if we neglect the possibility of a tangent point, at least two equilibria exist.

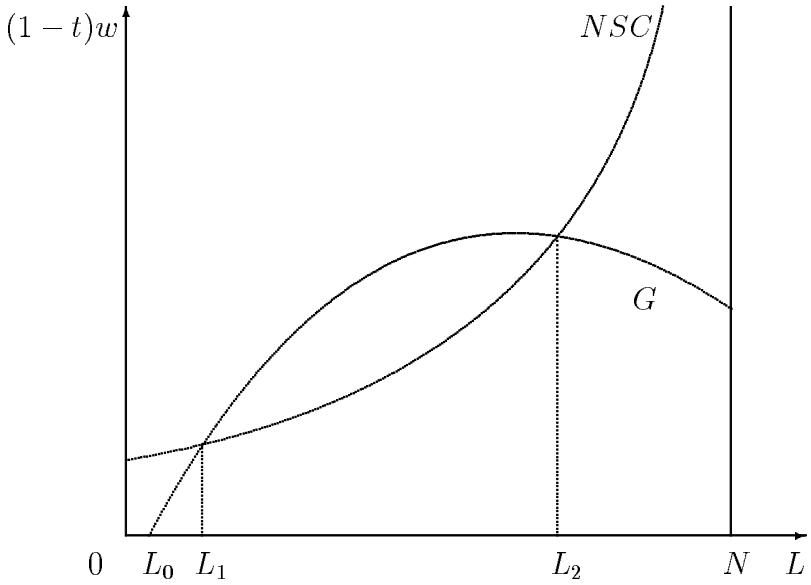

Figure 1: Equilibria

In Figure 1, the equilibrium L_1 is unstable. The firm is willing to accept underbidding by unemployed workers should a point on the curve G between L_1 and L_2 be realized. As a consequence, employment will increase and the gross wage rate will fall. Underbidding will no longer be accepted at L_2 since the non-shirking condition will be violated then.

Combining (10) (with equality) and (12) shows that equilibrium employment has to satisfy

$$A = \overline{w} + e - e_u + \frac{r}{q}e + \frac{b}{q}e\frac{1}{u} - F'(L)(1 - \frac{\overline{w}+m}{F(L)}(N-L)) = 0,$$

where $\frac{\partial A}{\partial L} \geq 0$ is a necessary condition for stability. In a stable equilibrium, the NSC curve cuts the G curve from below.

4 Comparative Statics

Proposition 1 summarizes the impacts of the parameters on equilibrium employment.

Proposition 1 *Employment decreases with a higher split rate b, a rising time preference rate r, a smaller shirking detection rate q and a higher disutility of work e. It increases with a lower unemployment compensation $\overline{w}$, a smaller monitoring cost m and a rising disutility in the workfare program e_u.*

Proof. Utilizing the implicit function theorem, it follows for any parameter $x \in \{b, r, q, e, \overline{w}, e_u\}$ that $\frac{dL}{dx} = -\frac{\frac{\partial A}{\partial x}}{\frac{\partial A}{\partial L}}$. Taking into account the sufficient stability condition $\frac{\partial A}{\partial L} > 0$, and ignoring the case that only the necessary condition is satisfied, yields $sgn\left[\frac{\partial L}{\partial x}\right] = -sgn\left[\frac{\partial A}{\partial x}\right]$. Evaluating the derivatives shows that

$$\begin{aligned}
sgn\left[\frac{\partial L}{\partial b}\right] &= -sgn[\frac{e}{qu}] < 0, \\
sgn\left[\frac{\partial L}{\partial r}\right] &= -sgn[\frac{e}{q}] < 0, \\
sgn\left[\frac{\partial L}{\partial q}\right] &= sgn[\frac{re + \frac{be}{u}}{q^2}] > 0, \\
sgn\left[\frac{\partial L}{\partial e}\right] &= -sgn[1 + \frac{r}{q} + \frac{b}{qu}] < 0, \\
sgn\left[\frac{\partial L}{\partial \overline{w}}\right] &= -sgn[1 + \frac{F'(L)(N-L)}{F(L)}] < 0, \\
sgn\left[\frac{\partial L}{\partial m}\right] &= -sgn[\frac{F'(L)(N-L)}{F(L)}] < 0, \\
sgn\left[\frac{\partial L}{\partial e_u}\right] &= sgn[1] > 0.
\end{aligned}$$

□

The comparative static results are easily understood. A higher split rate, a stronger preference for present consumption, a less effective shirking detection technology, or a higher effort requirement makes shirking more attractive. In each case, wages have to be increased in order to restore incentives

to exert effort. This will be associated with a reduction in employment. The elements of welfare to work have the expected impacts. Compulsory work for welfare recipients makes the threat of a dismissal more severe, where a higher unemployment compensation works in the opposite direction. Both a higher cost of monitoring and an increasing unemployment compensation have to be financed by raising the tax rate. Since higher taxes increase the incentives to shirk, wages have to rise in order to compensate for this effect. Consequently, regular employment will decline.

In the following analysis, the net monitoring cost m is set to zero. A positive cost will obviously lead to a more pessimistic evaluation of a work obligation. Conversely, should values created under the program outweigh the monitoring cost, the resulting gain is not taken into account.

Suppose now that a "fair work" program is introduced in which recipients participate on a voluntary basis. Assuming that welfare for those not working is fixed in order to cover their basic needs, the participation premium has to compensate for their disutility of work, i.e. $\overline{w} - e_u \geq \underline{w}$ must hold. Proposition 2 shows that the introduction of such a welfare program has adverse consequences.

Proposition 2 *Increasing the compensation for workfare by the same amount as effort in the workfare program ($d\overline{w} = de_u > 0$) reduces employment. Net wages fall, where the increase in the tax rate t dominates the rise of the gross wage w. Profits and utility levels of both welfare recipients and workers will decrease.*

Proof. Notice that

$$sgn\left[\left.\frac{dL}{d\overline{w}}\right|_{d\overline{w}=de_u}\right] = -sgn\left[\frac{\partial A}{\partial \overline{w}} + \frac{\partial A}{\partial e_u}\right] = -sgn\left[\frac{F'(L)(N-L)}{F(L)}\right] < 0$$

holds. According to (9)-(11), this result implies

$$\left.\frac{d[(1-t)w]}{d\overline{w}}\right|_{d\overline{w}=de_u} = \frac{b}{q}e\frac{N}{(N-L)^2}\frac{dL}{d\overline{w}} < 0, \tag{13}$$

$$\left.\frac{dt}{d\overline{w}}\right|_{d\overline{w}=de_u} = \frac{(N-L)}{F(L)} - (\overline{w}+m)\frac{F(L)+(N-L)F'(L)}{F(L)^2}\frac{dL}{d\overline{w}} > 0, \tag{14}$$

$$\left.\frac{da}{d\overline{w}}\right|_{d\overline{w}=de_u} = b\frac{N}{(N-L)^2}\frac{dL}{d\overline{w}} < 0. \tag{15}$$

The impacts on net profits $\pi_n = (1-t)(F(L) - LF'(L))$ and lifetime utility of welfare recipients V_u can then be written as

$$\begin{aligned}
\left.\frac{d\pi_n}{d\overline{w}}\right|_{d\overline{w}=de_u} &= -(1-t)LF''(L)\frac{dL}{d\overline{w}} - (F(L) - LF'(L))\frac{dt}{d\overline{w}} < 0, \\
\left.\frac{dV_u}{d\overline{w}}\right|_{d\overline{w}=de_u} &= \frac{(1+\frac{r+b}{a})\frac{d[(1-t)w]}{d\overline{w}}}{r(1+\frac{r+b}{a})^2} \\
&\quad + \frac{[(1-t)w - \overline{w} - (e-e_u)]\frac{rb}{a^2}\frac{da}{d\overline{w}}}{r(1+\frac{r+b}{a})^2} < 0.
\end{aligned}$$

Note that $\frac{d[(1-t)w]}{d\overline{w}} = \frac{e}{q}\,\frac{da}{d\overline{w}}$ holds if condition (8) is binding. It follows that

$$\left.\frac{d[V_E - V_u]}{d\overline{w}}\right|_{d\overline{w}=de_u} = \frac{(r+a+b)\frac{e}{q} - [(1-t)w - \overline{w} - [e-e_u]]}{(r+a+b)^2}\frac{da}{d\overline{w}} = 0$$

according to (5) and (8) where the latter relation holds with equality. Due to equation (7), this implies

$$\left.\frac{d[rV_E]}{d\overline{w}}\right|_{d\overline{w}=de_u} = \left.\frac{d[(1-t)w]}{d\overline{w}}\right|_{d\overline{w}=de_u} < 0.$$

□

A fair work policy where the welfare benefits of those who do not work remains the same will reduce the level of regular employment. Since the participants in the program have to be compensated for the disutiliy of work, the threat of unemployment to the employed will not increase. However, additional taxes have to be raised to finance the program. This increases the incentives to shirk. Hence, firms will raise the gross wage, resulting in a lower employment level. Due to the rising share of those living on welfare, the minimum net wage necessary to deter shirking goes down. Both a higher income tax and a higher gross wage contribute to lower net profits. Since both the chances of obtaining a regular job and the net compensation in such a job fall, the utility of a welfare recipient decreases. While the declining net wage lowers the utility differential between employed and unemployed workers, the smaller chances of obtaining a new regular job has an opposite impact. It

turns out that both effects offset each other. Therefore, the workers' net loss in expected lifetime utility is driven by a decreasing net compensation. Introducing this type of welfare to work policy harms workers, entrepreneurs and the unemployed.

An obvious alternative to the option of offering a job to the welfare recipient is a policy in which the welfare recipient is obliged to work. In such a setting, it is not necessary to compensate those living on welfare for the losses due to exerting effort in a workfare program. Proposition 1 has already shown that introducing a work requirement will lead to a reduction in unemployment.

Proposition 3 *Raising the work requirement for welfare recipients e_u decreases both the tax rate t and the gross wage w. Net profits rise. The lifetime utility differential $V_E - V_u$ remains unchanged, where the utility levels move in the same direction as the net wage $(1-t)w$.*

Proof. Since $\frac{\partial L}{\partial e_u} > 0$ is valid according to Proposition 1, it follows that

$$\begin{aligned}
\frac{\partial w}{\partial e_u} &= F''(L)\frac{\partial L}{\partial e_u} < 0, \\
\frac{\partial t}{\partial e_u} &= -(\overline{w}+m)\frac{F(L)+(N-L)F'(L)}{F(L)^2}\frac{\partial L}{\partial e_u} < 0, \\
\frac{\partial \pi_n}{\partial e_u} &= -[F(L)-LF'(L)]\frac{\partial t}{\partial e_u} - (1-t)LF''(L)\frac{\partial L}{\partial e_u} > 0.
\end{aligned}$$

Recalling equations (5) and (9), and noting that (8) will hold with equality, it turns out that

$$\begin{aligned}
\frac{\partial [V_E - V_u]}{\partial e_u} &= \frac{\frac{\partial [(1-t)w]}{\partial e_u}+1}{r+a+b} - \frac{(1-t)w-\overline{w}-(e-e_u)}{(r+a+b)^2}\frac{\partial a}{\partial e_u} \\
&= \frac{(r+a+b)\frac{b}{q}e\frac{N}{(N-L)^2}}{(r+a+b)^2}\frac{\partial L}{\partial e_u} \\
&\quad -\frac{[(1-t)w-\overline{w}-(e-e_u)]b\frac{N}{(N-L)^2}}{(r+a+b)^2}\frac{\partial L}{\partial e_u} \\
&= 0.
\end{aligned}$$

Considering this result in combination with (5) and (7), it is obvious that

$$r\frac{\partial V_E}{\partial e_u} = r\frac{\partial V_u}{\partial e_u} = \frac{\partial[(1-t)w]}{\partial e_u}.$$

□

The increase in employment is associated with a lower marginal product of labor, implying a reduced gross wage. The lower number of individuals taking part in the workfare program allows to cut the tax rate. Firms benefit from the lower gross wage and the lower tax rate. Consequently, their net profits must increase. The impact on the net wage,

$$\begin{aligned}\frac{\partial[(1-t)w]}{\partial e_u} &= (1-t)\frac{\partial w}{\partial e_u} - w\frac{\partial t}{\partial e_u} \\ &= \left[(1-t)F''(L) + w(\overline{w}+m)\frac{F(L)+(N-L)F'(L)}{[F(L)]^2}\right]\frac{\partial L}{\partial e_u},\end{aligned}$$

is ambiguous in general and mainly depends on properties of the production function and the cost of a welfare recipient. If the marginal product of labor reacts in a relatively unelastic fashion to a higher labor input, the tax reduction is the decisive impact, implying a rising net wage. Conversely, if the marginal product of labor reacts stronger, while $\overline{w}+m$ is negligible, the outcome will be in the opposite direction. The unemployed suffer from the additional effort requirement. At the same time, their job opportunities become better. Moreover, the net wage if they gain employment changes. Employed workers are confronted with a variation in the net wage. While the threat of unemployment is more serious due to the effort requirement on welfare recipients, the increasing chances of regaining employment work in the opposite direction. It turns out that the lifetime utility differental remains unaffected, while the net effect on period utility for each group is given by the change in the net wage.

Proposition 3 indicates that mandatory workfare programs may lead to a Pareto improvement even if required work is both unproductive and associated with costs of administration and monitoring. Should net wages fall, it may still be the case that welfare to work wins a political majority. First, the residual income, which can be interpreted as capital income, increases. Provided a sufficiently even distribution of wealth, losses in workers' expected utility may be offset by gains in capital income. Second, workers may take into account that there is a higher chance to be among the employed in this

framework. A worker deciding under the veil of ignorance, i.e., when he does not know the realization of his employment status, may opt for workfare even if this is associated with a utility reduction under both possible employment states.

However, if the veil of ignorance approach is not appropriate, the outcome can be reversed. A Pareto improvement may not be achieved by taxing capital on a lump-sum basis and redistributing the proceeds equally among the workers even if the higher total production outweighs the cost of the workfare program and the additional effort of the workers. This type of redistribution does not affect incentives in the model. Noting that the share of workers enjoying the higher utility level increases, capital owners and both employed and unemployed workers may lose after redistribution has taken place in such a setting.

5 Concluding Discussion

The analysis suggests that introducing a "fair work" program without harming the non-participants among the recipients will have adverse consequences. If the participants are compensated for their disutility of labor, the incentive effect of the work requirement vanishes. Initiating the program is associated with a positive cost, driving taxes up, and employment and profits down. Net wages will fall because the higher risk of long-term unemployment reduces the incentives to shirk. These adverse consequences may explain why some governments abolished such programs based on cooperation by the welfare recipients.

The results are not that clear if welfare recipients are forced to enter the workfare program. While introducing the program again has adverse effects given that monitoring the participants is costly even accounting for values created under the program, raising the work requirement has an incentive effect on the employed. Unemployment becomes less attractive. This reduces gross wages, leading to a higher level of employment. The fall in taxes may offset the reduction in the gross wage rate. If this happens, both employed and unemployed workers enjoy a higher level of utility.

The analysis may serve as an alternative explanation why welfare reforms towards workfare are quite popular, without relying on screening, as in the optimum taxation approach, or on partially altruistic preferences, as in Moffitt (1999).

Of course, the analysis neglects important features of welfare systems. In particular, it does not take into account selection issues. Usually, the welfare population is not a random choice of the work force, but suffers from low qualification, health problems and other unfavorable socio-economic characteristics. Hence, it would be desirable to allow for heterogeneous labor. The unemployment insurance system could be taken into consideration, where the short-term unemployed have better chances to obtain a job offer than the welfare recipients. It is obvious that imposing sanctions on "unemployable" people through mandatory work requirements just leads to higher taxes for the employed and utility losses for everybody. Provided that the size of this group of workers is not negligible, it should be more difficult to introduce a workfare program that enhances welfare of employed and employable unemployed workers than in the present analysis.

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