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DOES ACTIVE LABOUR MARKET POLICY REDUCE UNEMPLOYMENT WHEN SEARCH IS ENDOGENOUS?

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Abstract

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We analyse the effects active labour market programmes (ALMPs) have on unemployment in a union wage-setting framework when search is endogenous. We assume that a union president, elected by majority voting determines the wage. We analyse the case where ALMPs increase match efficiency of the marginalized workers, and show that ALMPs may increase unemployment.

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1. Introduction

According to the OECD (1993) the traditional motivation for active labour market programmes (ALMPs) has been to increase the efficiency of search. Ceteris paribus this leads to higher employment probabilities among programme participants. Nevertheless, several microeconomic impact evaluations, surveyed in Martin (1998), find that this is not unambiguously true. Some investigations report increased employment among programme participants, others do not. This suggests that other factors than just the match efficiency matters for the matching process and hence employment chances of programme participants.

In this paper we assume that the matching process depends upon both the efficiency of search and the search intensity level. We analyse the effects of ALMPs, taking explicitly into account that the matching process depends upon search efficiency as well as the endogenous search level. We pose the following question: in the case where properly designed ALMPs do increase the efficiency of search,[1] how do workers react to that in terms of search behaviour? Search intensity may decrease, which leads to an overall ambiguous effect on the matching process and thereby an ambiguous effect on employment chances. It is important to note that the ambiguous employment effect is due to the effect on the endogenous search intensity only. In order to focus on the individual efficiency of search and the impact on the endogenously determined search intensity our model is simplified. We do not consider ex post implications of unemployment as for example duration dependence or the impact of unemployment benefits. We do not separate the workers into groups of long-term unemployed, openly short-term unemployed and programme participants and the implied transitions between the groups. This implies that we rule out the ambiguous effects on wage-pressure (See for example Calmfors and Lang (1995), and Holmlund and Lindén (1993)), arising from the impact of higher unemployment benefits received by programme participants, and

[1] This precondition is found in Calmfors and Lang (1995).

the effects of reduced risk of becoming long-term unemployed.

There are three main reasons of why we choose to ignore any wage effects and focus on the individual search effects. First, the reform implemented in 1994 in Denmark introduced the 'right and duty' concept, implying that after some time as unemployed (dependent upon age and unemployment benefit entitlement) everybody has a right to be activated. If workers refuse to participate, they are no longer entitled to unemployment benefits. The typical programme salary is equal to unemployment benefits. According to the Danish ALMP the basic principles concerning salary is first, that an activated worker receives the hourly wage rate of his latest regular job, and second, the total salary cannot exceed unemployment benefits. This implies that activated workers have shorter hours than regularly employed workers, and implies that utility as activated unemployed is not higher than as openly unemployed. Hence, ALMP's do not necessary increase the utility of unemployed workers and thereby wage-pressure if they are properly designed.

Second, empirical evidence suggests that individual background factors heavily influence the probability of employment. Theoretical as well as empirical analyses of unemployment and its remedies can be grouped into three main categories (see for example Pedersen & Westergård-Nielsen (1993) for a survey). The first group concerns directly the importance of individual background factors for the

probability of becoming unemployed, being hit repeatedly by unemployment and the probability of escaping unemployment. A number of studies find clear tendencies of polarisation of individual unemployment. For example a Danish study (Bjørn and Pedersen, 1992) find that individual background factors such as age and gender have significant effects on the probability of being an 'insider' or 'outsider', and on the transition between 'outsider' and 'insider' positions. The second group concerns the individual history dependence, and the majority of empirical studies concerns duration dependence, i.e. the question of whether the time spent unemployed influences the escape rate out of unemployment. The empirical evidence on duration dependence is not conclusive, but as pointed out by Pedersen & Westergård-Nielsen (1993): "On balance, the evidence seems tentatively to point to, ..., heterogeneity as an important factor in explaining time dependence in escape rates from employment". This implies that policy measures should concentrate on groups of individuals with low and possibly duration independent, escape rates. Other forms of history dependence include lagged duration and occurrence of unemployment. Generally there is found a very strong history dependence, but as with duration dependence, the authors note that "this finding could equally well be due to heterogeneity where some individuals are permanently 'sorted out' to carry a heavy burden of unemployment in a sequence of

periods while others are permanently in a state of full employment". Again, this implies that policy measures should concentrate on groups of individuals with low escape rates. The last group concerns the impact of unemployment benefits on the duration of unemployment and escape rate out of unemployment. The level and maximum duration of benefits are generally found to have significant effects only in U.S. and U.K. studies, whereas in continental European studies the general finding is insignificant or very weak effects.

In light of this empirical evidence we choose, in this paper, to concentrate on the individual background factors influencing the escape rate out of employment, and ignore the transition from short-term to long-term unemployment. To that end, we assume that the workers differ with respect to their individual employment probabilities only. These differences are exogenous and independent of current (un)employment status.

The last reason to ignore wage effects concerns the wage determination. In most countries where ALMPs are in use, wages are determined by unions. We assume that all workers are members of a trade union. Even though the workers have different preferences, due to their different employment probabilities, they engage in collective bargaining and are paid the same wage. Usually unions are assumed to be utilitarian implying that the union leader acts upon the interests

of all members. But recognizing that union leaders are elected (see for example Kaufman 2000, Sandver and Ready 1998 and Clark and Gilbert 1998) and assuming that all union leaders care about is to be reelected implies that the union leader acts upon the interests of the majority. Farber 1978 and Blair and Crawford 1984 discuss the problem of defining the union's objective function when a union leader is elected by majority voting. In this paper, we follow Farber by considering a monopoly union, in order to simplify while introducing endogenous search. Hence, a union leader is elected by a majority voting rule and the preferences of the majority determine the union wage. As mentioned we divide the workers into two groups according to the probability of escaping unemployment. One group of workers has a high escape rate out of unemployment. This group is the very short-term unemployed, they never experience unemployment long enough to become eligible for ALMP. The other group consists of workers who have a lower escape rate out of unemployment. On average they stay unemployed long enough to become eligible for ALMP.

It is reasonably to assume that the group of workers with high escape rates out of unemployment constitute the majority of the union members. The Danish Social Commission (1992) and Cahuzac et. al (1992) find that the number of individuals who are fully employed during a year and those receiving unem-

ployment or other forms of welfare benefits during the whole year both increased during the late eighties, while the intermediate group was reduced in numbers. The Danish Social Commission reports that in Denmark in 1991, those with only few and short periods of unemployment constitute 75 percent of the workforce and among the unemployed one third has spent more than a year unemployed. In this paper, we only divide workers into two groups, even though it probably would have been more realistic to divide workers into three groups, those employed most of the time, the long-term unemployed and an intermediate group. However, our results will not depend upon the number of worker groups. As long as the majority of workers are those employed most of the time, we get the same results with or without a group of long-term unemployed workers. Furthermore, it can be argued that workers who have been unemployed for more than a year lose their attachment to the union. Hence, to simplify we only divide the workers into two groups.

We consider an economy where firms are homogenous and subject to mismatch, which leaves some of their vacancies unfilled. A worker can never be absolutely sure of keeping his present job and unemployed workers *do* have a positive employment probability. When considering unemployment we need a flow equilibrium model acknowledging the continuing flows between unemployment and employ-

ment constituting the equilibrium unemployment rate. The group of high search efficiency workers has a tighter connection to the labour market compared to the group of low search efficiency workers as their transition rate from unemployment to employment is higher: the high efficiency workers experience a lower rate of unemployment. This corresponds to that the group of high efficiency workers has a higher employment probability during a working life. We therefore denote the group of workers with a high search efficiency the flow-model insiders (FM-insiders) and the other group the flow-model outsiders (FM-outsiders), which is a generalisation of the definition in the traditional insider-outsider theory (Lindbeck and Snower 1986). FM-insiders have a higher employment probability than FM-outsiders, but they do take into account the risk of becoming unemployed.

In our model, search intensity is endogenous. As mentioned, we assume that wages are determined by a monopoly union. A union leader is elected by a majority voting rule, hence the preferences of the majority determines the wage, taking into consideration the effect wages have on search and the response from firms' vacancy supply. We assume that only a minority of workers, the FM-outsiders, are eligible for ALMPs and that ALMPs increase the efficiency of search. The response from workers to increased search efficiency can be either to increase or to decrease their search intensity. When search responds positively to increased

search efficiency, unemployment unambiguously decreases. However, if search intensity decreases due to the increased efficiency, the overall effect on unemployment is ambiguous. Note that the union wage is not affected by ALMP as the conditions of the majority of workers do not change. If, however, all workers were to participate in ALMPs, the wage would increase if the search response is negative, adding to the negative effect on unemployment. If the search response is positive, the wage effect would be ambiguous.

2. The Model[2]

Consider an economy consisting of many homogenous firms and one monopoly trade union organizing all employed workers. The workers elect a union leader by a majority voting rule and the union leader determines wages on their behalf.

Workers are heterogeneous, they have different search efficiency. For simplicity, we only consider two groups of workers. The group of workers with the high search efficiency we denote the FM-insiders, as they are more often employed during their working life than the other group, the FM-outsiders. Only the unemployed workers search for a job. Unemployed workers choose how much to search

[2]The model is similar to Pissarides 90. For a more detailed description of the model see Filges and Larsen 1998.

according to their expected lifetime utility function.

In this section we describe the model and in the next section we derive the equilibrium wage and search intensities.

2.1. Workers' Value Functions

Let Γ_i^E and Γ_i^U denote the expected present values of lifetime utilities of being employed and unemployed, respectively. Subscript $i = H, L$ denotes high search efficiency workers, H, and low search efficiency workers, L. Pedersen and Westergård-Nielsen (1993) find in their survey that individual characteristics such as age and gender influence the probability of being employed. Hence, the evidence shows that exogenous individual background factors influence the probability of being employed. In this paper we assume that high and low search efficiency workers have the same productivity and hence receive the same wage.[3] We do not consider duration dependent employment probabilities. Workers only differ with respect to their efficiency of search, which is independent of current (un)employment status. We then have:

[3] See Larsen (2000) for an analysis where workers risk a loss of skill while unemployed. Hence, some workers become less productive and less attractive for the firms, implying they receive lower wages than the workers who have not lost some of their skills.

$$\delta\Gamma_i^E = w + q(\Gamma_i^U - \Gamma_i^E),\ i = H, L \tag{2.1}$$

$$\delta\Gamma_i^U = b - cs_i + p_i(\Gamma_i^E - \Gamma_i^U),\ i = H, L \tag{2.2}$$

where b is the unemployment insurance, w is the wage rate, δ is the discount rate and q is an exogenous fraction of currently employed workers leaving their jobs. Search intensity is denoted by s_i, c is the marginal cost of search and p_i is a worker's transition rate from unemployment into employment. Only the unemployed workers search for a job. Equation (2.1) states that the utility stream of being employed equals the wage level plus the probability of getting separated from a job times the change in lifetime utility. While unemployed, the worker receives unemployment insurance and pays a search cost given by cs_i.

We define the steady state lifetime utility flow of an (un)employed worker as $Z_i^m = \delta\Gamma_i^m, \quad m = U, E$, giving:

$$Z_i^E = \frac{(\delta + p_i)w + q(b - cs_i)}{\delta + p_i + q}, \qquad Z_i^U = \frac{p_i w + (\delta + q)(b - cs_i)}{\delta + p_i + q}, i = H, L \tag{2.3}$$

The utility flow is a weighted average of employment and of unemployment given the worker's current employment status.

2.2. Matching and Unemployment

The work force is divided into two groups who differ in one respect only. One group, H, has a higher transition rate, p_H, than the other group, L, which has transition rate p_L. Note that the ex ante differences in transition rates are due to exogenous individual background factors that influence the efficiency of search independent of unemployment duration. We normalize the labour force to one. The number of workers with the high transition rate is given by Λ and the number of workers with the low transition rate is $1 - \Lambda$. In a steady state, unemployment for group H, U_H, is determined by:

$$q(\Lambda - U_H) = p_H U_H. \tag{2.4}$$

The inflow into unemployment, the left hand side, is equal to the outflow from unemployment, the right hand side. Equation (2.4) reduces to:

$$U_H = \frac{q}{q + p_H}\Lambda.$$

Similarly, unemployment for the L group is determined by:

$$U_L = \frac{q}{q + p_L}(1 - \Lambda).$$

The total rate of unemployment is therefore:

$$U = \frac{q}{q + p_H}\Lambda + \frac{q}{q + p_L}(1 - \Lambda).$$

Unemployment is increasing in the separation rates and decreasing in the transition rates.

The individual transition rate, p_i, $i = H, L$, depends both on the individual search efficiency function, $f_i(e_i, s_i)$, and on labour market tightness, θ:

$$p_i(e_i, s_i, \theta) = f^i(e_i, s_i)\sqrt{\theta},\ \theta = \frac{V}{FU},\ \ i = H, L, \tag{2.5}$$

where s_i is search intensity of a worker in group i, and e_i is a measure of efficiency of a worker in group i.

Labour market tightness measures how tight the labour market is in terms of vacant jobs, V, relatively to unemployment, U, in efficiency terms, FU. F is the average match efficiency function:

$$F = \frac{U_H}{U} f^H(e_H, s_H) + \frac{U_L}{U} f^L(e_L, s_L) \tag{2.6}$$

The individual worker is atomistic and therefore perceives labour market tightness, θ, as a constant.

The individual efficiency function $f^i(e_i, s_i)$ is defined in the domain $s_i \in [0, 1]$, $e_i \in [0, \infty]$. We only consider situations where higher efficiency implies a higher transition rate: $e_H > e_L \Rightarrow p_H > p_L$. Worker flows are illustrated in Figure 2.1.

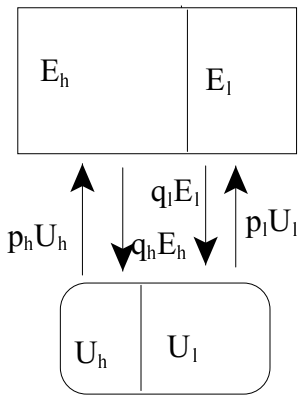

Figure 2.1: Worker Flows

The search efficiency function, $f^i(e_i, s_i)$, fulfills the following restrictions:

$$\frac{\partial f^i}{\partial e_i} > 0, \quad \frac{\partial f^i}{\partial s_i} \geq 0, \quad \frac{\partial^2 f^i}{\partial s_i \partial s_i} < 0, \quad \frac{\partial f^i(e_i, 0)}{\partial s_i} > 0, \quad f^i(e_i, 0) = 0. \tag{2.7}$$

The function is everywhere strictly concave in s_i and increases with match efficiency. Note that the transition rate, $p_i(e_i, s_i, \theta)$ is a linear transformation of the search efficiency function, $f^i(e_i, s_i)$, and fulfills all the restrictions given in (2.7). Furthermore, when s_H and s_L are both equal to zero, the workers' transition rates are zero and unemployment is equal to one.

The number of matches formed in the economy, x, is given by the matching function:

$$x(V, FU) = \sqrt{V}\sqrt{FU}. \tag{2.8}$$

The number of matches has positive first order derivatives in FU and V, negative second order derivatives, positive cross partial derivatives and is homogenous of degree one in FU and V. Pissarides 86 and Blanchard and Diamond 89 provide empirical justification for the Cobb-Douglas matching function with equal exponents. The transition rate is chosen so it implies the particular matching function given in (2.8).

2.3. Employment Distribution

The rates of group L and group H employed workers relatively to the total rate of employment are denoted by η and $1-\eta$, respectively:

$$\eta = \frac{E_L}{E} = \frac{1}{1 + \frac{\Lambda}{1-\Lambda}\frac{p_H/(q+p_H)}{p_L/(q+p_L)}}, \quad 1-\eta = \frac{E_H}{E} = \frac{1}{1 + \frac{1-\Lambda}{\Lambda}\frac{p_L/(q+p_L)}{p_H/(q+p_H)}}.$$

For $\Lambda \geq 1/2$ we have $\eta < 1/2$: there are relatively more high efficiency employed workers (the workers with the high transition rate), than employed low efficiency workers. The group of workers with the low transition rate experiences a lower employment probability, $\frac{p_L}{q+p_L}$ than the group with the high transition rate. The L group of workers are less employed during their working life than the

H group of workers. We therefore consider the low efficiency group of workers as being the FM-outsiders and the high efficiency group of workers as being the FM-insiders. Note that even in the case where the two groups are of equal size, $\Lambda = 1/2$, the FM-insiders constitute the majority of the employed workers. We choose, however, to consider the more realistic case (c.i.f. the introduction) where $\Lambda > 1/2$.

2.4. Firms

Firms supply jobs dependent upon the wage and their hiring costs. Firms supply one job each and hire both low search efficiency and high search efficiency workers as they have the same productivity. Let y be the marginal product of a worker. The expected present values of a filled job, Γ_J, and of a vacant job, Γ_V, are determined by the equations:

$$\delta\Gamma_J = y - w + q(\Gamma_V - \Gamma_J), \tag{2.9}$$

$$\delta\Gamma_V = \frac{1}{\sqrt{\theta}}(\Gamma_J - \Gamma_V) - k, \tag{2.10}$$

where $\frac{1}{\sqrt{\theta}}$ is the firm's transition rate, i.e. the number of matches given in (2.8) divided by the number of vacancies. The direct costs associated with job supply are given by k. Free entry implies that jobs are supplied as long as it is profitable,

i.e. until $\Gamma_V = 0$. Using this condition and combining equations (2.9) and (2.10) give an equation to determine labour market tightness:

$$\theta(w) = \left(\frac{(y-w)}{k(q+\delta)} \right)^2 . \tag{2.11}$$

Labour market tightness depends negatively on wages: $\theta_w < 0$.

3. Endogenous Search

In this section we derive the equilibrium wage and search intensities. In the next section we analyse what happens when the search efficiency of the FM-outsiders increase due to ALMPs.

The optimal search intensity of an individual worker is determined such that it maximizes the expected utility when unemployed, taking as given the wage and labour market tightness. Hence, search intensity is found by solving the maximization problem:

$$\max_{s_i} \left\{ \frac{p_i(e_i, s_i, \theta)w + (\delta + q)(b - cs_i)}{\delta + p_i(e_i, s_i, \theta) + q} \right\}, \quad i = H, L, \tag{3.1}$$

which gives the first order condition to determine search intensity:

$$\frac{\partial p_i(e_i, s_i, \theta)/\partial s_i}{(\delta + q + p_i(e_i, s_i, \theta))}(w - b + cs_i) - c = 0, \;\; i = H, L. \tag{3.2}$$

The second order condition is fulfilled given the restrictions on the efficiency function in (2.7). The optimal search intensity equates the marginal gain from search to the marginal search costs. The marginal search cost is constant, thus FM-insiders have an incentive to search more (less) than FM-outsiders if their marginal gain from search is higher (lower).

Note that equation (3.2) implicitly determines the optimal search intensity as a function of efficiency and the wage:

$$s_i^* = s_i^*(e_i, w), \;\; i = H, L \tag{3.3}$$

Wages are determined by the monopoly union. The union members elect a union leader directly by majority voting. The elected union leader then determines the wage level. The union leader is only concerned about being reelected, thus he chooses a wage level that maximizes the utility of the majority, taking into account that the wage affects the optimal search intensity. As shown above the FM-insiders constitute the majority among the employed workers. The union wage thus solves the maximization problem:

$$\max_{w} \qquad Z_H^E = \frac{(\delta + p_H(e_H, s_H^*, \theta))w + q(b - cs_H^*)}{\delta + p_H(e_H, s_H^*, \theta) + q} \tag{3.4}$$

$$s.t.$$

$$\theta(w) \;=\; \left(\frac{(y-w)}{k(q+\delta)}\right)^2, \quad s_H^* = s_H^*(e_H, w),$$

which has the first order condition:

$$(\delta + p_H(e_H, s_H^*, \theta))\,(\delta + p_H(e_H, s_H^*, \theta) + q) + q\frac{dp_H(e_H, s_H^*, \theta)}{dw}\,(w - b + cs_H^*) = 0. \tag{3.5}$$

Using the first order condition for search, equation (3.2) and substituting for the derivatives we obtain:

$$(\delta + p_H(e_H, s_H^*, \theta))\,\frac{\partial f^H(e_H, s_H^*)}{\partial s_H^*}(y - w) - qcf^H(e_H, s_H^*) = 0, \tag{3.6}$$

Equation (3.2) and (3.6) together determine equilibrium search intensities and the wage.

4. ALMPs and unemployment

In this section we analyse the effects of ALMPs on unemployment. The 'right and duty' concept, implying that after some time as unemployed everybody has a

right to be activated, has been implemented in more and more countries during the nineties (for example, in the UK, the New Deal for young people was implemented in 1998 and in Denmark a reform was implemented in 1994). If workers refuse to participate, they are no longer entitled to unemployment benefits. Hence, we assume that only FM-outsiders stay unemployed long enough to become eligible for ALMP and further, that no one refuses to participate. We analyse the case where properly designed ALMPs increase the search efficiency of FM-outsiders. The union wage is not affected as only the search efficiency of the minority group changes.

The impact on search intensity from higher efficiency is positive if the marginal gain from search increases. From equation (3.2) we have that search intensity changes with efficiency in the following way:

$$\frac{ds_L}{de_L} = \frac{\left(\frac{\partial^2 f^L(e_L,s_L)}{\partial s_L \partial e_L}\left(\delta + q + p_L(e_L,s_L,\theta)\right) - \frac{\partial f^L(e_L,s_L)}{\partial s_L}\frac{\partial f^L(e_L,s_L)}{\partial e_L}\sqrt{\theta}\right)\frac{c}{\frac{\partial f^L(e_L,s_L)}{\partial s_L}}}{-SOC(s_L)}. \tag{4.1}$$

There is a negative and a potential positive effect. The positive effect arises if a higher efficiency increases the worker's marginal search efficiency function, i.e. if $\frac{\partial^2 f^L(e_L,s_L)}{\partial s_L \partial e_L} > 0$. However, as search is costly it pays, in expected utility terms, to reduce search intensity when efficiency is higher. Hence the net effect on the

search efficiency function, $f^L(e_L, s_L^*)$, is ambiguous.

The total unemployment impact of increasing the match efficiency is:

$$\frac{dU}{de_L} = \frac{dU_L(1-\Lambda)}{de_L} = -\frac{(1-\Lambda)q}{(q+p_L)^2}(f_{e_L}^L + f_{s_L^*}^L \frac{ds_L^*}{de_L})\sqrt{\theta}. \tag{4.2}$$

Note that FM-insiders are not affected by the change in FM-outsider's search efficiency function, only the unemployment rate of FM-outsiders change. An increase in search efficiency has a direct negative effect on unemployment and an indirect effect through the search intensity. If higher efficiency leads to an increase in search intensity the total unemployment effect is unambiguously negative. However, if search intensity decreases this has a positive effect on unemployment, and the unemployment effect is ambiguous. The next section offers simulations with a search efficiency function, $f^i(e_i, s_i)$, where higher efficiency decreases search and increases unemployment of the FM-outsiders.

5. Simulations

The simulations are performed using a search efficiency function of the form: $f^i(e_i, s_i) = \gamma_i s^{\alpha_i}$, where either γ_i or α_i is a function of e_i. The other variables are given in the table below (see Millard and Mortensen 1997):

b	k	y	q	c	δ	Λ
$0.7w$	0.3	1	0.06	1.5	0.1	3/4

First consider the case where γ_i is a function of e_i and α_i is a constant. With $\gamma_i = n_i + e_i$, and consequently $f^L = (n_L + e_L)s_L^{\alpha_L}$, it can be shown that the marginal gain increases more than the marginal cost of search as equation (4.1) reduces to:

$$\frac{ds_L}{de_L} = \frac{c/(n_L + e_L)}{-SOC(s_L)} > 0.$$

It follows that search intensity increases with efficiency, unambiguously leading to a lower unemployment rate.

Consider instead the case where both γ_i and α_i are functions of efficiency. The search efficiency function has to increase with efficiency and search intensity, hence we set $\alpha_i = 1 - e_i$, $e_i \in (0, 1)$. As before we set γ_i equal to $n_i + e_i$. The search efficiency function is now given by $f^i(e_i, s_i) = (n_i + e_i)s_i^{1-e_i}$. With this functional form, equation (4.1) reduces to:

$$\frac{ds_L}{de_L} = \frac{\left[-\left(\delta + q + p_L\right)\left(n_L + e_L\right) + (1 - e_L)(\delta + q)\left(1 - (n_L + e_L)\ln s_L\right)\right]\frac{cs_L^{-e_L}}{\partial f^L/\partial s_L}}{-SOC(s_L)} \lesseqgtr 0$$

It follows that the optimal search intensity may decrease with efficiency, possibly leading to an increase in the unemployment rate. We set the values of n_i

and e_i in order to get reasonable unemployment rates. We let $n_L = 0.75$ and $n_H = 1.1$. Equilibrium values are given in the table below:

$f^H = (1.1 + e_H)s_H^{1-e_H}$	$e_H = 0.10$	$s_H = 0.655$	$\frac{U_H}{\Lambda} = 0.056$
$f^L = (0.75 + e_L)s_L^{1-e_L}$	$e_L = 0.05$	$s_L = 0.452$	$\frac{U_L}{1-\Lambda} = 0.115$
		$w = 0.941$	$U = 0.071$

Equilibrium values, when efficiency of the FM-outsiders increases with 0.05, are given in the table below:

$f^H = (1.1 + e_H)s_H^{1-e_H}$	$e_H = 0.10$	$s_H = 0.655$	$\frac{U_H}{\Lambda} = 0.056,$
$f^L = (0.75 + e_L)s_L^{1-e_L}$	$e_L = 0.10$	$s_L = 0.326$	$\frac{U_L}{1-\Lambda} = 0.136$
		$w = 0.941$	$U = 0.076$

With the parameter values given in this example, it follows that the marginal gain from increased search decreases, leading to a decrease in search intensity of the FM-outsiders. The total effect on unemployment is positive.

6. Conclusion

We have evaluated the employment effects of ALMPs when they increase search efficiency and the search intensity level is endogenous. We explicitly take into account that the matching process depends upon both the efficiency of search and

the search intensity. In the model, wages are determined by a monopoly trade union. A union leader is elected by a majority rule, and the preferences of the majority determines the union wage. The FM-insiders constitute the majority of the union. Only the FM-outsiders experience unemployment long enough to become eligible for ALMPs. This implies that the union wage is not affected by ALMPs. The labour market is characterized by search friction. The match efficiency function depends positively upon search efficiency and the endogenous search level. When the FM-outsiders' search efficiency increases, they may choose to search more or less. As search is costly there is a possibility that increased search efficiency leads the FM-outsiders to reduce their search intensity to save on costs. Increased efficiency reduces unemployment whereas reduced search intensity increases unemployment. The overall result may be, that ALMPs have a positive impact on unemployment. The paper provides examples illustrating that the result depends upon the specific form of the match efficiency function.

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