

In-Work Benefits in Search Equilibrium

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Abstract

We study the general equilibrium effects of in-work benefits in a search framework. Introducing in-work benefits reduces equilibrium unemployment, moderate wages, and boost participation and search. Total employment increases as a result. Considering in-work benefits in a general equilibrium setting reveals that employment increases mainly though the impact on job creation. This is in contrast to what is usually stressed, namely that employment increases because individuals are provided with incentives to take a job.

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1 Introduction

It has become increasingly popular for countries across the industrialized world to introduce some kind of in-work benefit. The aim of these programs is to increase employment as well as the wellbeing of those with a low income. A benefit or a tax credit which is conditioned on labor income can be seen as a way of rewarding work. The usual way of reasoning is that, by increasing the returns to work, the program improves work incentives.

The US and UK has a rather long history of in-work benefits. The Earned Income Tax Credit (EITC) in the US was introduced more than 30 years

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ago, and has since then expanded significantly. The EITC is now the largest cash transfer program for low income families at the federal level, and in 2003 about twenty million families received a total of \$34 billion dollars in benefits from it¹. Also the United Kingdom has a more than 25 year history of in-work benefits.

The expansions of the in-work benefit systems in the US and the UK have provided researchers with extensive opportunities to evaluate the effects of these programs. The evaluation studies show that these programs have been quite successful in terms of increasing labor force participation.²

A number of countries have recently followed the US and the UK and introduced various kinds of in-work benefits with the aim of increasing employment and reduce poverty (Belgium, Canada, Finland, France, Ireland, Netherlands, and New Zealand). In other countries, in-work benefits are on the political agenda, but have not ‘yet’ been implemented. One question then arises, will the ‘success’ of these programs in the US and the UK carry over to European countries where the functioning of the labor market, among other things, is quite different?

In order to answer this question one would have to rely on theoretical and empirical research that accounts for labor market features that seem particularly relevant to European countries, namely the working of an imperfectly competitive labor market. However, there are very few studies so far that have considered the effects of in-work benefits in less market oriented economies. The empirical evaluations have basically only been concerned with the US and the UK systems, and the theoretical literature has only recently started to consider programs of in-work benefits in a context more relevant for less market oriented economies.

¹See Eissa and Hoynes (2005).

²Eissa and Liebman (1996) compare the labor supply responses of single women with children with the response of single women with no children when the earned income tax credit expanded in 1986. They show that between 1984-1986 and 1988-1990, single women with children increased their relative labor force participation by up to 2.8 percentage points. Meyer and Rosenbaum (2001) estimates that 63 percent of the increase in labor force participation of single families in the US between 1984 and 1996 can be credited to the expansion of the EITC. Moreover, Fang and Keane (2004) estimates that the most important explanation for the 11 percentage point increase in labor force participation in the US between 1993-2002 to be the EITC. The evaluations also show that it seems to be the participation decision rather than the hour decision that is affected by the EITC. Also the evaluations of the systems of in-work benefits in the UK show that the programs have a positive net-effects on employment (see Brewer and Browne, 2006).

However, the European concern about unemployment has induced an incorporation of unemployment into model analysis of in-work benefits. Bovenberg and Boone (2004) stress the importance of in-work benefits in order to alleviate distortions in terms of an inefficiently low search effort among unemployed. Moreover, the study by Bovenberg and Boone (2006), provide an explanation for why in-work benefits can be demanded for in both countries that have generous welfare benefits (such as many European countries) and countries that have low welfare benefits (such as the US). In countries with relatively low levels of social assistance, in-work benefits are aimed at poverty alleviation, as social assistance and in-work benefits then are substitutes in fighting poverty. In contrast, countries with generous social assistance need in-work benefits in order to maintain workers in the labor force. Although these two studies account for unemployment in their models, unemployment is exogenously imposed. Thus, when investigating the impact of an in-work benefit, there will be no effect on wages and unemployment as they are fixed by assumption.³

The aim of this paper is to analyze the general equilibrium effects of in-work benefits on wages, involuntary unemployment, search effort, and labor force participation. This requires a model set-up where these variables are determined endogenously. To that end we use a model with search frictions and worker-firm wage bargains (see Pissarides, 2000). The importance of accounting for general equilibrium effects of policy changes, in particular for adjustments in wages, is also stressed by Boeter et al (2006) and Lise et al (2005). Boeter et al (2006) simulates the general equilibrium effects of a social assistance reform in Germany, whereas Lise et al (2005) simulates the general equilibrium effects of the Self Sufficiency Project in Canada.

We find that an in-work benefit reduces equilibrium unemployment, moderates wages, and boosts participation and search effort. Total employment increases as a result. Considering in-work benefits in a general equilibrium

³The study by Immervoll et al (2005) considers the potential effects of in-work benefits in European countries using a micro simulation model. They consider both the effect of such a reform on work hours and labor force participation accounting for that the earnings distribution may be more or less compressed in different countries. They show that in-work benefits will be less desirable in countries with a compressed earnings distribution. This follows as a given redistribution when earnings are equal induces larger deadweight losses. The labor market is, however, treated as perfectly competitive in their analysis. Also Saez (2002) endogenizes the work hours margin and the labor force participation margin when considering the effects of an earned income tax credit. Wages are, however, treated as exogenous and the model does not feature involuntary unemployment.

setting reveals that employment increases mainly through the impact on job creation. This is in contrast to what is usually stressed, namely that in-work benefits are good for employment as they provide workers with incentives to take a job by increasing their take-home pay.

The results are derived in a deliberately simple and stylized model which disregards the financing of the in-work benefit (section 2 and section 3). However, in section 4 we conclude that these results are robust to various extensions of the model such as the inclusion of unemployment benefits, the endogenous determination of work hours, and wage indexation of in-work benefits. In addition, section 5 considers the case when the in-work benefit is financed with payroll taxes or proportional income taxes. Section 6 concludes.

2 The Model

The economy consists of a population that is fixed in size. Without loss of generality, the size of the population is normalized to unity. An individual choose whether to participate in the labor force or not. The individual participates if the return of participation exceeds the return of non-participation. A worker who decides to participate in the labor force is either employed or searching for a job.

The economy is characterized by trading frictions due to the costly and time-consuming matching of workers and firms. The matching process of vacancies and unemployed job searchers is captured by a concave and constant-returns-to-scale matching function, $X = h(v, su)$, where v is the vacancy rate and u is the unemployment rate. The rates are defined as the number of vacancies and the number of unemployed workers relative to the labour force. The search intensity by an average worker is denoted by s , where su defines the number of job searching workers in terms of efficiency units.

The rate at which a specific unemployed worker finds a job depends on the individual search effort, s_i , in relation to the average search effort of the unemployed, s . Thus, the transition rate of the unemployed individual i into employment is given by $s_i X / su = s_i h(\theta, 1) = s_i \lambda(\theta)$, where $\theta = v/su$ denotes labor market tightness. Firms fill vacancies at the rate $X/v = h(1, 1/\theta) = q(\theta)$. Consequently $\lambda'(\theta) > 0$ and $q'(\theta) < 0$. Higher labor market tightness θ increases workers probability of finding a job, but reduces the probability of a firm finding a worker.

2.1 Workers and Firms

Let E , U , and N denote the expected present values of employment, unemployment, and non participation. The flow value functions for an individual worker can be written as:

$$rE_i = w_i + IWB - \phi(E_i - U_i), \quad (1)$$

$$rU_i = -\sigma(s_i) + s_i\lambda(\theta)(E - U_i), \quad (2)$$

$$rN_i = l_i, \quad (3)$$

where r is the exogenous discount rate, w is the wage, and ϕ the exogenous separation rate. $\sigma(s)$ captures the search costs of the unemployed, where $\sigma_s(\cdot), \sigma_{ss}(\cdot) > 0$. The term IWB represents the in-work benefit which is received only when employed. l is the per period real value of leisure if not participating in the labor force which is assumed to differ across the population. Let $F(l)$ be the cumulative distribution of leisure for workers in the population.

The unemployed worker choose search effort, s_i , so to maximize the discounted value of unemployment, U_i , taking search among others, s , as well as other market variables, as given. This yields:

$$\sigma_{s_i}(\cdot) = \lambda(\theta)(E - U_i) \quad (4)$$

Thus the unemployed worker choose search effort so to equalize the marginal return of search with the marginal cost of search.

The economy consists of a large number of small firms that employ one worker only. Let J and V denote the expected present values of an occupied and a vacant job, respectively. The asset equations of a specific occupied job and a vacant job can be written as:

$$rJ_i = y - w_i - \phi(J_i - V), \quad (5)$$

$$rV = -k + q(\theta)(J - V), \quad (6)$$

where y is worker productivity, and the vacancy cost is denoted by k .

2.2 Wage determination

Matching frictions create quasi-rents for any matched pair providing a scope for bilateral bargaining after worker and employer meet. The baseline wage

specification assumption found in the literature on search equilibrium is the generalized axiomatic Nash bilateral bargaining outcome with 'threat point' equal to the option of looking for an alternative partner. The threatpoint for the worker is given by the value of unemployment. Note that the value of unemployment is at least as high as the value of non participation for workers in the labor force. Thus employed workers do not consider the option of dropping out of the labor force as a threat when bargaining over wages.

Assuming that the worker has bargaining power β , the solution to the Nash bargaining problem satisfies the following first order condition:

$$\frac{\beta}{1-\beta}J = E - U, \quad (7)$$

where we have imposed a symmetric equilibrium. From (7) we get the wage rule:

$$w = \beta(y + ks\theta) - (1 - \beta)[IWB + \sigma(s)]. \quad (8)$$

Tightness is derived conditional on search effort by imposing the free entry condition $V = 0$ in (5) and (6), and using (8). Similarly, search effort in equilibrium is derived conditional on tightness by imposing $s_i = s$ in (4) and using the free entry condition $V = 0$ in (6) together with (7). This yields the following two equations determining search effort and tightness in equilibrium:

$$\frac{k(r + \phi)}{q(\theta)} = y(1 - \beta) - \beta sk\theta + (1 - \beta)[IWB + \sigma(s)], \quad (9)$$

$$\sigma_s(s) = \frac{\beta k\theta}{1 - \beta}. \quad (10)$$

2.3 Labor force participation

A worker enters the labour force into the state of unemployment by choosing to conduct search. It will be worthwhile to enter the labor force if the return of entering exceed the return from not entering. In equilibrium the following condition determines the value of leisure of the worker who is indifferent between entering and not entering the labor force:

$$rU = rN(\hat{l}),$$

where \hat{l} denotes the value of leisure of the marginal worker. Workers with a value of leisure higher than \hat{l} , i.e., $l_i > \hat{l}$, will choose non participation, whereas workers with a value of leisure lower than \hat{l} , i.e., $l_i \leq \hat{l}$, will choose participation. The participation condition can be written $s\lambda(\theta)(E - U) - \sigma(s) = \hat{l}$ by using the flow equations in (2) and (3) in symmetric equilibrium. Also using the free entry condition $V = 0$, together with equations (6) and (7) and the cumulative distribution function for leisure we have the labor force given by:

$$LF = F \left(\frac{s\beta k\theta}{(1-\beta)} - \sigma(s) \right). \quad (11)$$

2.4 Employment

In equilibrium the flow into unemployment equals the flow out of unemployment, i.e., $\phi(1-u)LF = s\lambda(\theta)uLF$. The equilibrium unemployment rate is then given by:

$$u = \frac{\phi}{\phi + s\lambda(\theta)}, \quad (12)$$

which depends positively on the separation rate and negatively on tightness and search intensity. The total number of employed workers is given by:

$$Employment = (1-u)LF. \quad (13)$$

3 Effects of in-work benefits

This section derives the effects of in-work benefits on wage formation, search effort, unemployment, and employment in equilibrium. We summarize the results in the following proposition:

Proposition 1 *An in-work benefit will reduce wages and increase tightness and search effort. Moreover, the equilibrium rate of unemployment falls, and labor force participation and employment increases, with an in-work benefit.*

Proof. Differentiation of (9) with respect to θ and IWB yields $\frac{\partial \theta}{\partial IWB} = \frac{(1-\beta)}{s\beta k \left(1-k(r+\phi) \frac{q'}{s\beta k q^2}\right)} > 0$. To get the equilibrium effect on tightness, we need to account for that s is a function of θ through (10). However, as search is

optimally determined by workers, the effects working through search effort in (9) will have no impact on tightness. Using how IWB affects tightness and the fact that search is optimally determined, we can show the following for search effort, wage, income from work, labor force participation, the unemployment rate, and employment: $\frac{\partial s}{\partial IWB} = \frac{\beta k}{\sigma_{ss}(s)(1-\beta)} \frac{\partial \theta}{\partial IWB} > 0$ from (10), $\frac{\partial w}{\partial IWB} = -(1-\beta) \left[1 - 1 / \left(1 - k(r+s) \frac{q'}{s\beta k q^2} \right) \right] < 0$ from (8), $\frac{\partial(w+IWB)}{\partial IWB} = -(1-\beta) \left[1 - 1 / \left(1 - k(r+s) \frac{q'}{s\beta k q^2} \right) \right] + 1 > 0$, $\frac{\partial LF}{\partial IWB} = F'(\cdot) \frac{s\beta k}{(1-\beta)} \frac{\partial \theta}{\partial IWB} > 0$ from (11), $\frac{\partial u}{\partial IWB} = -\frac{\phi}{\phi+s(\theta)\lambda(\theta)} \left(\frac{\partial s}{\partial \theta} \lambda(\theta) + s \frac{\partial \lambda}{\partial \theta} \right) \frac{\partial \theta}{\partial IWB}$ from (12), and $\frac{\partial Employment}{\partial IWB} = -\frac{\partial u}{\partial IWB} LF + (1-u) \frac{\partial LF}{\partial IWB}$ from (13). ■

An in-work benefit, which by definition is conditioned on work, tends to reduce wage demands as such benefit makes it relatively more attractive to have a job. Thus workers restrain their wage demands in order to reduce their time in unemployment. As wage demands fall, it becomes more profitable to open vacancies in relation to the number of efficient job searcher in the unemployment pool, which induces tightness to increase. As the expected unemployment spells become shorter, the return to job search increases, which induces unemployed workers to devote more time to search. The equilibrium rate of unemployment falls both because unemployed workers search more intensively for a job and because there are more posted vacancies relative the number of efficient job searcher. An in-work benefit will also induce more workers to choose participation instead of non-participation. The shorter expected unemployment spells simply increases the returns to participation. Consequently, total employment increases both because the equilibrium rate of unemployment falls and because more workers choose to participate in the labor market.

4 Extensions

In order to illustrate the effects of an in-work benefit on wage formation and employment in equilibrium, we used a simple model set-up which disregarded the presence of unemployment benefits, and the determination of work hours. Moreover, the in-work benefit was considered to be fixed. In many countries, the in-work benefit instead is indexed to labour income, see for example the EITC in the US. It is, however, straight forward to extend this simple matching framework to include such features in the model. The

main conclusions from these elaborations is that the results summarized in proposition 1 remain.

To include a fixed level of unemployment benefits, B , in the model will not modify the results put forth in the proposition in section 2. Neither will the assumption of unemployment benefits that are indexed to the wage, i.e., $B = bw$. However, when benefits are indexed to the wage, an increase in the in-work benefit (IWB) tends to have a larger effect on wage demands. This follows as the wage moderation is followed by a reduction in the unemployment benefits, which reduce the wage demands further. In fact, the take home pay when employed, $w + IWB$, may fall with an increase in the in-work benefit when benefits are indexed to the wage. However, despite the fact that labor income may fall with an increase in the in-work benefit, more workers will enter the labour market as the expected unemployment spells becomes shorter.

Regarding the endogenous determination of work hours, we have considered both cases when work hours are determined by the individual and when work hours are determined through bargaining. The following separable utility function is considered to capture disutility of work, $u = I - \varphi(h)$, where I denotes income. This utility function will only allow us to capture substitution effects of the policy in focus. It is straightforward to show that the results proposed in proposition 1 will remain also if we let work hours to be determined endogenously in this way. However, it also follows that work hours are unaffected by an increase of the in-work benefit in case hours are determined through bargaining, but will, in fact, fall if hours are determined by the individuals.

Finally, we can conclude that the result in proposition 1 remain if we assume that the in-work benefit is indexed to the wage, i.e., $IWB = \gamma w$ where γ is positive in a phase-in region and negative in a phase-out region. A steeper phase-in rate or a less steep phase-out rate then captures an increase in the in-work benefit.

5 Financing of the in-work benefit

In this section we study the effects of in-work benefits when their financing through proportional income taxation is taken into account. In particular, wages are taxed at the proportional rate t^4 . The rewriting of the first order

⁴Having the IWB being financed by payroll taxation would yield the same results.

condition for wage determination in (7) becomes:

$$(1-t)\frac{\beta}{(1-\beta)}J = (E-U), \quad (14)$$

and the wage rule corresponding to (8) becomes

$$w = \beta(y + ks\theta) - \frac{1-\beta}{1-t}[IWB + \sigma(s)]. \quad (15)$$

One can note that a higher tax rate will have a direct negative effect on wage demands given by (15). The reason for this is that a higher tax rate increases the value of the in-work benefit, and thus works as an increase in the IWB. As the IWB is only accessible when employed, the value of employment increases which induces wage moderation.

In-work benefits are financed by taxing wages. As only employees receive the benefits, a balanced budget implies

$$IWB = tw. \quad (16)$$

Substituting (16) into (15) and rearranging, we get the wage as an expression of the tax rate

$$w = \beta[y + ks\theta + \sigma(s)]\frac{1-t}{1-\beta t} - \sigma(s). \quad (17)$$

The corresponding expression for IWB is given by

$$IWB = \beta[y + ks\theta + \sigma(s)]t\frac{1-t}{1-\beta t} - t\sigma(s). \quad (18)$$

Tightness is given by

$$\frac{k}{q(\theta)} = \frac{y-w}{r+\phi} \quad (19)$$

substituting (17) we get the expression for equilibrium tightness corresponding to (9):

$$\frac{k(r+\phi)}{q(\theta)} = (1-\beta)[y + ks\theta + \sigma(s)]\frac{1}{1-\beta t} - ks\theta. \quad (20)$$

In the (θ, w) space, increasing the tax rate shift the wage curve (17) downward and clockwise, while leaving the job creation curve (19) unchanged, thus clearly reducing the equilibrium wage and increasing tightness, i.e.

$$\frac{\partial w}{\partial t} < 0, \frac{\partial \theta}{\partial t} > 0.$$

Note that changes in t working through s will have no effect on these expressions as s is chosen optimally. The figure below plots the cases $t = 0.3$ (solid line) and $t = 0.5$ (dotted line.) Thus, we can state that an increase in propor-

Figure 1: Equilibrium wage and market tightness

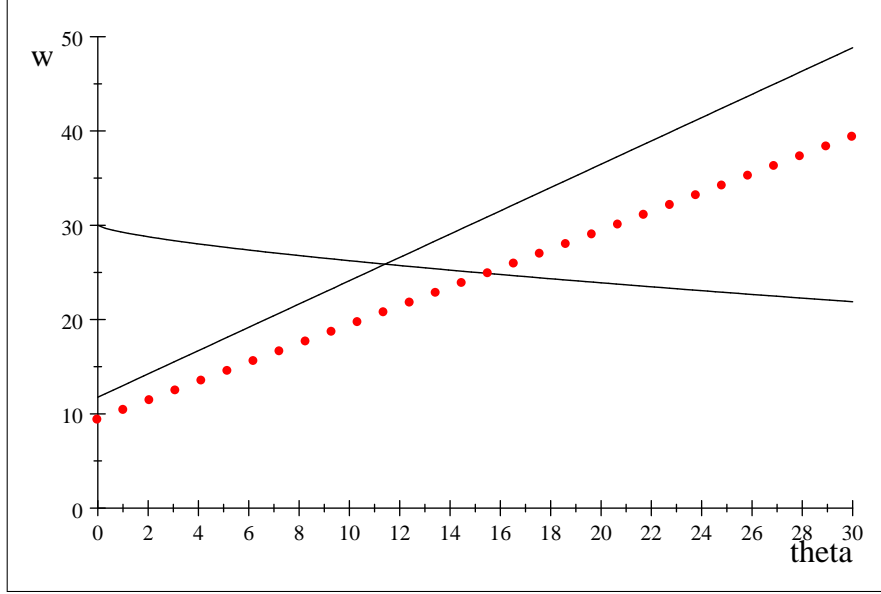


Figure 2: $y = 30, k = 3, \beta = 0.5, r = 0.05, \phi = 0.2, q = \theta^{-0.7}, \sigma = 1, s = 1$

tional taxation used to finance in-work benefits reduces wages and increases tightness. It is also straightforward to formally verify this by differentiating (20) and (17) with respect to t , θ , and w .⁵

The relationship between the tax rate and in-work benefits may not be monotonic. For a given wage, an increase in t increases IWB . However, in equilibrium the tax rate has a moderating impact on wages, with higher t corresponding to lower w . Thus, the effect of an increase in the tax rate on

⁵Differentiating (20) with respect to t and θ yields $\frac{\partial \theta}{\partial t} = \frac{(1-\beta)[y+ks\theta+\sigma(s)]}{(1-\beta t)sk(1-t)[1+z]} > 0$, where $z = -\frac{(r+\phi)q'}{q^2} \frac{(1-\beta t)}{(1-t)s\beta} > 0$. Then differentiating (17) with respect to w and t accounting for that θ is affected by t , yields: $\frac{\partial w}{\partial t} = -\frac{\beta(1-\beta)[y+ks\theta+\sigma(s)]}{(1-\beta t)^2} \left[1 - \frac{1}{1+z} \right] < 0$. Again, note that changes in t working through s will have no effect on these expressions as s is chosen optimally by the individuals.

tax revenues, i.e. on in-work benefits, may be dominated by the reduction in the tax base, i.e. the reduction in wages due to a tax hike⁶.

There may be some sort of "Laffer curve", but as far as the economy is on the side of the curve where an increase in the tax rate increases total revenues, i.e. $\frac{\partial IWB}{\partial t} > 0$, then

$$\frac{\partial w}{\partial IWB} < 0, \frac{\partial \theta}{\partial IWB} > 0.$$

Search intensity is given by (4). Using the free entry condition $V = 0$ in (6) together with (14) we get

$$\sigma_s(s) = (1-t) \frac{\beta k \theta}{1-\beta}.$$

For search intensity to grow as the tax rate increases we need

$$(1-t) \frac{\partial \theta}{\partial t} - \theta > 0.$$

Labor force participation is given by

$$LF = F \left((1-t) \frac{s\beta k \theta}{(1-\beta)} - \sigma(s) \right). \quad (21)$$

and it increases with t iff $(1-t) \frac{\partial \theta}{\partial t} - \theta > 0$.

Unemployment is given by (12). If search intensity increases with t then surely unemployment decreases with t . Employment is given by (13) and if the condition for labor force participation and search intensity to increase with t is satisfied, then also employment increases with t .

When is it the case that $(1-t) \frac{\partial \theta}{\partial t} - \theta > 0$? Substituting the expression for $\frac{\partial \theta}{\partial t}$ the condition is equivalent to

$$\frac{(1-\beta)[y + ks\theta + \sigma(s)]}{(1-\beta t)} > \theta sk \left[1 - \frac{(r+\phi)q'}{q^2} \frac{(1-\beta t)}{(1-t)s\beta} \right].$$

⁶Differentiating (18) wrt t we get $\frac{\partial IWB}{\partial t} = \frac{(\beta t^2 - 2t + 1)\beta[y + ks\theta + \sigma(s)]}{(1-\beta t)^2} + \frac{\beta k s t (1-t)}{1-\beta t} \frac{\partial \theta}{\partial t} - \sigma(s)$.

The first term is positive iff $t \in \left[0, \frac{1-\sqrt{1-\beta}}{\beta} \right] \supset [0, \frac{1}{2}]$. The second term is always positive as $\frac{\partial \theta}{\partial t} > 0$. So, for $\sigma(s)$ small enough and t not too high $\frac{\partial IWB}{\partial t} > 0$. Substituting the expression for $\frac{\partial \theta}{\partial t}$ we get $\frac{\partial IWB}{\partial t} = \frac{\beta[y + ks\theta + \sigma(s)]}{1-\beta t} \left[(1-t) - \frac{t(1-\beta)}{(1-\beta t)} \left(1 - \frac{1}{1+z} \right) \right] - \sigma(s)$

Using the equilibrium expression for tightness (20) and rearranging we get

$$\eta(\theta) < \frac{1-t}{1-\beta t}\beta,$$

where $\eta(\theta) = -\frac{q'}{q}\theta$ is the elasticity of the expected duration of a vacancy. With $t = 0$ the condition is $\eta(\theta) < \beta$. We know that because of trading externalities equilibrium search intensity and participation are generally too low from the point of view of society and, when $\beta > \eta(\theta)$, equilibrium unemployment is above the socially efficient rate (Pissarides, 2000). What we show is that in these circumstances there is room for in-work benefits to improve labor market efficiency by increasing search intensity, labor force participation, employment, and reducing unemployment, even when financing is taken into account.

Proposition 2 *Proposition 1 holds also when the in-work benefits are financed through proportional taxes on wages, provided that the tax rate is such that a higher tax rate implies higher fiscal revenues and that $\eta(\theta) < \frac{1-t}{1-\beta t}\beta$.*

When also unemployment benefits are accounted for, the analysis of financing becomes more complex, as the tax rate necessary to finance a given level of in-work benefits and unemployment benefits (or a given replacement rate) depends on the equilibrium level of unemployment⁷. In this case an increase of in-work benefits is likely to be partly financed by reduced unemployment benefits handouts, and, if also unemployment benefits are taxed, by higher revenues from unemployed. Thus, the results are likely to be confirmed also in that case.

6 Conclusions

In-work benefits are becoming increasingly popular among policy-makers due to their success in the American and British contexts. Whether or not they can be successfully adopted in other countries and help solve some of the problems characterizing their labor markets is an open issue. This paper represents a first step to address this question. We analyze the impact of in-work benefits on some of the main labor market indicators in a search

⁷If we consider also some kind of social assistance available to non participants, then also the size of the labor force matters.

framework, taking into account the general equilibrium effects. We find that introducing or increasing in-work benefits increase labor force participation, employment, and search intensity by unemployed, while wages and the unemployment rate decline. This result is robust to various extensions.

Considering in-work benefits in a general equilibrium setting reveals that employment increases mainly through the impact on job creation, in contrast to the impact of increased labor supply due to a higher take-home pay. In fact, in-work benefits may even reduce the take-home pay as wage demands are moderated.⁸ However, the lower wages boost job creation which reduces unemployment. The shorter expected unemployment spell, in turn, encourages job search and labor force participation which reinforces the increase in employment. Our model suggests that the job creation dimension should be taken into account in evaluating ex ante the impact of introducing such benefits in an European country. The risk is, otherwise, to miss a very important link

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⁸This we concluded in section 4 where unemployment benefits were indexed to the wage which induced additional wage moderation which actually could reduce the take-home pay.

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