



Labor market policy evaluation in equilibrium: Some lessons of the job search and matching model

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ABSTRACT

We analyze the consequences of counseling provided to job seekers in a standard job search and matching model. It turns out that neglecting equilibrium effects induced by counseling can lead to wrong conclusions. In particular, counseling can increase steady state unemployment although counseled job seekers exit unemployment at a higher rate than the non-counseled. Dynamic analysis shows that permanent and transitory policies can have effects of opposite sign on unemployment.

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1. Introduction

Most policy evaluations are based on comparing the behavior of participants and non participants in the policy. But the differences in outcome between the treatment group and the control group do estimate the policy mean impact only if the outcomes of the control group are not influenced by the policy, the so-called ‘no-interference’ (Rubin, 1978) or ‘stable unit treatment value’ (Angrist et al., 1996) assumption. However, the policy may have equilibrium effects that extend to the untreated as well. For instance, Heckman et al. (1998a,b) strikingly illustrate this point in the context of education policies. This issue, which is discussed in a broader perspective in the survey of Meghir (2006), is particularly relevant to the evaluation of labor supply based policies (such as increasing incentives or monitoring the unemployed). First, they generally aim at increasing the overall number of filled jobs, which depends on the interactions between aggregate labor supply and labor demand. Second, these policies may induce displacement effects: treated persons may crowd out the untreated because they compete for the same jobs.

Although they have long been recognized, these questions have received limited attention to date. Davidson and Woodbury (1993) and Calmfors (1994) are early contributions. More recently, Lise et al. (2005) study the equilibrium effects of the Self-Sufficient Project

incentive program in Canada. They calibrate an equilibrium model of the labor market so that, when used in partial equilibrium, the model matches the effect of the program estimated by direct comparison of treated and untreated. When equilibrium effects are simulated, the impact of the Self-Sufficient Project is far lower. In contrast, Albrecht et al. (2009) find, using a calibrated model, equilibrium effects of a Swedish training program to be stronger than implied by direct comparison. Using a job search and matching model with skilled and unskilled workers, Van der Linden (2005) shows that micro and equilibrium evaluations are likely to differ widely when job search effort and wages are endogenous. When wages are bargained over, raising the effectiveness of or the access to counselling programs pushes wages upwards and leads to lower search effort among nonparticipants. Induced effects can outweigh positive micro effects on low-skilled employment when the response of wages is taken into account.

The equilibrium effects have also been analyzed in empirical evaluations that do not rely on structural models. For instance, the contribution of Blundell et al. (2004) evaluates the New Deal for Young People in the U.K. This program was piloted in certain areas before it was rolled out nationwide. Moreover, the program has age specific eligibility rules. Blundell, Costa Dias, Meghir and Van Reenen use these area and age based eligibility criteria that vary across individuals of identical unemployment durations to identify the program effects. They find that either equilibrium wage and displacement effects are not very strong or they broadly cancel each other out.

The aim of our paper is to analyze the impact of counseling in the standard matching model of the labor market (Pissarides, 2000). In our specification, counseled unemployed have a constant comparative

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advantage in the job search.¹ Using this simple model allows us to analyze the consequences of counseling in a dynamic set-up, whereas previous studies are limited to the comparison of steady states. More precisely, we shed some light on three important issues:

- (i) What is the true impact of the policy when equilibrium effects are taken into account? The model shows that the true impact of counseling can be very different from what can be concluded when equilibrium effects are neglected even when the treatment group is small. For instance, we find that counseling can increase unemployment when a small proportion of job seekers benefit from counseling, although counseling improves the efficiency of job search. Equilibrium effects rely on the adjustment of wages. The impact of policies on wages has been analyzed in some papers devoted to equilibrium effects of several labor market policies and education policies, in particular since the seminal contribution of Heckman et al. (1998a,b).² Our model allows us to analyze precisely the reaction of wages to counseling, as in the paper of Van der Linden (2005).³
- (ii) What is the impact of the generalization of the policy to a large treatment group? The model shows that there is no simple answer. In particular, the relation between the impact of the policy on unemployment and the size of the treatment group is not necessarily monotonic. Strikingly, in our framework, unemployment increases with the size of the treatment group when a small share of job seekers are treated but diminishes with the size of the treatment group when a sufficiently large share of job seekers are counseled.
- (iii) What is the dynamic impact of counseling? Many experiments made to evaluate labor market policies are transitory. Typically, a group of job seekers is selected to benefit from counseling (the treatment group) and the control group will never benefit from counseling. The comparison between the outcomes yields the evaluation of the impact of counseling. Our model allows us to stress that the consequences of permanent and transitory policies can be very different. The difference comes from the reaction of non-counseled job seekers. When the policy is transitory, non-counseled workers do not expect to benefit from counseling in the future. However, when the policy is permanent, the expectation to benefit from counseling in the future induces the non-counseled workers to raise their reservation wage. In our framework, this phenomenon implies that permanent counseling increases unemployment when a small share of job seekers are counseled whereas counseling always decreases unemployment when it is transitory. Accordingly, it can be misleading to conclude that a truly successful transitory policy will remain successful when it becomes permanent.

The paper is organized as follows. The model is presented in Section 2. Section 3 is devoted to the impact of counseling in steady state. Transitory dynamics are analyzed in Section 4. Section 5 provides concluding comments.

2. The model

We consider a standard matching model à la Pissarides (2000) with a continuum of infinitely-lived risk neutral workers. The measure of the continuum is normalized to one. There are two goods: a good

produced and consumed, which is the numeraire, and labor. There is a common discount rate r , strictly positive. Time is continuous. Workers can be in three different states: (1) employed, (2) unemployed and counseled, (3) unemployed and not counseled. Upon entering unemployment, workers are not counseled. They then enter into counseled status at a rate $\mu > 0$ and they keep on receiving counseling until they find a job.

There is an endogenous number of jobs. Each job can be either vacant or filled. Filled jobs produce $y > 0$ units of the numeraire good per unit of time, whereas vacant jobs cost c per unit of time. Filled jobs are destroyed with probability $\lambda > 0$ per unit of time.

Vacant jobs and unemployed workers (the only job seekers, by assumption) are brought together in pairs through an imperfect matching process. This process is represented by the customary matching function, which relates total contacts per unit of time to the seekers on each side of the market. Let us denote by u_n and u_c the number of non-counseled and counseled unemployed workers respectively. In our set-up, the only potential effect of counseling is to increase the arrival rate of job offers to the counseled unemployed workers. Let us normalize to one the number of efficiency units of job search per unit of time of each non-counseled unemployed worker. Counseled unemployed workers are assumed to produce a different number of efficiency units of search, denoted by $\delta \geq 1$.⁴ In this setting, the number of efficiency units of job search per unit of time amounts to $s = u_n + \delta u_c$. It should be noted that empirical studies do not systematically find a positive impact of counseling on the entry rate into employment. For instance, Van den Berg and van der Klaauw (2006) find that counseling and monitoring do not affect the exit rate to work in the Dutch unemployment insurance system at the end of the 1990s. Crépon et al. (2005) find a significant positive impact of counseling in France over the period 2002–2004. Here, we simply assume that counseling has a positive impact on the entry rate into work at the individual level in order to analyze the equilibrium effects of counseling.

The number of employer–worker contacts per unit of time is given by $M(s, v) \geq 0$, where $v \geq 0$ denotes the number of job vacancies and M is the matching function, twice continuously differentiable, increasing, concave in both of its arguments, and linearly homogeneous. Linear homogeneity of the matching function allows us to express the probability per unit of time for a vacant job to meet an unemployed worker as a function of the labor market tightness ratio, $\theta = v/s$. A vacant job meets on average $M(s, v)/v = q(\theta)$ unemployed workers per unit of time, with $q'(\cdot) < 0$. Similarly, the rate at which counseled and non counseled unemployed job seekers can meet jobs is $\delta \theta q(\theta)$ and $\theta q(\theta)$ respectively.

Parameter δ is estimated by econometricians who evaluate the impact of counseling by comparing the exit rate out of unemployment of counseled workers and the exit rate out of unemployment of non-counseled workers assuming that the arrival rate of job offers to the non-counseled workers is not influenced by counseling. Henceforth, we assume that δ has been correctly evaluated in this way. The model allows us to analyze the impact of counseling on the non-counseled workers and on labor market equilibrium.

2.1. Job creation

Let J_c and J_n be the present-discounted value of expected profit from an occupied job with a counseled worker and a non-counseled worker respectively. Let V denote the present-discounted value of expected profit from a vacant job. V satisfies

$$rV = -c + q(\theta)[\alpha J_c + (1 - \alpha)J_n - V] + \dot{V},$$

¹ We simply assume that counseling increases the exit rate out of unemployment. Monitoring and sanctions are not explicitly considered here (for an overview, see Boone et al., 2007). Counseling programs are very different from long-duration training schemes intended to enhance skills (see Albrecht et al., 2009; Boone et al., 2007; Masters, 2000).

² See the survey of Meghir (2006).

³ Van der Linden assumes that wages are collectively bargained over, whereas we assume an individual bargaining framework, where counseled and non-counseled workers can get different wages.

⁴ Pissarides (1979) and more recently Cahuc and Fontaine (2009) provide models that explicitly represent how the employment agency can increase the efficiency of matching.

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