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Economics Letters 88 (2005) 176–183

economics letters

www.elsevier.com/locate/econbase

Efficient v.s. equilibrium unemployment with match-specific costs

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Received 31 August 2004; received in revised form 25 January 2005; accepted 16 February 2005
Available online 17 May 2005

Abstract

This paper extends the standard matching model by adding match-specific costs, which can only be partially protected from hold-up because of workers' bargaining power. We show that a decrease in equilibrium unemployment might improve welfare for realistic values of workers' bargaining power.

Keywords: Hiring cost; Hold-up; Matching

JEL classification: E24; J41

1. Introduction

In the standard matching theory where wages are determined by a Nash-bargaining solution, the equilibrium unemployment is efficient only for a specific value of workers' bargaining power (this is referred to as the Hosios condition; see Hosios (1990)).[1] Empirical estimates of the matching function show that the efficient unemployment rate is lower than the equilibrium one if workers' bargaining power is greater than 50%.[2] But, because most estimates of workers' bargaining power indicate a lower

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[1] To be more precise, the Hosios condition states that the worker's bargaining power is equal to the elasticity of the matching function with respect to unemployment.

[2] This is a lower bound (see Blanchard and Diamond (1989) and Broersma and Van Ours (1999)).

0165-1765/$ - see front matter © 2005 Published by Elsevier B.V.
doi:10.1016/j.econlet.2005.02.007

value than 50%[3], one can question the positive effects on welfare of a decrease in equilibrium unemployment.

This note aims at re-examining this conclusion by using a matching model with match-specific costs (such as screening and training costs), which can only be partially protected from hold-up because of workers' bargaining power (see Malcomson (1997) for a survey on hold-up theory). We show that a decrease in unemployment can be welfare improving even when workers' bargaining power is lower than 50%.

The intuition is as follows. The Hosios condition arises because the welfare gain from an additional vacancy equals the gain from filling an additional vacancy multiplied by the marginal increase in the number of matches. However, the gain in terms of profit from creating a vacancy consists of the added firm's profit multiplied by the probability that this vacancy will be filled, which is the average number of vacancies filled. Efficiency requires those two to be equal. Because hold-up reduces the firm's profit gain from creating a vacancy, a lower wage (hence a lower worker's bargaining power) will yield efficiency.

2. Theoretical investigation

2.1. The economic environment

There is a continua of identical risk-neutral workers and firms. Time is continuous. All agents live forever and discount the future at the common rate r. The total mass of workers is normalized to one. Each firm consists of one job. The recruiting cost ω is associated with the opening of a vacancy. In addition, we assume that whenever a vacancy is filled, the firm must incur a per unit fixed cost, Q, in order to begin production.[4]

Matching is frictional and we denote by $x(v, u)$ the flow of new worker–firm matches, where u is the total mass of unemployed workers and v the total mass of vacancies. We denote by n the mass of employees ($u=1-n$). In this formulation, x can be viewed as a standard neoclassical production function, which is assumed to be homogenous of degree one, increasing and concave in u and v. Let $\theta=v/u$ denote the labor market tightness. The rate at which vacant jobs are filled is $q(\theta)=x(v, u)/v=x(1, \theta)$ while the rate at which unemployed workers find a job is $p(\theta)=x(v, u)/u=x(\theta, 1)\equiv\theta q(\theta)$. It is easy to verify that $p'(\theta)>0$, $q'(\theta)<0$, $p(\infty)=q(0)=\infty$ and $p(0)=q(\infty)=0$. When a match is formed, the worker–firm pair starts production as soon as the firm has incurred the hiring cost. A firm with a filled job then produces an exogenous flow of output y. The production continues until the job is destroyed at an exogenous rate s. When this event occurs, the worker joins the pool of unemployment.

[3] For instance, Cahuc et al. (2004) find that the bargaining power of French unskilled employees is zero, while it is lower than 50% for skilled employees, excepted in the retail (food) and automobile sectors. Abowd and Lemieux (1993), Abowd and Allain (1996) and Cahuc et al. (1997) both find values of workers' bargaining power lower than 50%.

[4] Following Mortensen and Pissarides (2000)), we distinguish recruiting costs, which only include screening costs, from hiring costs, which consist of application, processing and training costs (payroll for instructors, rental of equipment and space). Estimates of turnover costs indicate that training costs for newly hired workers are of significant order (see Hamermesh (1993) and Abowd and Kramarz (1998)).