



# Equilibrium unemployment with outsourcing under labour market imperfections<sup>☆</sup>

Erkki Koskela<sup>a,\*</sup>, Rune Stenbacka<sup>b</sup>

<sup>a</sup> Department of Economics, P.O. Box 17 (Arkadiankatu 7), 00014 University of Helsinki, Finland

<sup>b</sup> Hanken School of Economics, P.O. Box 479, 00101 Helsinki, Finland

## ARTICLE INFO

### Article history:

Received 3 February 2007

Received in revised form 21 October 2008

Accepted 12 November 2008

Available online 18 November 2008

### JEL Classification:

E23

E24

J51

J64

### Keywords:

Outsourcing

Equilibrium unemployment

Labour market imperfections

Wage bargaining

Production mode

## ABSTRACT

We study the effects of international outsourcing on equilibrium unemployment in a high-wage economy with labour market imperfections. We demonstrate, consistent with empirical results, that the wage elasticity of labour demand is increasing as a function of outsourcing. Furthermore, we show that a production mode with more outsourcing reduces the negotiated wage in a high-wage country with labour market imperfections if the relative bargaining power of the labour union is sufficiently high. Under such circumstances outsourcing reduces equilibrium unemployment. Finally, we characterize the optimal production mode showing that stronger labour market imperfections induce a production mode with more outsourcing.

© 2008 Elsevier B.V. All rights reserved.

## 1. Introduction

On a global scale wage differences are enormous across countries ranging from, for example, 1.10 € per hour in China to almost 28 € per hour in Germany (see, e.g. Sinn (2006, 2007)). Wage differences like this constitute a central explanation for the increasingly dominant business practice of international outsourcing across a wide range of industries. For example, Business Week (2003), Amiti and Wei (2005) as well as Rishi and Saxena (2004) refer to the huge difference in labour costs as the key explanation for the strong increase in outsourcing of both manufacturing and services to countries with low labour costs. However, the exploitation of the marginal cost advantages offered by production in low-wage countries typically requires that the firms make sunk investments into the establishment of networks of suppliers in the relevant low-wage countries.

In countries with strong labour market imperfections the labour unions, and sometimes citizens more generally, typically express deep concerns when facing the challenge of large-scale outsourcing. These concerns often seem to focus on the consequences of large-scale outsourcing for employment in high-wage countries. This is the topic of this article. More precisely, we design a model to answer the following questions: What is the effect of a commitment to outsourcing on wage formation in an imperfectly competitive labour market where labour unions and firms negotiate over wages? What are the associated effects on equilibrium unemployment in a country with such labour market imperfections? We also explore the relationship between outsourcing and wage formation in the other direction, by asking: How does the presence of labour market imperfections in the high-wage country impact on the outsourcing incentives of firms? Will stronger labour market imperfections increase the optimal scale of outsourcing?

We find that the wage elasticity of labour demand is increasing as a function of the share of outsourcing, a result consistent with existing empirical research. Furthermore, within the framework of our model we show that a production mode with more outsourcing reduces the negotiated wage in the high-wage country if the bargaining power of the labour union is sufficiently high. For this reason outsourcing reduces equilibrium unemployment in economies with sufficiently significant labour market imperfections. Finally, we characterize the optimal production mode and show that stronger labour market

<sup>☆</sup> The authors are grateful to two anonymous referees as well as the co-editor for helpful comments. The authors thank the Research Unit of Economic Structures and Growth (RUESG), financed by the Academy of Finland, University of Helsinki, Yrjö Jahnsso Foundation, Bank of Finland and Nokia Group, for financial support. Koskela also thanks the Academy of Finland (grant No. 1109089) for further financial support.

\* Corresponding author.

E-mail addresses: [erkki.koskela@helsinki.fi](mailto:erkki.koskela@helsinki.fi), [ekoskela@valt.helsinki.fi](mailto:ekoskela@valt.helsinki.fi) (E. Koskela), [Rune.Stenbacka@hanken.fi](mailto:Rune.Stenbacka@hanken.fi) (R. Stenbacka).

imperfections lead to a production mode with a higher share of outsourcing.

Despite the apparent significance of the issue it is surprising to observe that the existing research has explored the implications of international outsourcing for equilibrium unemployment in the presence of labour market imperfections only to a fairly limited extent. Below we briefly describe the relevant literature focusing on this issue so as to highlight how this study adds to our knowledge.

Danthine and Hunt (1994) have both theoretically and empirically studied the effects of international outsourcing and foreign direct investment on wage formation in the home country. They showed that higher product market integration implies intensified product market competition, which moderates wage increases in unionised labour markets. Zhao (1998) has studied the impact of foreign direct investment on wages and employment, when labour-management bargaining is industry-wide. He argued that foreign direct investment reduces the negotiated wage if the union focuses on wages. Glass and Saggi (2001) have studied the causes of outsourcing and its effects, finding that higher international outsourcing lowers both the relative wage of workers and increases the returns from innovation.

Skaksen and Sorensen (2001) have studied the effects on trade unions of firms' foreign direct investments, which are made prior to the stage of the wage bargaining. They argued that if there is a high degree of substitutability (complementarity) between the activities in the home country and in the host country, then it is likely that foreign direct investments reduce (increase) negotiated wages so that domestic workers lose (benefit). Skaksen (2004) has analyzed the implications of outsourcing, in terms of both potential (non-realized) and realized international outsourcing, for wage setting and employment under imperfectly competitive labour markets. Contrary to our analysis, he assumed that the firms do not commit themselves to outsourcing prior wage negotiation, but that the outsourcing decisions are made after the wage negotiations.

Lommerud et al. (in press) have analyzed the incentives of firms operating in unionized industries to outsource the production of intermediate goods to foreign low-cost subcontractors. They argue that stronger unions will lead to higher returns from outsourcing from the firms' point of view. Furthermore, they show that intensified product market competition will increase the incentives for international outsourcing. However, since their analysis is restricted to a partial equilibrium model they do not analyze the relationship between equilibrium unemployment and international outsourcing.

In terms of empirics Feenstra and Hanson (1999) have studied the impact of foreign outsourcing and technology on wages using U.S. data over the period 1979–1990. According to their findings, wages of low-skilled workers have fallen relative to those of high-skilled workers. Recently, Senses (2006) has argued that an increased probability of outsourcing associated with a decline in foreign intermediate input prices and an increase in the elasticity of substitution between foreign and domestic inputs might increase the wage elasticity of labour demand. She has provided relevant empirical evidence, according to which a production mode with more outsourcing increases the wage elasticity of labour demand.<sup>1</sup>

Our study proceeds as follows. Section 2 presents the basic structure of the model as well as the time sequence of the decisions in terms of outsourcing, wage bargaining and labour demand. Labour demand by firms is studied in Section 3, whereas we focus on wage determination through Nash bargaining in Section 4. Section 5 explores how the production mode affects equilibrium unemployment. In Section 6 we investigate the optimal outsourcing decision in

the presence of labour market imperfections. Finally, we present concluding comments in Section 7.

## 2. Basic framework

We design a model of international outsourcing in an economy characterized by imperfections in the domestic labour market. In the long run, at stage 1, firms establish a network for foreign outsourcing. Outsourcing production to a foreign low-wage country has the advantage for the firm of avoiding the wage mark-ups imposed by the unions in the domestic high-wage country. More precisely, with outsourced production we assume that the firm can acquire the labour input at the factor price  $c$ , which is lower than the outside option,  $b$ , available to union members in association with the wage negotiations in the (domestic) high-wage country. However, there is a fixed (sunk) cost of establishing capacity for foreign outsourced production. In order to exploit  $M$  units of outsourced labour input the firm has to make the irreversible investment  $g(M)$  with the properties that the required investments are increasing and convex as a function of  $M$ , i.e.  $g'(M) > 0$  and  $g''(M) > 0$ . This captures the idea that the exploitation of the marginal cost advantages associated with production in low-wage countries typically requires that the firm makes irreversible investments into the establishment of networks of suppliers in the relevant low-wage countries.

The outsourcing decision serves as a commitment relative to the wage negotiation and the employment decision in the home country. Thus, the outsourcing decision is made in anticipation of its effects on wage setting and labour demand. At stage 2 there is wage negotiation between the firm and the labour union and this bargaining is conducted conditional on the outsourcing commitment. The wage negotiation in its turn takes place in anticipation of the consequences for labour demand. At stage 3 the firm makes the employment decision by taking the negotiated wage rate and the production mode as given.

We summarize the time sequence of decisions in Fig. 1.

This timing structure captures the idea of long-term production mode decisions, which are inflexible at the stage when the wage negotiations are undertaken. Such a timing structure seems plausible when the implementation of a production mode with outsourcing requires irreversible and firm-specific long-term investments for the establishment of a network of component suppliers. Of course, in principle, the relative timing between the negotiated wage setting and the production mode decisions could also be reversed so as to capture that the negotiated wage serves as a long-term commitment relative to the production mode decision. Such a reversed timing structure could be relevant for outsourcing of standard components for which there already exists plants and established capacity in low-wage countries. Skaksen (2004) has analyzed such a timing structure by assuming that the firms could flexibly adjust their production mode and decide whether to initiate foreign outsourcing after the determination of domestic wages. Also Braun and Scheffel (2007) have developed a simple two-stage game between a monopoly union and a firm by assuming that the union sets wages before the firm decides on the degree of outsourcing and the level of production. They argued that under such flexible outsourcing the costs of outsourcing has an ambiguous effect on the wage set by the labour union.

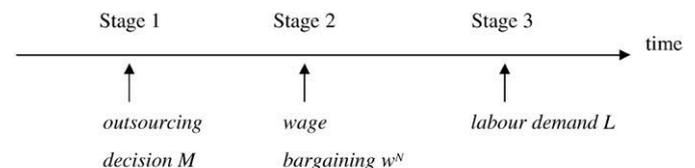


Fig. 1. Time sequence of decisions.

<sup>1</sup> Also e.g. Slaughter (2001) and Hasan et al. (2007) have shown in terms of empirics that international trade has contributed to increased wage elasticities of domestic labour demand.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات