



Offshoring, unemployment, and wages: The role of labor market institutions[☆]

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ARTICLE INFO

Article history:

Received 3 November 2010
Received in revised form 20 June 2012
Accepted 25 June 2012
Available online 6 July 2012

JEL classification:

F16
J64
J50

Keywords:

Offshoring
Unemployment
Collective bargaining
Unions
Unemployment benefits
Recruitment cost

ABSTRACT

It is shown that when wages are determined through collective bargaining, there is a non-monotonic relationship between the cost of offshoring and unemployment. Starting from a high cost of offshoring, a decrease in the cost of offshoring reduces unemployment first and then increases it. The non-monotonicity of unemployment in the cost of offshoring does not obtain if wages are determined by individual Nash bargaining instead of collective bargaining. The non-monotonic relationship between the cost of offshoring and unemployment is verified through a calibration exercise performed using parameters for Sweden. The calibration exercise predicts that a decrease in the cost of offshoring, starting from the present level, would reduce unemployment in Sweden. In a two country framework of offshoring (source country and host country) it is shown how changes in the labor market institutions in one country affect labor market outcomes in both countries.

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1. Introduction

There has been a resurgence of interest in analyzing the impact of globalization on unemployment. Most papers use models of search unemployment where wages are set through individual Nash bargaining between the worker and the employer, and therefore, do not take into account the role of collective bargaining in the wage setting process. This is a serious omission because for many European countries collective bargaining plays an important role in the wage setting process. When thinking about the importance of collective bargaining in an economy, people usually think about union density which measures the fraction of workforce that is unionized. Union density varied among OECD countries from a low of 8% in France to a high of 71% in Sweden in 2007 (OECD, 2010). However, union density grossly understates the percentage of workers covered by collective bargaining. This is particularly so in some countries like France where despite a very low union density, approximately 95% of workers are covered by collective bargaining (Venn, 2009). In general, in many European countries like Austria, Belgium, Finland, Norway, and Sweden a very high percentage of workers are covered by collective bargaining, much in excess of union density. However, in countries like the U.S., Canada, and Japan only a small

percentage of employees are covered by collective bargaining.¹ This motivates us to study the implications of different wage setting institutions for unemployment in a globalized world.

The facet of globalization that we study in this paper is offshoring where by offshoring we mean the sourcing of inputs (goods and services) from foreign countries which enables the fragmentation of production process.² One of the main motivations for fragmenting the production process is the ability to procure these inputs at a lower cost from abroad than at home.³ When production of these inputs moves to foreign countries, the fear at home is that jobs will be lost, unemployment will rise, and wages will fall, making it a salient public policy issue. It is also feared that firms can use the threat of offshoring to force workers to accept lower wages. Therefore, gaining an upper hand in wage bargaining with domestic workers could be an additional motivation for offshoring.

This paper constructs a Pissarides style search model of unemployment to study the impact of offshoring on unemployment and wages. While wages are set through individual Nash bargaining in the standard

¹ Percentage of workers covered by collective bargaining: Austria:99, Belgium:96, Finland:90, Norway:72, Sweden:92, U.S.:13, Japan:16, Canada:32. Source: Venn (2009).

² Our concept of offshoring includes the procurement of inputs both from a foreign affiliate and a non-affiliate. Sometimes the term foreign outsourcing is used for the latter and the two together are also referred to as “externalization abroad” (see OECD, 2007).

³ Offshoring is quantitatively important as well. According to OECD (2007), the index of outsourcing abroad of goods and services (value of goods and services offshored as a share of domestic demand) in year 2000 was 81% in Belgium, 69% in Netherlands, 61% in both Denmark and Sweden, and 43% in Finland. UNCTAD in 2004 found that 39 percent of the top 500 European firms had engaged in offshoring of services (UNCTAD, 2004, 153).

[☆] I would like to thank Joshua Aizenmann, Gabriel Felbermayr, Devashish Mitra, seminar and conference participants at ISI, Delhi, UC-Irvine, UC-Santa Cruz, Claremont McKenna College, and especially two anonymous referees and editor Robert Staiger for extremely helpful and constructive comments.

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Pissarides framework, we postulate an institutional setting where wages are set through collective bargaining, and contrast the results with those obtained using individual bargaining. We also extend the model to a two country setting where the price of the offshored input is determined endogenously and analyze the implications of offshoring and changes in the labor market institutions on labor market outcomes in both the source and the host country.

Collective bargaining is modeled using a monopoly union type model where unions set wages in the first stage and then firms choose employment in the second stage. Looking at the small country case first, it is shown that the unemployment of domestic workers could be less in an offshoring equilibrium compared to autarky. The reason is that the mere possibility of offshoring changes the behavior of unions. Seeing the possibility of jobs moving abroad, unions reduce their wage demand in the first stage, which induces firms to hire more domestic workers. More generally, there is a non-monotonic relationship between the cost of offshoring and unemployment. Starting from a cost of offshoring close to the autarky cost of obtaining the input domestically, a decrease in the cost of offshoring decreases unemployment first, and when the cost of offshoring becomes small unemployment starts rising. In all cases, however, whether comparing the autarky equilibrium to the offshoring equilibrium or comparative statics with respect to the cost of offshoring, more offshoring is always associated with lower wages. The result on decreased wages due to a decrease in the cost of offshoring is consistent with the anecdotal evidence that one of the key motivations for offshoring is to reduce the bargaining power of workers/unions.

The result that a mere threat of offshoring can lead to a reduction in wages has important implications for empirical research. The traditional approach is to see if greater offshoring in an industry is associated with lower wages. However, our results suggest that what is important is the offshorability – how easy or hard it is to offshore – of an industry rather than the actual amount of offshoring. Ignoring the threat of offshoring as captured in the offshorability of an industry and simply focusing on the actual amount of offshoring, as is done in several empirical studies discussed in the survey by Harrison et al. (2011), can lead to an underestimate of the true impact of offshoring on labor market outcomes. Consistent with our view, Blinder (2009) finds that, after controlling for education, most highly offshorable occupations were paying much lower wages in 2004. Similarly, Ebenstein et al. (2009) find that offshoring had a larger impact on the wages of workers engaged in routine tasks – tasks which are easily offshorable.

In addition to providing analytical results, we also undertake a calibration exercise using parameters for a country with pervasive collective agreements, Sweden, and show that the relationship between the cost of offshoring and unemployment is non-monotonic. The calibration exercise predicts that a decrease in the cost of offshoring, starting from the present level, would reduce unemployment in Sweden.

In contrast to the above results, when wages are set through individual Nash bargaining, we do not obtain the non-monotonicity of unemployment in the cost of offshoring. A decrease in the cost of offshoring always leads to an increase in unemployment. Also, unemployment is always higher in an offshoring equilibrium compared to autarky.

Next, we extend the model to a two country case where the price of the offshored input is determined endogenously. To the best of our knowledge, this is the first attempt to study the implications of offshoring for unemployment in a two country framework. We introduce a country Foreign (host country for offshoring) that supplies the offshored input to Home (source country for offshoring). Now, the labor market policies in either country affect the world price of the offshored input and consequently the labor market outcomes in both countries. In this setting it is shown that a decrease in the exogenous element of the offshoring cost reduces Foreign unemployment but the impact on Home unemployment is similar to that in the small open economy case. That is, the non-monotonicity of unemployment with respect to the exogenous element of offshoring cost obtains even when the price of the offshored input is determined endogenously.

Looking at the implications of labor market policies, it is shown that increases in recruitment costs or unemployment benefits in Foreign lead to an increase in the price of the offshored input. Consequently, the impact on Home is similar to that of an increase in the offshoring cost discussed for the small open economy case earlier. That is, Home wages increase but the impact on Home unemployment is ambiguous. As far as the Foreign labor market is concerned, in the case of unemployment benefits Foreign wages increase unambiguously, but the impact on Foreign unemployment is ambiguous. The direct effect of increases in unemployment benefits is to increase unemployment in Foreign but the feedback effect working through an induced increase in the price of the offshored input decreases unemployment. Increases in recruitment costs in Foreign have ambiguous effects on Foreign wages and unemployment.

Finally, increases in the recruitment costs or unemployment benefits in Home increase offshoring by Home. The consequent increase in the price of the offshored input increases wages and reduces unemployment in Foreign. Home wages increase but the impact on Home unemployment is theoretically ambiguous.

To sum up, a key prediction of our model is that the impact of offshoring on unemployment in the source country is much more benign in the presence of collective bargaining than in the absence of it. An implication is that offshoring is more likely to increase unemployment in the U.S. where wages are mostly negotiated individually compared to Europe where wages are mostly set by collective bargaining. This is in contrast to some earlier work on globalization and unemployment (e.g. Davis, 1998; Moore and Ranjan, 2005) where globalization in the form of trade with unskilled labor intensive countries is likely to lead to a larger increase in unemployment in Europe with an inflexible labor market than in the U.S. which has a more flexible labor market.⁴

1.1. Related literature

While the traditional approach of trade economists has been to work with full employment models, in a series of papers Carl Davidson and Steven Matusz studied the implications of introducing unemployment arising from labor market frictions in trade models. The main focus of their work, as discussed in Davidson and Matusz (2004), has been the roles of efficiency in job search, the rate of job destruction and the rate of job turnover in the determination of comparative advantage. Moore and Ranjan (2005) show how trade liberalization in a skill-abundant country can reduce the unemployment of skilled workers and increase the unemployment of unskilled workers. Skill-biased technological change on the other hand, can reduce the unemployment of unskilled workers. Helpman and Itskhoki (2010) use an imperfectly competitive set up with heterogeneous firms to look at how gains from trade and comparative advantage depend on labor market rigidities, and how labor-market policies in a country affect its trading partner. They also study the impact of trade liberalization on unemployment. Trade liberalization in their set up doesn't affect sectoral unemployment, however, the aggregate unemployment is affected due to workers moving from one sector to another. Depending on whether the country's comparative advantage is in the high unemployment or low unemployment sector, trade liberalization could increase or decrease aggregate unemployment.⁵ Another related paper, Felbermayr et al. (2011) incorporates search unemployment in a one sector model with firm heterogeneity to study the implications of a bilateral reduction in trade cost on unemployment. Decreases in trade costs in their setting improve the average productivity of firms which in turn reduces the effective cost of posting vacancies leading to higher wages and lower unemployment. The present paper differs from these studies in two respects. One, the facet

⁴ In Davis (1998) Europe has a binding minimum wage while the U.S. has no minimum wage, while in Moore and Ranjan (2005) Europe has greater unemployment benefit than the U.S.

⁵ Also see Helpman et al. (2010) where trade increases wage inequality but the impact on unemployment is ambiguous.

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