Outsourcing, Unemployment and Welfare Policy: Separate Appendix*

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A Output Market Equilibrium

Adding income of the skilled in (1) to average income $c_L \equiv (w-\tau)\, e + b\,(1-e)$ of the low-skilled and imposing the fiscal budget (15) yields national income (GNP)

$$c_L + c_H N = Y \equiv ew + rHN + \Pi. \tag{A.1}$$

GNP consists of earnings rHN and profits Π of skilled and wages we of unskilled workers.

Walras' Law implies that the goods market must clear when resource and budget constraints are fulfilled. Substitute (12), (5) and (8) into (A.1)

$$\begin{aligned} s^o \lambda w^s l^s &= (X + X^r - C) + (e - sl)\, w, \quad X \equiv sx + s^o x^o, \\ C &\equiv c_L + c_H N + \kappa sk + s^f f^o, \quad X^r \equiv r \cdot (HN - sh - s^o h^o)\,. \end{aligned} \tag{A.2}$$

Demand stems from consumer demand, and from business spending on search costs and fixed costs of outsourcing. The standard sector adds output X^r, depending on labor

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supply HN of skilled workers in excess of the skill requirements in innovative production. Labor market clearing implies that the North runs a trade surplus $X + X^r - C$ to pay for imports of components. Their value corresponds to wage costs $s^o \lambda w^s l^s$ in the South when free entry squeezes subcontracting profits to zero.

The South is endowed with unskilled labor and is specialized in standard production with a low, fixed productivity w^s, and in manufacturing low-tech inputs for the North. Per capita utility is equal to consumption, $V^s = u(w^s)$. Given a fixed endowment L^s, demand and welfare are $C^s = w^s L^s$ and $V^s = u(w^s) L^s$, respectively. Market clearing in the South is

$$X^s - C^s = -s^o \lambda w^s l^s, \quad X^s \equiv w^s \left(L^s - s^o \lambda l^s\right). \tag{A.3}$$

The South runs a trade deficit in goods financed by a trade surplus in low-tech intermediate inputs (corresponding to international factor payments). Adding up (A.2) and (A.3) yields market clearing for the world goods market, $C + C^s = X + X^r + X^s$.

B Outsourcing and Unemployment in Europe

this section discusses some empirical evidence on outsourcing and labor market performance of low-skilled workers. We focus on high-wage European countries. Outsourcing to foreign countries has increased significantly over the last decades. In particular, trade in intermediate inputs in the manufacturing sector has gained in importance, as for instance documented by Campa and Goldberg (1997) for the period from the mid 1970s to the mid 1990s. In 1995, the share of these inputs relative to total output was between 6-12% in many OECD countries, as illustrated in Figure 1. There is, however, quite a strong dispersion in outsourcing rates. Countries with a larger domestic market, such as the US, have typically lower rates than smaller countries. A common fear with regard to outsourcing is that it substitutes for domestic jobs, especially among the low-skilled. The welfare consequences might be severe since labor market prospects of low-skilled workers are typically worse compared to other workers. Indeed, in 1995, the unemployment rates among the low-skilled exceeded 10% in many European countries, see Figure 1, with a

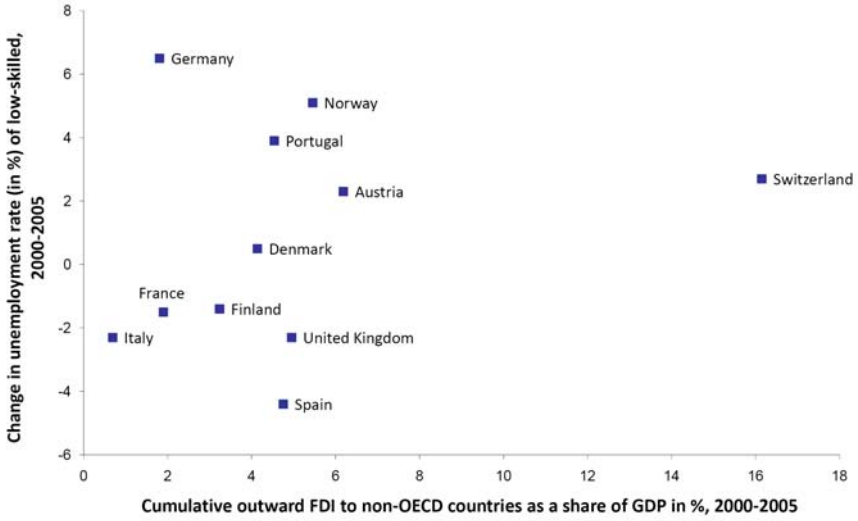
tendency to higher unemployment rates in countries with higher outsourcing.



Outsourcing and unemployment, 1995 (Source: OECD, 1998, 2007)

Negative effects for low-skilled workers are expected primarily from outsourcing to low-wage countries. This category has become relatively more important in recent years. Falk and Wolfmayr (2008) report that in the period 1995-2000, imports of intermediates from low-wage economies grew at an average of 9% per year in the five EU countries Austria, Finland, Germany, Italy and the Netherlands. Furthermore, foreign direct investment in non-OECD countries is rising significantly and partly reflects growing competition from low-wage countries as well. In several European countries, cumulative outward FDI flows grew beyond 4% of GDP over the period 2000-2005, and in Switzerland it even amounted to 16% of GDP (see Figure 2). Although in recent years, and especially in the 1990s, policymakers have introduced substantial labor market reforms to reduce unemployment rates among the low-skilled (see for instance Andersen and Svarer, 2007, for the particularly successful case of Denmark), unemployment rates have again accelerated

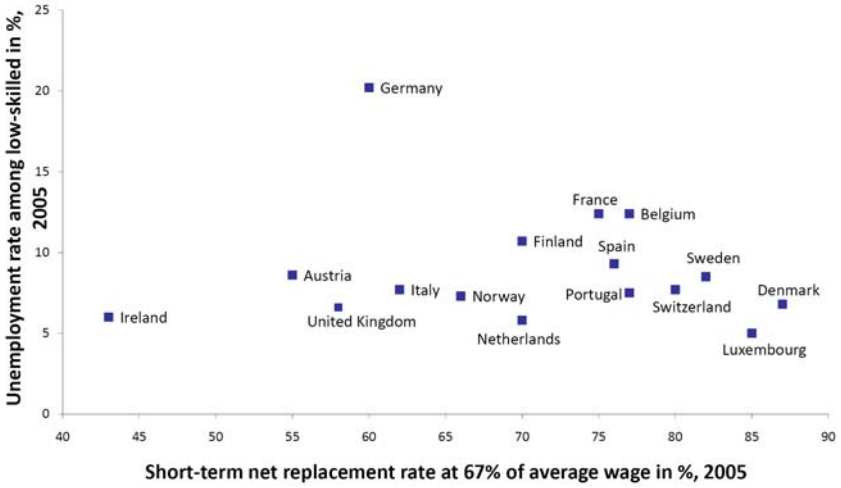
in several European economies in the period 2000-2005.



FDI and Unemployment, 2000-2005 (Source: OECD database, OECD 2002, 2007)

Many countries have implemented labor market and social security reform in recent years, partly in response to growing globalization pressure. Cross-country illustrations like Figures 1 and 2 tend to mix up the impact of outsourcing with these other influences. To get the isolated effect of outsourcing, one has to control for the differential impact of labor market institutions, social security provisions and other factors that influence unemployment independently of outsourcing. This is explicitly discussed in Geishecker and Görg (2008, p. 250) in their study of the effects of outsourcing on the wages of low-skilled workers, and in Geishecker's (2008, p. 9) study of the impact of outsourcing on employment risk. Other studies that derive the effects of outsourcing on labor market performance of low-skilled workers include Feenstra and Hanson (1996) for the US, Anderton and Brenton (1999) and Hijzen, Görg, and Hine (2005) for the UK, Strauss-Kahn (2003) for France, Ekholm and Hakkala (2006) for Sweden and Falk and Wolfmayr (2008) for the five EU countries mentioned above. These studies consistently find negative impacts of outsourcing on the demand for low-skilled labor. To the extent that the unemployment risk for this group is aggravated, the welfare state and in particular the unemployment insurance system become more important to avoid large consumption losses. As Figure 3 shows, replacement incomes are typically very high in Europe, in many countries exceeding 70% of the previous wage. However, as we elaborate in the paper, increasing workers'

reservation wages by making unemployment insurance more generous, itself leads to more outsourcing and higher unemployment.



Replacement Rates and Unemployment, 2005 (Source: OECD, 2007)

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