Foreign labor costs and domestic employment: What are the spillovers?☆

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A R T I C L E   I N F O

Article history:
Received 25 January 2011
Received in revised form 14 June 2012
Accepted 15 June 2012
Available online 16 July 2012

JEL classification:
F41
F42
E24

Keywords:
International spillover effects
Terms of trade
Unemployment

1. Introduction

What are the international spillover effects of country-specific shocks? The mechanisms that govern the transmission of shocks in open economies have been central to works in international macroeconomics. The objective of this paper is to study how labor market rigidities might influence the international transmission of supply-side policies and to evaluate the spillover predictions empirically.

In the existing literature, the issue of international spillovers has been studied especially in the context of country-specific monetary and fiscal policy. Important contributions include Mendoza and Tesar (1998, 2005), who focus on the spillover effects of tax reforms and emphasize the channel of cross-border capital flows. However, results in these papers are based on a model with a single homogeneous good, abstracting from endogenous terms of trade effects. The adjustment of the terms of trade is central to works by Obstfeld and Rogoff (2000), Corsetti and Pesenti (2001) and Clarida et al. (2002). These papers show that endogenous terms of trade have ambiguous implications for the international spillover of country-specific policy and productivity shocks, depending on key parameters of the model, in particular the inter-temporal elasticity of substitution in consumption.

Most importantly, the existing literature on policy spillover has so far focused on the transmission effects given full employment, i.e. with market clearing wages across countries. However, rigidities in labor markets and the existence of involuntary unemployment are realistic characterizations of most economies. The goal of this paper is to take labor market frictions seriously in analyzing the question of policy spillover. In particular, we can analyze whether differences in labor market rigidities across countries lead to differences in the nature and strength of inward spillovers, an aspect not studied so far.

I investigate the adjustment across countries following a permanent, country-specific shock to labor cost given the existence of equilibrium unemployment. I introduce shocks to country-specific labor cost with a payroll tax that directly enters the wedge governing the return to job creation. Capturing shifts in country-specific productivity with observable and quantifiable policy shocks rather than unobservable TFP shocks comes with two main advantages: first, it delivers direct policy implications and second, it allows for an empirical investigation of the mechanism. The analysis of this paper has therefore two components, a theoretical and empirical one.

The theoretical analysis incorporates the search and matching model of unemployment following Pissarides (2000) into a dynamic general equilibrium two-country, two-good model. My model therefore retains both channels for international transmission, namely the cross-border capital flows (as in Mendoza and Tesar, 1998) and endogenous terms of trade changes (as in e.g. Corsetti and Pesenti, 2001). The paper also builds on Hairault (2002), who incorporates labor market search into a standard international real business cycle model. The focus in Hairault (2002) is on international business cycle co-movement, given productivity shocks that are themselves
correlated across countries. The focus of my analysis is instead on a
country-specific (i.e. internationally uncorrelated) policy shock and
to study in particular how the labor markets across countries adjust
to this. This exercise gives a sharper implication for the spillover
mechanism since it is not confounded by the correlation of underlying
shocks and is more conducive to empirical tests.

The model predicts that following a payroll tax cut in country
1, employment in both country 1 and country 2 increases. The mecha-
anism works as follows. The tax cut in country 1 triggers a positive
supply effect in country 1. This improves the terms of trade for coun-
try 2, which in turn, increases the return to a job match in country
2. In equilibrium, wages in country 2 also increase due to the rent-
sharing mechanism of wage bargaining. However, common surplus
maximization ensures that higher wages do not offset the increased
return to hiring. Consequently, a positive supply shock in coun-
try 1 always entails a positive spillover effect on employment
in country 2. Helpman and Itskhoki (2010) also analyze the impact
of lowering domestic labor market frictions on the trading partner,
but use a static Melitz-type trade model with search frictions in two
sectors, endogenous firm entry and varying trade impediments.

While the terms of trade channel is also present in their model,
the main spillover mechanism relies on workers’ inter-sectoral
reallocation and firms’ entry decision following a change in relative
prices. Nevertheless, lower labor cost in the domestic economy also
leads to lower unemployment in the foreign economy in their
model, although the implication for welfare is more differentiated.

The main contribution of my paper is empirical. Since the key re-
sult of the model is the positive spillover effect on employment across
countries, it is natural to investigate whether this prediction is in fact
consistent with data. There are inherent difficulties in identifying ex-
ogenous shifts in tax policies. Most studies, e.g. Blanchard and Perotti
(2002), essentially rely on a cyclical adjustment of government
spending and tax revenues using long run elasticities of these fiscal
components with respect to output fluctuations. This paper uses an-
other approach to identify country-specific tax variation. Instead of
relying on measures of effective aggregate tax rates or cyclically
adjusted tax revenues, I use a statutory tax rate that enters directly
the firm’s labor cost, namely the statutory rate of employer social
security contribution.

To evaluate the main implication of the model, I use a panel of 17
OECD countries from 1981 to 2006 to estimate the impact of exoge-
nous variation of foreign unit labor costs on domestic output and
employment. I instrument exogenous variations in the foreign unit
labor costs with statutory social security contribution rates of trading
partners country. Consistent with the prediction of the model, lower
foreign labor costs lead to improved terms of trade and an increase
in the domestic employment rate. Furthermore, in line with the model
prediction, countries with higher average unemployment rates expe-
rience stronger positive spillovers, implying that labor market rigid-
ity indeed plays an important role for cross-country spillovers.

The paper is organized as follows. Section 2 describes the model,
Section 3 discusses the simulation results for the spillover analysis
and some sensitivity checks. Section 4 presents the empirical analysis
and Section 5 concludes.

2. The model

The theoretical framework is a dynamic general equilibrium
two-country model. I incorporate search and matching frictions in
the labor market following Pissarides (2000). In particular, I assume
that firms can create jobs and vary the extensive margin of labor by
posting vacancies while job destruction takes place exogenously,
and that wages are determined by Nash bargaining once a match
occurs. Trade takes place in the intermediate goods which are then
bundled into final goods for consumption and investment at the
country level.

2.1. The final good

The world consists of two symmetric countries that are indexed by
1 and 2. Country 1 specializes in the production of good a, while coun-
try 2 produces good b. In country 1, these intermediate goods are
bundled into a final consumption and investment good \( f_1 \) according
to the CES aggregator

\[
f_1 = \left[ (1-\omega)^{\frac{1}{\sigma-1}} a_1^{\frac{1}{\sigma-1}} + \omega^{\frac{1}{\sigma-1}} b_1^{\frac{1}{\sigma-1}} \right]^{\frac{\sigma}{\sigma-1}}
\]

(1)

where \( \omega > 0.5 \) measures the degree of home bias in domestic demand and \( \sigma \) is the elasticity of substitution between the two traded goods. The bundling technology in country 2 is analogous and given by

\[
f_2 = \left[ (1-\omega)^{\frac{1}{\sigma-1}} a_2^{\frac{1}{\sigma-1}} + \omega^{\frac{1}{\sigma-1}} b_2^{\frac{1}{\sigma-1}} \right]^{\frac{\sigma}{\sigma-1}}
\]

(2)

Hence, the representative final good producer in country 1 faces the objective:

\[
\max_{a_1, b_1} \left( f_1 - p_i^a a_1 - p_i^b b_1 \right)
\]

(3)

with \( p_i^a \) and \( p_i^b \) being the relative price of the intermediate good a and b in terms of the final good in country 1. By symmetry, unless other-
wise stated in the following, the model is described in terms of coun-
try 1 variables.

2.2. The household

In each country, there is a representative household with many
identical members of measure 1. Each member can be employed or
unemployed, but the family insures its members perfectly against
idiosyncratic employment risk, such that consumption is equalized
among household members, as is commonly assumed in the liter-
ature (Merz, 1995). I assume that each family member either works
a fixed number of hours (normalized to 1) or searches for a job at
constant search effort, so that there is no flow in or out of the labor
force. This focus on the extensive margin is consistent with the
empirical evidence that a majority of the variation in total hours is
explained by the variation in the employment rate as opposed to
days per worker. The household chooses the path of consumption, investment and international asset holding to maximize:

\[
E_0 \sum_{t=0}^{\infty} \beta^t \left[ \frac{1}{1-\mu} c_{1t}^{1-\mu} \right].
\]

(4)

With \( n_{1t} \) being the fraction of employed members of the house-
hold (equal the economy-wide employment rate), the pooled budget
constraint is given by:

\[
C_{1t} + I_{1t} + p_i^a \frac{Q_i}{1-\Gamma_{1t}} B_{1t, t+1} + n_{1t} \tilde{w}_{1t} + r_i K_{1t} + TR_{1t} + p_i^b B_{1t} + (1-n_{1t}) z_{1t} + p_i^a B_{1t}
\]

(5)

On the left hand side, we have expenditure for consumption, investment and purchase of international bonds. In either country, each unit of this bond pays one unit of good a (the numeraire) in period \( t+1 \) and is traded at the equilibrium price \( Q_i \). Moreover,
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