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Estimating the impact of the Balassa–Samuelson effect on inflation and the real exchange rate during the transition

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Abstract

In this paper, we investigate whether the Balassa–Samuelson (B–S) effect holds for the Czech Republic, Hungary, Poland, Slovakia and Slovenia during the transition process. The co-integration analysis suggests that the importance of the B–S effect does differ across countries. Generally, we can establish long-term co-integration relationships between productivity growth and relative prices while the link between relative price movement and the Real Exchange Rate Developments turns out to be weaker. We seek to calculate the extent to which the B–S effect may influence inflation and the real exchange rate and subsequently discuss policy implications. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

The appreciation of the CPI-deflated real exchange rate seems to be something of a common feature in Central and Eastern Europe during the transition process from plan to market. Following a sharp initial undervaluation, real exchange rates have continuously appreciated and moved closer to their equilibrium path. [1] According to professional wisdom, the main driving force behind real appreciation in transition countries is the Balassa–Samuelson

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[1] This phenomenon was investigated in detail in e.g. Rosati (1996), Halpern and Wyplosz (1997, 1998), Krajnyák and Zettelmeyer (1998), Begg et al. (1999, 2001).

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(B–S) effect. As a consequence of economic restructuring, transition economies have experienced rapid productivity growth in their industrial sectors from 1990 onwards. Productivity growth in the traded goods sector exceeding that in the non-traded goods sector implies that non-traded goods prices increase due to the wage equalisation process between the tradable and non-tradable sectors. When productivity growth in one country is higher than in the other, inflation will be higher in the former. Thus, the CPI based real exchange rate is likely to appreciate in the long run. [2]

The aim of this paper is to test for the B–S effect in five advanced Central European transition countries, namely the Czech Republic, Hungary, Poland, Slovakia and Slovenia. The tests are carried out in a two-step, bottom-up approach using the Johansen VAR-based co-integration technique. First, we test for the link between productivity growth and changes in non-traded relative prices. Second, we explore the relationship between relative prices and the CPI deflated real exchange rate. Third, we calculate the extent to which the B–S effect may have influenced inflation and real exchange rates during the transition.

Most importantly, while the B–S effect is found to be working to some extent in the five countries, the impact of the B–S effect on inflation and real exchange rates has not been equal across the countries. In contrast to previous literature, a key finding is that in spite of high productivity gains in some of the countries, the Maastricht criteria on inflation may not be a problem for accession to EMU. As a result, given the possibility of future currency instabilities in the context of fully liberalised capital flows, we argue that the candidate countries should aim at a rapid entry to EMU.

The rest of the paper is organised as follows: Section 2 presents the theoretical framework. In Sections 3 and 4, the data and the applied econometric methods are described. Section 5 contains the estimation results. In Section 6, the impact of the B–S effect on inflation and real appreciation is calculated. Section 7 discusses policy implications. Section 8 finally concludes.

2. The model

The B–S effect is based on the separation between sectors producing tradable goods and sectors producing non-tradable goods. A crucial assumption is that the rate of change in real wages in the traded goods sector are determined by the rate of change of the labour productivity. In other words, productivity gains in tradables are a condition sina quo non for an increase in real wages. [3] At the same time, real wages in the non-traded goods sector are not linked to labour productivity. As wages for equal positions are expected to increase at the same pace across sectors, real wages in the non-traded goods sector are connected to tradable productivity gains. [4]

$$w^{\mathrm{T}} - p^{\mathrm{T}} = a^{\mathrm{T}} \tag{1}$$

$$w^{\mathrm{NT}} - p^{\mathrm{NT}} = a^{\mathrm{NT}} \tag{2}$$

[2] McDonald (1998) and Rogoff (1996) provide excellent surveys on the B–S effect.

[3] This section presents the relative version of the B–S effect.

[4] Note that all variables are expressed in logarithm.