



# The role of the exchange rate regime in the process of real and nominal convergence



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## ABSTRACT

The Balassa–Samuelson (B–S) hypothesis suggests that, in catching-up countries, inflation will be comparatively higher, as prices of non-traded goods “catch up” with the growth of productivity in the tradable goods sector; as a result, these countries will experience real appreciation. However, a general result of the literature is that the B–S effect can only explain part of the excess inflation observed in European catching-up countries. One feature of these studies is their neglect of the role of the exchange rate regime in affecting price convergence. In this paper, instead, we argue that the choice of the exchange rate regime may affect nominal convergence. To show this, we first model the regime choice and, in a second stage, estimate a B–S type of regression for each regime. Our results show that, for countries that pegged to or adopted the euro, the effect of an increase in dual productivity growth (the difference in productivity growth between the traded and non-traded sectors) on the dual inflation differential is twice as large as that in “flexible” countries. We conclude that, in catching-up countries, too early adoption of the euro may foster excess inflation, beyond what would be implied by B–S convergence only.

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## 1. Introduction

The aim of this paper is to study the process of real and nominal convergence in Europe, accounting for the role of the exchange rate regime in the catching up process. By making international prices comparison easier and removing one source of variability, a fixed exchange rate regime – and, even more so, entry in a monetary union – can foster price convergence at a higher speed with respect to real convergence.

As postulated by the Balassa–Samuelson (Balassa, 1964; Samuelson, 1964; henceforth B–S) hypothesis, in a catching-up country there will be a comparatively higher inflation, of a structural nature, as prices of non-traded goods and services “catch up” with the growth of productivity in those sectors producing tradable goods and services. With respect to this hypothesis, we argue that, due to the adoption of a fixed exchange rate regime in a catching-up country, a higher inflation might follow. In fact, fixing the exchange rate might accelerate the convergence of the non-tradable sectors’ prices, beyond what is implied by the B–S effect. This will be our first tested hypothesis. Furthermore, this additional inflation may “contaminate” wage and price setting in the sectors producing tradable goods and services. If this also happens, then fixing the

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exchange rate at an early stage of catching-up might be accompanied by loss of price competitiveness and large international imbalances, and thus become in principle unsustainable. Whether this additional effect (which is suggested by the recent experience of some Southern European countries<sup>1</sup>) can be empirically documented is the second hypothesis that we will test.

The focus of this paper will be on European countries that are in the process of catching up, which we identify as having a level of GDP per capita lower than 75% of the average of EU-15 countries at the initial date of our sample. We select these countries as they either have recently joined the euro, or are expected to do so in due time. The variety of exchange rate regimes adopted by these countries in recent years provides a good opportunity to study the effects that different regimes might have on the process of real and nominal convergence.

During the last 15 years, there has been considerable research on B–S convergence in Europe, with an eye in particular on transition countries (see [Égert et al., 2006](#)). The B–S hypothesis states that countries that are in the process of catching up experience real exchange rate appreciation (measured in CPI terms); this is due to the fact that productivity grows faster in the tradable goods sector than in the non-tradables sector. In the former sector, productivity gains translate into wage increases which, due to free inter-sectoral labor mobility, are transferred throughout the economy. The increase in wages in the non-tradables sector, in turn, pushes up the prices of non-traded goods, which causes the increase in the CPI that determines real exchange rate appreciation.

Studies on B–S convergence in Europe have looked at the issue from different perspectives, and using alternative methods.<sup>2</sup> A general result seems to be that the B–S effect can account only for a minor part of the excess inflation observed in catching-up countries (see [Égert, 2007](#)). For example, [Klau and Mihaljek \(2004\)](#) find that productivity differentials explain a negligible share of observed inflation differentials in Poland, Slovakia and Hungary. According to [Coricelli and Jazbec \(2004\)](#), however, once the initial phase of transition, with adverse conditions and structural reforms, was completed, the B–S effect dominated other causes in explaining real exchange rate appreciation. Nevertheless, the finding that the B–S effect *per se* has limited predictive power to explain excess inflation in Central and Eastern Europe suggests that other factors may indeed be at play.<sup>3</sup> In this respect, [Fischer \(2004\)](#) suggested that productivity shocks may affect the dual inflation differential also via investment demand and government consumption, and [Lane and Perotti \(2003\)](#) find that the composition of fiscal policy changes (for instance, reduction in wage government spending vs. increases in labor taxes) may induce different effects on the profitability of the traded vs. non-traded sector. In addition, [Galstyan and Lane \(2009\)](#) suggested that an increase in government consumption will increase the relative demand and price of nontradable goods and lead to a real appreciation of the exchange rate, although the effects of government investment are theoretically more ambiguous. Empirically, [Galstyan and Lane \(2009\)](#) find that increased government investments are generally associated with a decline in the relative price of nontradables, but have no effect on the real exchange rate.

Strangely enough, however, the literature on convergence that flourished in the last decade has mostly left aside the role of the nominal exchange rate regime in the process of convergence. This is surprising because there is a wide strand of literature showing robustly that exchange rate regimes affect macroeconomic performance, for example growth ([Levy-Yeyati and Sturzenegger, 2003](#)), after-crisis recovery ([Tsangarides, 2012](#)) and inflation dynamics ([Ghosh et al., 1997](#)). Also [Lane and Perotti \(2003\)](#) noted that the above-mentioned effects of fiscal policy changes will differ according to the exchange rate regime (fixed vs. flexible).

More recently, an additional channel has been informally suggested by [Krugman \(2013\)](#): “After the creation of the euro, (...) there was massive capital movement from Europe’s core – mainly Germany, but also the Netherlands – to its periphery, leading to an economic boom in the periphery and significantly higher inflation rates in Spain, Greece, etc. than in Germany”.

Finally, even under the assumption that traded goods price setting is dominated by the law of one price, euro adoption might additionally make also the prices of non-tradable goods and services more comparable across countries. Indeed, [Sturm et al. \(2009\)](#) show that the  $\beta$ -convergence of prices in the EU after 1998 has been faster within the subset of EMU countries. They also show that the rate of convergence in the price of non-tradables has increased after the introduction of the euro, both for EMU and non-EMU countries, although the speed of convergence is significantly higher for the former group.

To take into account the effects of the exchange rate regime on the patterns of relative price adjustment and real exchange rate appreciation, however, induces substantial complications in the empirical analysis. Since the choice of the regime itself is endogenous, it would be necessary to estimate alternative models of the B–S effect, depending on the exchange rate regime in place. The main contribution of this paper is thus to propose and implement a way to measure the role of the exchange rate regime in accelerating price convergence, modeling the choice of the regime. In addition, by establishing a link between the exchange rate regime and the decoupling of price and productivity convergence, our results provide one rationale why adopting the euro “too early”, i.e. when real convergence is far from being completed, may entail a potentially high cost in terms of competitiveness.

<sup>1</sup> For instance, [Kasimati and Veraros \(2013\)](#) observe that “the result of Greece’s accession to the EMU in January 2001 was a rapid deterioration in both its fiscal and current account deficits”. One may also add that the second deterioration took place much more promptly than the first one. The same authors observe that the current account deficits were mostly due to “mounting losses in competitiveness”.

<sup>2</sup> In terms of their different empirical approaches, one can distinguish between studies employing descriptive statistics or an accounting framework ([Begg et al., 1999](#); [Dobrynsky, 2006](#)); time series econometrics (for example, [Golinelli and Orsi, 2002](#); [Égert, 2002](#)) and panel econometrics ([Égert, 2002](#); [Fischer, 2004](#), among others).

<sup>3</sup> One effect that has been suggested in particular is related to Engel’s law, which postulates that, during the catching up process, consumers move to higher-quality goods, thus indirectly pushing up the observed CPI ([Égert and Podpiera, 2008](#); [Égert, 2011](#)).

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