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Long-run purchasing power parity, prices and exchange rates in transition
The case of six Central and East European countries

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Abstract

This paper presents empirical results on the hypothesis of long-run purchasing power parity (PPP) with respect to the exchange-rate regimes in six Central and East European countries. The analysis employs cointegration theory to examine the movements of prices and exchange rates in transition to a market economy. Our results are based on system estimation procedures developed by Stock and Watson (1993) and Johansen (1991). We find moderate evidence to support long-run equilibria, however, the cointegrating vector values do not yield to easy interpretation and violate the symmetry and proportionality conditions suggested by PPP. We provide an explanation for such behavior and find that it is consistent with the existing literature on transition and foreign exchange markets. © 2000 Elsevier Science Inc. All rights reserved.

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1. Introduction

It is broadly accepted that purchasing power parity (PPP) may not stand as a short-run proposition. While the exchange rate, as an asset price, reacts rather quickly to "news," prices of goods reflect new information relatively slowly. This can cause deviations from PPP (Daniel, 1986; Frenkel, 1981). In the short run, these deviations may be large and volatile, but over time, as prices adjust, they may show no resilience and be consistent with PPP in the

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long run. As a long-run proposition, then, PPP serves as a useful first approximation (Lothian, 1997; Lothian & Taylor, 1996). The question remains how these movements away from the posited parity behave in the long run, in different samples and periods, whether they persist or not, and what drives them.

This paper tries to discern the determinants of PPP deviations in the period of transition to a market economy in six Central and East European countries. Though interpreting departures from PPP in such circumstances can be fraught with difficulties, detecting the existence of either transitory or permanent, yet slowly mean-reverting monetary or real shocks, can shed some light on the analysis of the behavior of prices and exchange rates in transition. However, if these divergences are ultimately cumulative, PPP does not hold in the short run or in the long run.

Evidence of this nature lends support to the overwhelming importance of real disturbances that may cause permanent PPP deviations, as suggested by the recent literature on exchange rates in transition (Halpern & Wyplosz, 1997; Rosati, 1997). Real productivity shocks during the economic transformation may induce a change in the relative price of tradable vs. non-tradable goods (the Balassa–Samuelson hypothesis), thus affecting PPP deviations permanently. Alternatively, with high and variable inflation rates, nominal (monetary) shocks in transition economies may only cause temporary deviations by dominating the real disturbances. Thus, departures from PPP would diminish and not persist in the long run, so they have little effect on real exchange rates.

This study uses cointegration methodology to examine the stochastic properties of price and exchange rate series and their movements together. It has been observed that most transition economies experience temporary massive nominal shocks along with a succession of real shocks. The issue at stake is how and what kinds of shocks have impacted the exchange rates, and to what extent these are reflected in the cointegrating vectors, if any. In other words, do monetary shocks matter or do structural and institutional changes (the real factors) act as the principal driving force behind the equilibrium exchange rates?

2. Central and Eastern Europe, PPP, and cointegration: some stylized facts

Until 1990, the Council for Mutual Economic Assistance (CMEA) countries used capital controls, disequilibrium internal domestic prices, and exchange rates to direct trade and conduct payments among themselves.[1] The exchange rates, like other prices in these centrally planned economies, did not reflect market conditions. Instead, they were negotiated and administered prices that served as an artificial mechanism of transferable-ruble settlements. Commodity and currency inconvertibility prevailed. The internal division of labor and self-

[1] The CMEA, also known as Comecon, was founded in 1949. In 1990, the last year of its existence, it included Bulgaria, Cuba, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland, Romania, USSR, and Vietnam; Yugoslavia was an associate member, and several other countries enjoyed an "observer status." This mutual arrangement among the former socialist countries guided all the regional trade and payments in an attempt to integrate the economies of the members and "support the long-term goal of socialist integration and regional autarky." (International Monetary Fund, 1992, p. 34) The organization was dissolved at its last session in Budapest on June 28, 1991.