

## **STRUCTURAL CHANGES AND DEVIATIONS FROM THE LAW OF ONE PRICE WITHIN THE EURO AREA**

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Since January 1999 European countries joining the third stage of the Economic and Monetary Union (EMU) have shared a common currency and monetary policy. In this respect, the EMU can be considered as the most advanced experiment of monetary integration and represents perhaps the only real world approximation of what scholars usually define as an optimal currency area (OCA). The desirability for a given country to join an OCA is generally assessed by a sort of cost-benefit analysis, allowing to evaluate whether advantages prevail over disadvantages with respect to the country's structural characteristics. Potential gains are mainly related to improvements in economic efficiency, whereas potential losses are mainly related to the impossibility of using a number of instruments of macroeconomic policy in order to face asymmetric shocks. Nevertheless, notwithstanding some recent efforts in this direction (Demopoulos and Yannacopoulos, 1999), the theory of OCAs does not provide any formal criterion to evaluate whether timing and modalities of implementation of a currency area can be considered somewhat optimal. Moreover, there is no widespread consensus on the effective likelihood to both observe in practice the above-mentioned potential gains and losses and clearly identify their real impact. For instance, Baldwin (1991) casts some doubts on whether an OCA may lead to greater economic efficiency. Moreover, Buiters (2000) underlines that since in a globalized financial world international capital movements deeply influence nominal exchange rates, the currency channel becomes an additional source of instability rather than an effective instrument favoring the absorption of external shocks. In addition, there is disagreement on the economic effects of monetary integration with respect to income correlation among member countries and intra-area trade flows. The specialization hypothesis (Krugman and Venables, 1996) postulates that as countries become more and more integrated, their industrial structure will develop according to their comparative advantages. In this perspective, the economic systems of each member country of an OCA would become more sectorally concentrated and vulnerable to supply shocks. Opposite implications arise from the endogeneity hypothesis (Frankel and Rose, 1997). This paradigm postulates that a positive

link between income correlation and trade integration exists, suggesting that countries joining a currency union may satisfy the properties of an OCA ex-post even if they do not ex-ante.

Even though a large body of research has been done on these issues, the question whether the characteristics of the EMU match those of an OCA has not received a definitive answer yet. The main objective of this paper is to contribute to the ongoing debate extending the work of Mouratidis (2001). The empirical work focuses on a specific topic of applied economics and investigates the process of price convergence within the EMU. Such convergence represents a necessary condition in order to stabilize both the nominal (explicit policy target) and the real exchange rate (implicit policy target), allowing to safeguard member countries' intra-regional competitiveness and to avoid the incentive to implement beggar thy neighbours policies. More specifically, vector error correction models (VECMs) with breaks at known times (Johansen et al., 2000) are employed to compare price dynamics within the EMU taking Germany as a benchmark. This modeling approach takes into account both long-run relationships and short-run dynamic interdependencies among a small set of variables, allowing to associate the economic concept of long-run with the statistical concept of stationarity. The VECM is particularly suitable to analyze non-stationary time series and it is based on the preliminary identification of stationary linear combinations of such series, known as cointegrating vectors. Ideally, these vectors describe the steady-state configuration which the data tend to revert to in the long-run. Germany is assumed to be the base country in the EMU because of her dominant role during the years of the European Monetary System (EMS) (Giavazzi and Pagano, 1988). The econometric analysis aims at testing two related hypotheses. First, the purchasing power parity (PPP) condition is tested for each member country of the EMU with respect the base economy. Second, the generalized PPP (GPPP) hypothesis (Enders and Hurn, 1994) is tested for those economies where the former arbitrage condition does not hold. According to the GPPP theory, bilateral real exchange rates individually non-stationary may be cointegrated if their long-run macroeconomic determinants (forcing variables) are highly correlated. Thus, the existence of an equilibrium path for a linear combination of real exchange rates allows to rule out the presence of real asymmetries (Bayoumi and Taylor, 1995) and to interpret the empirical validity of the GPPP

hypothesis in terms of long-run sustainability of a monetary area in the spirit of Mundell (1961).

The overall picture emerging from the estimates suggests that the euro area is an integrated area with multiple equilibria. However, deep heterogeneities among national aggregate functions still exist. More specifically, the slope of the broken trend indicates that the (temporary) convergence process in the late Nineties is followed by a (temporary) divergence with respect to German prices in the first years of the EMU.