GDN Regional Research Competition Project
"The Currency Substitution in a Transitional Economy"
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Non-technical Summary

Currency substitution is a very important concept in the history of economic thoughts and one of the most ambiguous concepts in economics. We discuss the idea of regionally and globally substituting currencies and substituted currencies (the currencies being substituted). Further, we deal with these issues by discussing transition phenomena of currency substitution and the issue of unilateral or bilateral *euroisation* on the example of the Czech Republic. Subsequently, we scrutinize the implications of the presence of currency substitution for money demand and its stability. These are the most popular concepts in theoretical and empirical economics and are of major interest to monetary institutions and policy makers, especially in emerging market economies. Thus a somewhat internationalised view on the demand for money is studied when applied to the Czech Republic.

The first paper completing the project "Currency Substitution in a Transitional Economy" approaches the currency substitution phenomenon from a perspective of the portfolio balance model due to Branson and Henderson (1985) which is estimated using the data for the Czech economy. This model consists of four equations, two representing the demand for domestic and foreign currency and two describing the demand for domestic and foreign bonds. We adjust this model to the specifics of the investigated environment and discuss the structure of the estimated equations together with the variables used as approximations for their theoretical counterparts. In addition, we discuss possible implications of the acquired estimations as delivered by economic theory and experience of other countries in transition.

The empirical findings of the first paper are set into an economic environment in transition which can be described as follows. Beginning 1990's, the first decade of the transformation process has been associated with simultaneous periods of internal and external liberalisation and alignment with industrial countries. We have concluded that the launch of reforms was accompanied by greater economic uncertainty, resulting in high and volatile exchange rates and inflation, large budget and current account deficits and inducing the use of foreign money for monetary purposes. In this context we have proposed several explanations concerning the factors determining currency substitution in the Czech Republic's case. These are associated with a relative lack of restrictions on capital flow, early adoption of necessary financial techniques and a sharp increase in the degree of openness of the economy. The viewpoint of substituting and substituted currencies propose four reasons for currency substitution: macroeconomic instability, the existence of a large illegal or underground economy, the former occurrence of financial crisis, and a lack of higher-denomination bank notes issued by the central bank. We have provided some evidence for the Czech koruna being not only the substituted currency, but also the substituting currency in some post-socialist countries. A set of arguments regarding unilateral and bilateral *euroisation* has also been included.

The estimations cover the period 1994–2001 and have been carried out within the adjusted system excluding the equation describing the demand for domestic bonds or alternative assets since the capital market is somewhat underdeveloped or, in the case of bonds, generally inaccessible in the Czech Republic. We have thus been left with three equations to describe the demand for domestic and foreign currency and for foreign assets. In this respect we have modelled the demand for domestic currency in circulation plus deposits denominated in domestic currency; the ratio of deposits denominated in foreign currency in the domestic banking system to deposits denominated in the domestic currency; and the ratio of domestic portfolio investment abroad to domestic currency deposits. We have used a set of explanatory

variables which approximate those suggested by theory, namely: the consumer price index, domestic absorption, the CZK/USD and CZK/DEM exchange rates, and the returns on U.S. and German Treasury Bills expressed in Czech currency. We have detected the presence of currency substitution in the domestic banking system and some aspects of capital mobility. Exploring wider implications of these findings for the stability of monetary aggregates and demand for money, the revenues from seigniorage and the changing dynamics of exchange rates is left for further research.

The second paper of the project presents a somewhat internationalised view on the demand for money as applied to the Czech Republic from the beginning of the Czech market economy to the present. In this respect it investigates some of the issues disclosed when elaborating on the empirical findings of the first paper. Following this idea we extend the traditional money demand function, consisting purely of domestic variables, to include certain foreign determinants that can potentially affect the demand for money in a small open transition economy. We do so for both narrow and broad money.

In this paper we have attempted to analyse money demand in a framework of an open economy as applied to the Czech Republic, taking into account the influence of selected foreign variables. The first part deals with modelling of narrow money demand. We use the M1 monetary aggregate as the dependent variable. The set of explanatory variables includes the price level, the scale variable, the own rate of return and the opportunity cost of holding narrow money. Moreover, we include the real effective exchange rate and gross domestic foreign direct investment as foreign variables likely to affect narrow money demand in the Czech Republic. We find all the traditional explanatory variables to be important for movements in the M1 aggregate.

The inclusion of the real effective exchange rate does not seem to bring any additional information above that already contained in the price level. On the other hand, the inclusion of FDI does seem to be important for narrow money demand, although its peak effect comes only with the fourth lag. We prefer not to include this variable in the final equation for narrow money demand, since four observations are lost in the already small sample. The M2 aggregate is used for modelling of demand for broad money in the Czech Republic. M2 comprises M1 plus time deposits and deposits in foreign currency. In addition to the price level, the scale variable and the own rate of return, the right-hand side variables include the interest rate on credits and inflation which represent the opportunity costs of holding M2 money. The added foreign variables are the nominal CZK/USD and CZK/DEM exchange rates (to represent the return on foreign money holdings) and the return on U.S. and German assets expressed in Czech korunas (to represent the effect of capital mobility). We find all the domestic explanatory variables, except for inflation, to be important determinants of M2 money demand. In addition, after taking account of the domestic variables we find currency substitution and capital mobility significantly influencing the movements of the M2 aggregate.

In the last section of the empirical part we have presented and discussed the estimates of the possible effect of disequilibrium money growth on the dynamics of important macroeconomic variables such as the inflation rate and output. We find that deviations of narrow and broad money from their long-run equilibrium values significantly affect the short-run dynamics of prices and output - variables of central importance to policy makers. We conclude that in the case of the Czech Republic the central bank should be aware of such possible effects.