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Trade and Payments in Eastern European Economic Reform

Sven W. Arndt

Introduction

What is the appropriate exchange rate regime for the emerging economies of Eastern Europe? Would a given regime suit all of them equally? Is there a regime that is as appropriate for the transition as for the long run? What are the relative merits of fixed and flexible rates in this context and what, if any, is the role of capital controls?¹

These are some of the questions facing policymakers in Eastern Europe. Transforming an economy from a centrally planned to market-driven regime is in part an exercise in “getting prices right,” and one of the more important prices is the real exchange rate. The real exchange rate fluctuates even when the nominal rate is fixed, because it is influenced by changes in aggregate economic conditions at home and abroad.

The real exchange rate may be viewed as the relative price between tradable and nontradable goods and services. As such it is particularly useful in understanding certain features of adjustment during economic transition. As Eastern Europe’s economies are opened to world trade the tradables/nontradables mix in national output is altered, a process in which the real exchange rate plays a key role. Moreover, as the economy becomes integrated into the global market, capital is reallocated from sectors and industries that were important in a closed, centrally planned economy to sectors and industries reflecting comparative advantage. Capital reallocation takes the form of depreciation and disinvestment in declining industries and investment and capital accumulation in expanding industries.

In the present context, restructuring is usefully viewed as a two-stage process. Stage one is characterized by an increase in investment outlays and in the demand for capital goods and construction services; stage two is described by the opening of new productive capacity. Thus the first stage is dominated by demand shocks, the second by supply shocks. Both types of shocks have implications for the real exchange rate and together may generate real exchange rate cycles. Determination of the real exchange rate in the second stage is complicated by the fact that national income will have grown and with it will come demand growth in both sectors. When the nominal exchange rate is fixed, cycles in the real rate are reflected by cycles in relative goods and factor prices.

These relationships are explored below. In the next section the analytical framework is developed. The third section considers the role of financial markets and capital, and the fourth section deals with adjustment in factor markets. The final section draws some conclusions.

The Analytical Framework

As noted above, reconstruction may be viewed as a multi-stage process: the initial phase is marked by investment and capital formation, while later phases witness the opening of new productive capacity and the expenditure consequences of national income growth. I examine the implications of this process in the context of a small, open, two-sector economy producing tradable and nontradable goods and services.

Tradables are goods and services which have readily available foreign substitutes so that their prices are essentially tied to prices abroad. The small economy is a price taker, so that for given foreign prices the home prices of tradables move with the nominal exchange rate. Nontradables, on the other hand, are goods and services without readily available foreign substitutes, so that their home currency prices are determined by the interaction between domestic demand and supply. In the context of Eastern European transition, important examples of nontradables are certain types of capital goods and a range of construction goods and services.

At any moment, the economy's stock of productive resources—capital and labor—is assumed to be given. In the short run, therefore, and assuming full resource utilization, expansion of one sector requires contraction of the other. In the tradition of the specific-factors model, capital is assumed to be sector-specific in the short run, so that output expansion in either sector occurs through additional labor inputs. Under conditions of full employment additional workers must be drawn away from the other sector; otherwise, additional workers may be drawn from the ranks of the unemployed. In either case, however, the presence of increasing costs assures that short-run sectoral supply curves are positively sloped. In the long run, capital accumulation is an important source of output expansion in either sector.

The real exchange rate, e , defined as the ratio of tradables prices (p_t) to nontradables prices (p_n), plays a key role in the sectoral allocation of resources and in the sectoral distribution of aggregate demand. This definition of the real rate is readily derived from its more conventional cousin, the nominal exchange rate, E (expressed as the price of foreign exchange in terms of the home currency), adjusted by the ratio of foreign (P^*) to home price levels (P), that is, $e = E \times P^*/P$. The domestic price index is defined as $P = 8 p_n + (1-8)p_t$, where 8 represents the proportion of nontradables in the index. The foreign price level, P^* , is defined analogously. Substituting these definitions of P and P^* into the conventional definition of the real exchange rate and assuming that domestic and foreign tradables prices are linked by the law of one price, i.e., $p_t = E \times p_{t^*}$, yields the following:

$$e = E[8^*p_{n^*} + (1-8^*)p_{t^*}]/[8p_n + (1-8)Ep_{t^*}]$$

The real exchange rate, e , is thus equal to the nominal exchange rate, E , adjusted by foreign

tradables prices and by foreign and domestic nontradables prices. Since the small country takes foreign prices as given, the real value of its currency rises with the nominal value and falls with the home price of nontradables. If the country fixes its nominal rate, movements in the real rate are driven by movements in nontradables prices. Real depreciation, represented by a rise in e , is accomplished by a decline in nontradables prices, while real appreciation, represented by a fall in e , is achieved by a rise in nontradables prices.

The basic structure of this economy is given in Figure 1.² The right panel shows home tradables demand and supply. Demand rises as the relative price of tradables falls. Supply rises as the real exchange rate, e , rises, that is, as tradables prices rise relative to those of nontradables. In the short run, capital is assumed to be fixed in each sector, making labor the only variable factor. Increases in output are achieved by increases in labor inputs. Additional labor needed in one sector comes either from the unemployment pool or from the other sector. The short-run tradables supply curve is upward sloping because combining more labor with a given quantity of capital reduces the productivity of labor and thus increases unit costs. In the long run, the sectoral stock of capital is increased by capital reallocation from the other sector and by the creation of new capital in the economy. A rise in a sector's capital stock shifts the sector supply curve out.

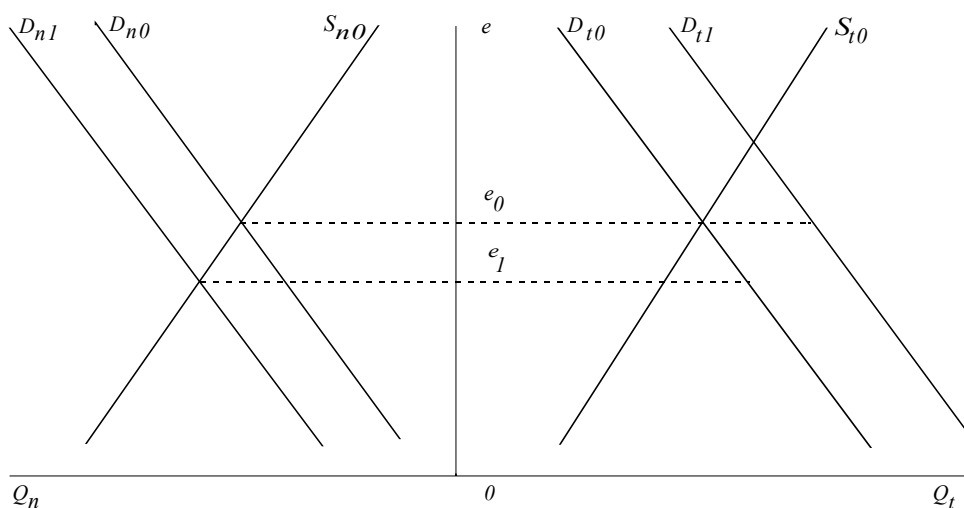


Figure 1 Nontradables and Tradables Demand and Supply

Nontradables demand and supply are depicted in the left-hand panel. Since the price measured on the vertical axis is the ratio of tradables to nontradables prices, the slopes of the nontradables demand and supply curves have the inverse of their “normal” shapes. Demand slopes upward, because an upward movement along the vertical axis represents a reduction in the relative price of nontradables. Supply slopes downward, because a rise in the relative price of tradables reduces nontradables production.

Initial equilibrium is given by curves subscripted with 0. The equilibrium real exchange rate is the

rate that clears the nontradables market. This follows from the assumption that nontradables have no readily available foreign substitutes or markets, so that in equilibrium domestic supply and demand must be equal. I assume for convenience that tradables supply and demand are initially also in balance.

Demand and Supply Shocks

An increase in investment demand for nontradables shifts demand to D_{n1} , reducing relative price to e_1 . This is a real appreciation, which is needed in order to clear the nontradables market. Its effect on the current account, given by the gap between the tradables demand and supply curves in the right panel, is to produce a deficit.

The intuition here is that the increase in domestic production of nontradables, which is the only way of satisfying the increase in domestic demand for nontradables, is achieved by a real appreciation which (1) causes mobile resources to be shifted from tradables to nontradables and (2) induces an inflow of tradables to cover the resultant shortfall of domestic tradables output. Whether such a trade imbalance can in fact be sustained depends on the availability of capital inflows. That issue is discussed below.

An increase in investment demand for tradables, on the other hand, shifts demand in the right panel to D_{t1} . Under given assumptions, the real exchange rate is unaffected, but the current account deteriorates. This result reflects only the impact effect of the rise in investment; additional repercussions are taken up below.

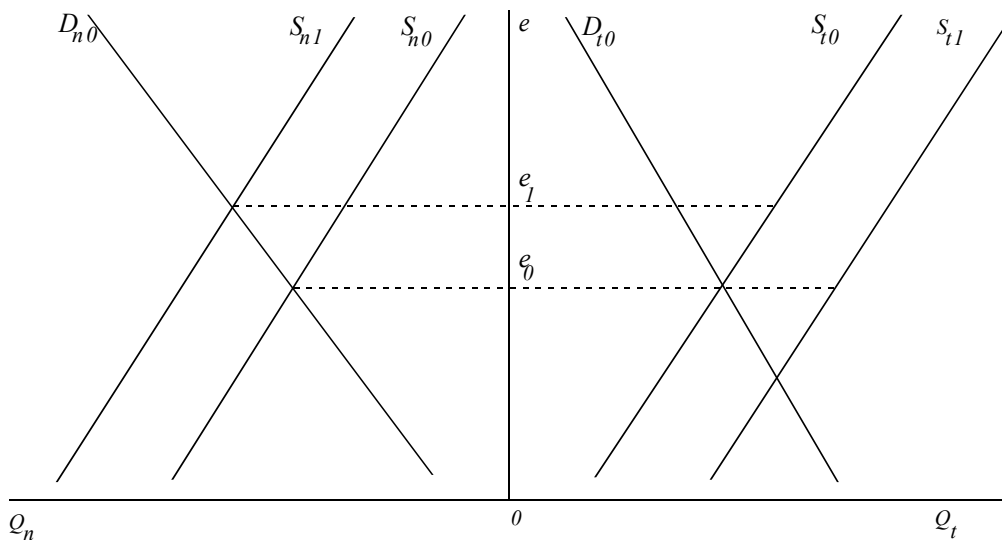


Figure 2 Supply-Side Shocks to Tradable and Nontradable Goods

Supply-side shocks are examined in Figure 2. A rise in nontradables supply shifts the S_n curve out in the left panel, producing a real depreciation, while an increase in tradables supply, shifting out the S_t

curve in the right panel, generates a current account surplus without, however, directly affecting the real exchange rate.

Hence, shifts in nontradables demand and supply determine the real exchange rate, while shifts in tradables demand and supply alter the current account. If economic restructuring consists of a series of phases in which an investment boom is followed by an expansion of productive capacity, and if the boom involves nontradables to any extent, then the real exchange rate will first fall and then rise. The current account, on the other hand, will first deteriorate and then improve, regardless of which sector is affected by the investment program.

If the nominal exchange rate is fixed, then the foregoing movements in the real rate require accommodating movements in nontradables prices. When the real rate falls in the first stage, nontradables prices must rise; when it rises later, they must fall.

If the investment boom increases overall capacity in the transitioning economy, then GNP and national income will increase; and this increase will spill over into higher consumption outlays. Thus, a full cycle of reconstruction activity might consist of an initial stage during which demand increases in both the tradables and nontradables sectors as a result of the investment boom, followed by later stages in which supply curves in both sectors shift out as additional capacity comes online and demand in both sectors also expands as a result of the rise in national income.

Financial Markets and Capital Flows

Because of current account deterioration during the initial stage of reconstruction, it is immensely helpful if the transitioning program is supported by foreign resources. An import surplus places more goods and services at the disposal of consumers and producers than would otherwise be possible, easing the shock of transformation. However, if current account financing is not available, say because of the presence of capital controls and restrictions on convertibility, then the current account is constrained to zero, so that both the pace and the extent of economic reconstruction are constrained by domestic resources. Consequently, a rise in investment demand cannot then spill over into the foreign sector. Instead, any increase in reform-related demand for nontradable capital goods or construction services must be “accommodated” by reductions in nontradables demand elsewhere in the economy; that is, “crowding-out” occurs in the nontradables sector. As is well known, one way to crowd out low-priority uses is by means of higher domestic interest rates.

The effect of a rise in interest rates on nontradables demand is to shift the D_n curve inward, thereby tending to offset outward shifts of the curve that are the result of the initial rise in reconstruction investment demand for nontradable goods and services. Higher interest rates also reduce the demand for tradables, shifting demand inward and thereby helping to maintain balanced trade.

Convertibility and the Real Exchange Rate

In the absence of capital controls, capital inflows reduce or eliminate the need for crowding-out. Interest rates may still rise in order to attract foreign capital, but in the case of a small, price-taking country with fully open capital markets, domestic interest rates are closely tied to world rates. In this case, capital inflows finance imports of goods and services at the real exchange rate that clears the market for nontradables.

Policymakers in Eastern Europe express concerns about the possibility that capital inflows will “cause” the home currency to appreciate.³ Such appreciations are viewed with alarm, because they are seen to make domestic exports less competitive and to encourage imports.

The foregoing analysis suggests, however, that appreciations of this kind are not only consistent with equilibrium during reconstruction, but desirable. They are supposed to reduce exports and bring in imports. It is not the capital inflow but the transformation program that is the primary “cause” of the real exchange rate change. To be sure, the capital inflow allows the exchange rate change to take place, but it is not the primary cause. It is a result of the transformation strategy. The required real exchange rate change is determined in the market for nontradable goods and services. Limiting capital inflows would squeeze the reconstruction program, constraining it to available domestic resources. In this context, therefore, a policy to limit capital inflows is a policy to restrain the transformation process.

Such restraint on reconstruction may very well be justified, especially if the transitioning economy shows signs of becoming overstressed. But the decision to control capital inflows should come as part of the transitioning strategy, rather than as an independent exercise in exchange rate policy.

Rather than a sign of competitive weakness and a signal of danger, therefore, this real appreciation serves to channel domestic resources into nontradables production, where they are needed. Without such redeployment, the domestic nontradables output needed for reconstruction will not be forthcoming and economic reforms will be impeded. As the relative price of nontradables rises and resources are pulled out of tradables production, the excess demand for tradables is accommodated by imports, which are available only if there are capital inflows to finance them.

The Current Account

The current account, which typically deteriorates in the initial phase, improves in subsequent phases of reconstruction, when new capacity becomes available and supply shifts out. Note that capacity expansion does not have to take place in tradables in order to generate current account improvements. An outward shift in tradables supply following an increase in capacity does, of course, improve the current account at a given real exchange rate (along the lines shown in Figure 2). But an outward shift of

nontradables supply due to an increase in nontradables capacity also improves the current account by bringing about a real depreciation. In general, the second-phase effect of a given reform program on the current account depends on the relative movements of both demand and supply in both sectors. The effect on the real exchange rate depends only on the relative movements of demand and supply in nontradables.

Improvements in the current account may be achieved without lavishing resources on tradables industries to the neglect of the rest of the economy. The importance of this insight is not always fully appreciated, particularly in view of the contemporary popularity of export-led or trade-led growth and development strategies. The foregoing analysis suggests that a judicious program of investment in the “domestic” (nontradables) economy will over time reduce the relative price of nontradables as supply shifts out relative to demand, bringing about real depreciation and current account improvement. Such real depreciations, moreover, are not signs of economic weakness, just as the appreciations discussed above were not.

Reconstruction programs designed to build up tradables industries will bring long-run improvements in the current account if outward shifts in tradables supply over time outpace outward shifts in tradables demand and if the relative movements of nontradables demand and supply do not produce excessive real appreciation. In each sector, demand shifts depend on long-run income elasticities.

It follows that reconstruction focused on tradables industries may lead to long-run current account improvement, but that improvement may be associated with real appreciation as well as depreciation. Appreciation is the more likely outcome, the more the reform program starves the nontradables sector of resources.

Choosing the Transition Regime

The details of the reconstruction regime thus matter.⁴ A perennial favorite is export-led development or, in the present context, transformation based on expansion of the tradables sector. The stylized character of such a program is to channel the bulk of capital formation into the tradables sector.

In the first phase of such a program investment-based demands for tradables and nontradables both rise, the latter rising to the extent that nontradable capital goods and construction resources and services are needed during the process of investment in tradables capacity. During this phase the currency appreciates in real terms, while the current account deteriorates and capital inflows increase. When new capacity becomes available, the tradables supply curve shifts out. The tradables demand curve also shifts out as the growth-induced rise in aggregate income raises consumption outlays. The current account improves, so long as the supply shift dominates the demand shift.

As the rise in national income increases the demand for nontradables, demand in that sector shifts out, causing the currency to appreciate in real terms. That appreciation tends to reduce a current account

surplus or to increase a deficit.

Hence, a reconstruction program that is strongly biased in favor of expansion of tradables industries, combined with relatively low income elasticities of demand for nontradables, is capable of generating a long-run pattern of real appreciation and current account improvement. But the current account and real exchange rate patterns that emerge can take on a variety of characteristics, depending on the bias of the reconstruction program and the relevant income- and price-elasticities in both sectors.

The long-term evolution of real exchange rates and trade balances in Eastern Europe's transitioning economies is, thus, closely tied to the specifics of the restructuring programs themselves.

Adjustment in Factor Markets

The real exchange rate fluctuates during reconstruction. When the nominal rate is fixed, adjustments in the real rate occur via movements in nontradables prices. With the nominal rate fixed, a real appreciation is brought about by rising nontradables prices and a real depreciation by falling nontradables prices. It is, however, not only nontradables prices, but factor prices that must adjust. Thus, a real depreciation that is brought about by a decline in nontradables prices will exert downward pressure on wages and capital rentals throughout the economy. In the short run, when capital is sector specific, the decline in nontradables prices is accompanied by a decline in capital rentals in that sector only. The downward pressure on capital rentals is confined to nontradables as long as sector specificity holds. Downward pressure on nominal wages, on the other hand, spreads through the economy even in the short run, because the labor market is assumed to be integrated across the two sectors.

The decline in nominal wages will typically fall short of the decline in the price of nontradables, so that the nontradables product wage, that is, the nominal wage deflated by the price of nontradables, rises. The real wage also rises, in view of the assumption of a fixed nominal exchange rate and of given foreign tradables prices, and assuming further that the typical worker consumes at least some nontradables.

Bringing about a reduction in nominal wages may be politically difficult, even when it is not accompanied by losses in workers' purchasing power. In that case, a system of flexible nominal rates is to be preferred, so that real depreciation may be achieved by means of the additional instrument of nominal exchange rate changes. Indeed, under flexible nominal exchange rates nontradables prices may even rise, provided that they rise less rapidly than the nominal exchange rate.

This may be an important consideration in several Eastern European countries which have yet to bring their inflation rates in line with those of their main trading partners. The expression for the real exchange rate given above suggests that under a fixed nominal exchange rate, when nontradables prices carry the entire burden of adjustment, those prices must rise less rapidly than nontradables prices abroad. That is a difficult policy recipe in several reforming countries. The fact that price discipline must be

imposed on nontradables is especially important here, because nontradables include a variety of public and private goods and services which governments everywhere have found notoriously difficult to control. High-inflation countries may thus have no choice but to keep nominal exchange rates flexible.

Concluding Remarks

The implications for the real exchange rate and the current account of economic transformation in Eastern Europe have been examined in terms of a model focusing on investment and the sectoral allocation of capital. During the initial phases of such programs, when investment, manifest mainly through increased expenditures, dominates the transition, movements in the real exchange rate and in the current account reflect associated demand shocks in both tradables and nontradables sectors. In subsequent periods, when additional capacity comes online and when the growth of national income raises domestic consumption, changes in both the real exchange rate and the current account may reverse direction. The pattern is one of cycles in the real exchange rate and the current account during the course of the transformation program.

Developments in the part of the economy that is sheltered from the world market play a major role in determining the behavior of the real exchange rate and hence of the current account. Among the important components of this sector are certain types of capital goods and a variety of construction goods and services.

Under a broad range of reform conditions, initial real appreciation will be followed by real depreciation. In small open economies, which act as price takers in world goods and services markets, real depreciation is achieved by nominal depreciation or by a decline in nontradables prices. When foreign prices are given and the nominal exchange rate is fixed, the entire burden of real depreciation falls on nontradables prices and on factor prices. Nontradables prices and nominal wages and capital rentals must fall. If such reductions are difficult to implement politically, floating exchange rates may be preferable.

In Eastern Europe, where several countries have not been able to control domestic inflation, fixing nominal exchange rates means that domestic non-tradables prices—including prices of a variety of public goods and services— must be made to rise less rapidly than similar prices abroad, whenever the pressures emanating from the restructuring program call for real currency depreciation. That may be a requirement that is beyond the reach of many governments.

The current account, too, is subject to cycles over the course of a restructuring program. The importance of current account deficits is that they provide access to foreign resources, thereby expanding the range of restructuring options. But current account deficits need capital inflows to finance them and hence touch on the question of convertibility.

Many policymakers in Eastern Europe have expressed concerns about the possibility that capital inflows may “cause” real appreciation. The foregoing analysis suggests that capital inflows cannot be a

cause of appreciation: the cause is to be found in movements in nontradables demand and supply and those movements are governed by the details of the restructuring program. Capital inflows merely facilitate the implementation of a transformation program. Hence, policy decisions about capital controls and convertibility cannot be made independently of the restructuring strategy.

Notes

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1. For an overview, see Corbo, Coricelli, and Bossak (1991). See also Hochreiter and Backé (1992). See Hanke and Schuler (1992) and Bergsten and Williamson (1990) for discussions of currency convertibility. For a discussion of real exchange rate rules, see Adams and Gros (1986) and Montiel and Ostry (1992). For a critical analysis of choosing exchange rate regimes in developing countries, see Aghevli, Khan, and Montiel (1991).

2. See Arndt (1990) for an application of this approach. For a model of fiscal policy and capital accumulation, see Barry (1987).

3. See Bergsten and Williamson (1990), Hanke and Schuler (1992), and Montiel and Ostry (1992) for related discussions.

4. See Adams and Gros (1986), Aghevli, Khan, and Montiel (1991), and Hochreiter and Backé (1992) for related discussions.

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