

## **PROBLEMS OF POST-CMEA TRADE AND PAYMENTS**

**Dariusz K Rosati**

Discussion Paper No. 650  
April 1992

Centre for Economic Policy Research  
25-28 Old Burlington Street  
London W1X 1LB  
Tel: (44 71) 734 9110

This Discussion Paper is issued under the auspices of the Centre's research programme in **International Trade**. Any opinions expressed here are those of the author(s) and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as a private educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions. Institutional (core) finance for the Centre has been provided through major grants from the Leverhulme Trust, the Esmée Fairbairn Trust, the Baring Foundation, the Bank of England and Citibank; these organizations do not give prior review to the Centre's publications, nor do they necessarily endorse the views expressed therein.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

## ABSTRACT

### Problems of Post-CMEA Trade and Payments\*

The demise of the CMEA trading system in 1991 and the shift to convertible currency settlements and world market prices was expected to bring about a severe contraction of intra-group trade, coupled with large imbalances in trade between Eastern Europe and the former Soviet Union. The observed trade collapse in 1991 was exacerbated by deep domestic recession and political unrest in the region. To alleviate the costs of transition and to preserve existing trade links in Eastern Europe, the idea of a Central European Payments Union has been put forward, modelled on the successful archetype of the European Payments Union. But the present situation in Eastern Europe is different in many important respects from that of Western Europe in the late 1940s. Moreover, the observed trade decline is to a large extent a 'natural' outcome of the elimination of the preferential and highly distortionary trading system of the CMEA. Therefore, the payments union does not seem to be the 'first-best' solution. Instead, a comprehensive programme of external financial and technical assistance is needed to allow for the smooth restructuring of production and trade in post-CMEA countries, and to minimize losses from the abrupt cuts in mutual trade.

JEL classification: F14, F15, F33, F35, F36, O52

Keywords: Eastern Europe, CMEA, payments union, gravity model, international trade, Poland

Dariusz K Rosati  
United Nations Economic  
Commission for Europe  
Palais des Nations  
CH-1211 Geneva 10  
SWITZERLAND  
Tel: (41 22) 731 0211x2762

\*This paper is produced under the auspices of the CEPR research programme on *Economic Transformation in Eastern Europe*, supported by grants from the Commission of the European Communities and the Ford Foundation. Publication of this paper is supported by the Commission of the European Communities under its ACE Programme (no. 90/999/040/001/019).

Submitted 3 February 1992

## NON-TECHNICAL SUMMARY

The purpose of this paper is to discuss possible solutions to trade and payments problems in post-CMEA countries. The traditional CMEA trading system was dismantled in 1991, giving way to the establishment of market relations in trade between Central and East European countries. While expected to yield large efficiency gains in the longer run, the change was nevertheless bound to bring about substantial short-term adjustment costs.

The discussion on possible repercussions of the CMEA demise focused on ways and means of protecting the intra-group trade. Perhaps the most interesting was the idea of establishing a multilateral payments arrangement in Central and Eastern Europe, similar to the European Payments Union (EPU) of 1950–58. In this paper, the rationale for the Central European Payments Union (CEPU) is examined using two groups of arguments. First, the idea is discussed in light of the historical experience of EPU in Western Europe. It is argued that despite some *prima-facie* analogies, there are important differences between Western Europe 'then' and Eastern Europe 'now', and that the CEPU would be neither economically justified nor politically feasible in the realities of the early 1990s.

Second, an attempt is made to estimate potential trade flow levels among Central and East European countries in the wake of the CMEA's dissolution. To this end, a simple gravity model of trade is used to estimate structural parameters for trade among West European countries, and these parameters are applied to find out the 'normal' trade flow levels among post-CMEA countries. It is shown that most bilateral trade flows in the region are bound to decline as compared with 1989–90 levels, not only because of the elimination of the preferential trading system, but also because of the sharp fall in GNP levels. Trade with the former Soviet Union will be the main victim of this adjustment, and a substantial reorientation of trade towards Western countries is expected.

An important implication of the analysis is that if the 'normal', sustainable levels of trade among the post-CMEA countries, corresponding to current levels of economic development, are rather below the actual levels from 1989–90, providing support to existing trade flows may not be the best policy. Instead, a mechanism that restructured production and reorientated trade would be needed, leading to a more balanced market structure based on principles of comparative advantage. In such a case, a payments union may be of only little help, as it is essentially a short-term, 'trade-lubricating' mechanism. The necessary restructuring can only be achieved over a longer period of time, and within a comprehensive financial assistance programme, supported and coordinated by a high-powered international organization, aimed at the economic recovery of Central and Eastern Europe.

PROBLEMS OF POST-CMEA TRADE AND PAYMENTS<sup>1</sup>

1. Introduction.

The Council of Mutual Economic Assistance (CMEA) ceased to exist in January 1991 after forty two years of existence<sup>2</sup>. The bureaucratic and politically motivated framework for trade in Central and Eastern Europe was dismantled, and international market rules have instead been adopted. It was widely expected that the change of the CMEA trading system would immediately result in a sharp increase of relative prices of commodities such like energy, fuels, raw materials, and a decline of trade in industrial goods within the CMEA. The Soviet Union, being the only large net exporter of commodities in the region, was supposed to be the main if not the only gainer, while other countries were expected to run large trade deficits *vis-a-vis* the Soviet Union (UN ECE, [1991], p.80-82). These short-term costs were however to be more than offset by long-term benefits. The fundamental economic rationale for the reform was that in the long run all countries involved were expected to gain from increased productive and allocative efficiency, connected with better allocation of resources and mutually beneficial trade

---

<sup>1</sup> The author wishes to express his thanks to Joseph M. van Brabant, Dieter Hesse, Peter Mihalyi, Alexandar M. Vacic and Claus Wittich for helpful comments on earlier drafts of the paper.

<sup>2</sup> Formally, the CMEA was dissolved during the last CMEA session in Budapest in June 1991.

based on principles of comparative advantage. In the more immediate perspective, however, substantial costs of the transition were expected to be incurred in terms of output losses, high unemployment and widespread bankruptcies, raising serious concern about the ability of east European economies to adjust to the new external environment.

Under perfect capital markets the prospects of possible future gains would attract capital resources to flow into potentially viable sectors in Central and Eastern Europe, and the ensuing restructuring would not have to be necessarily contractionary. However, capital markets in the region are only rudimentary, and besides, political and social risks are high. Thus, the market mechanism alone cannot help, and some interventionist measures are probably needed to avoid the unnecessary adjustment costs.

At the earlier stage of the discussion on possible repercussions of the new trade and settlements system, three main scenarios were contemplated (see van Brabant, [1991b]; CEPR, [1990]). Under the first one, smaller CMEA countries would reduce sharply their imports from the Soviet Union, maintaining external balance at the cost of a deep domestic recession. This scenario was seen as one of the last resort, because in view of highly inelastic demand of east European countries for fuels, energy and raw materials imported from the USSR, the required contraction could be socially and politically intolerable. The second possibility was to run large deficit with the Soviet Union, while trying to cover the financial gap with increased exports to the West at all cost, even at dumping prices, and pressing western

countries for increased financial assistance. The problematic point in this scenario was the extent of availability of foreign aid, and the absorptive capacities of CMEA countries. The third possibility was to seek for a multilateral mechanism to protect intra-CMEA trade levels. Although such a mechanism could take form of various trade and payments arrangements, perhaps the most widely discussed was the idea of establishing a payments union in Central and Eastern Europe, essentially similar to the European Payments Union (EPU) of 1950-1958.

The latter option received a lot of attention and interest among economists and politicians. In a number of studies many authors advocated the idea of establishing a Central European Payments Union (CEPU), aimed at alleviating trade and payments problems in the CMEA region, and supported by some (unspecified as yet) western financial contribution (see UN ECE [1990]; van Brabant [1990], [1991a], [1991b]; Ethier [1990]; Soldaczuk [1990]; Bofinger [1990]). But the subsequent discussion has not led to developing the initial concept into a more operational scheme, and no practical steps towards implementation have been taken so far. Although the idea has some important merits, it raised also substantial criticism from some commentators (see e.g: Michalopoulos [1990]; Kenen [1991]; Rosati [1991]).

The purpose of this paper is to examine the rationale for the payments union for Eastern Europe. Two broad groups of arguments are employed. First, the proposal is examined in the light of the EPU historical experience in Western Europe in the 1950s. It is argued, that despite some apparent similarities the EPU cannot serve as an archetype for a similar solution to

current trade and payments problems of post-CMEA countries. Second, an attempt is made to estimate potential trade flow levels among Central and East European countries in the wake of the CMEA dissolution. It is shown, that the decline of mutual trade in the region is to a large extent a "natural" outcome of the elimination of the preferential trading system.

The interest in this topic has been spurred by recent developments in intra-CMEA trade. Early statistics for 1991 indicate a sharp reduction of mutual trade among former CMEA members, roughly by 30-50% in volume terms as compared with 1990 (UN ECE, [1992]). The observed "trade destruction" is commonly attributed to the switch to a new trade and payments regime, involving convertible currency settlements, world market prices and abolition of obligatory government protocols. But in fact this explanation may be disputed, and none of the three scenarios mentioned above fits to the reality of 1991. Deep domestic recession triggered by ambitious stabilization programs in some east European countries, and dramatic socio-political developments in others (especially in the former Soviet Union) may have contributed to the trade collapse even stronger than the demise of the CMEA system. Whatever the reasons behind, the trade collapse is raising serious concern about its impact on domestic recession in former CMEA member countries, the course of economic reforms in the region, and also on trade with Western Europe.

## 2. The west European experience: The European Payments Union.

In what follows the rationale for a multilateral payments arrangement in Eastern Europe is examined. In particular an attempt is made to answer the question to what extent the experience of the European Payments Union from 1950s may be relevant in the present context of CMEA countries.

The payments situation in western Europe in the late 1940s offers some *prima facie* analogies to the present situation of Eastern Europe, because at the then prevailing exchange rates and non-convertibility of domestic currencies against the US dollar, all the west European countries (except Switzerland) experienced what at that time was described as a "dollar shortage" (Kaplan, Schleiminger, [1989]). By that was meant that in each country the demand for dollars exceeded supply, with the resulting deficit partially "open" (that is, financed by US aid or credits or by drawing on official reserves of gold or dollars), but mainly "suppressed" - whether (exceptionally) by unemployment or (almost universally) by restrictions on trade and payments. The main type of restriction imposed to suppress the deficit comprised import quotas (QRs). The dollar shortage had emerged at the end of the war, and persisted despite the wave of currency devaluations in 1947-1949 (Tew, [1991]).

Due to the dollar shortage, the governments in west European countries tried not to "waste" their valuable dollars to finance imports from each other. With that aim in mind they negotiated



intra-European bilateral payments agreements<sup>2</sup>. In result, the intra-European trade was forced into a strict bilateral pattern, which obviously prevented countries involved from reaping the full benefits of international division of labour. Moreover, it blunted the spur of competition, since QRs, though imposed ostensibly for balance of payments reasons, incidentally offered very effective protection to local producers. Since in addition to that many agreements quickly reached limits of their agreed "swing" credits, an anti-trade bias developed in west European countries, in that each country was tempted to follow a course which would draw scarce dollars from its neighbours by reducing its imports from them - a disastrous policy if followed by them all.

Since the observed collapse of trade in Eastern Europe is caused, *inter alia*, by the shortage of foreign exchange which reduces trade flows and forces the countries in the region into a bilateral exchange, an obvious question arises what were the ways and means used by west European countries in late 1940s for escaping from bilateralism and stimulating mutual trade.

First attempts to introduce some measure of multilateralism were made in 1947 by concluding the Agreement on Multilateral Monetary Compensation (AMMC). But the agreement failed to extend the budget constraints of participating countries by a

---

<sup>2</sup> These agreements were usually concluded between governments, according to a fairly uniform pattern: the central banks, as technical agents, supplied their own currency at a fixed rate against that of their partner up to a certain limit, which was often referred to as the "swing", since it was intended to afford room for minor fluctuations in commercial deliveries between the two countries; beyond the limits thus fixed settlements had generally to be made in gold or convertible currency (in practice, US dollars).

considerable margin, because the pattern of bilateral imbalances which established itself at that time offered few possibilities of multilateral compensations. The failure of the AMMC clearly demonstrated that a multiclearing mechanism alone would not work, and that credit facilities and rigid repayments discipline were necessary. This experience opened way for establishing a much more comprehensive compensation scheme in form of the European Payments Union (EPU).

The discussion preceding the formation of the EPU concentrated on the problem: how to get away from the bilateralism in the European trade and payments? There were alternative recipes for reform (see: Tew, [1991]). According to the "universalist" approach favoured by the IMF and the US Treasury, the dollar shortage should be cut by a further round of European currencies depreciation, followed by the abolition of QRs and the introduction of the regime of dollar convertibility. The "regionalists" on the other hand claimed that such a regime would impose depression, aggravate inflation and lead to an unacceptable deterioration of west European terms-of-trade, as long as the post-war dollar shortage persisted. Thus, they suggested that some form of discriminatory trade and payments arrangement should be introduced which would deter imports from dollar sources, but at the same time would permit intra-European trade to develop on a multilateral and preferably non-discriminatory basis.

Eventually the views of the regionalists prevailed. Judging from today's perspective it may be argued, that the EPU was established essentially because introducing the "internal"

convertibility of european currencies was considered out of question at that time for a number of apparently important reasons. Not only the fiasco of the early attempt to make sterling convertible in 1947 served as a clear warning against any premature attempt to remove currency restrictions, but the "robust" convertibility would require further devaluations which were considered dangerous because of inflationary pressures growing in late 1940s and low levels of international reserves. Besides, free-market sentiments were definitely less popular at that time than they are now.

Perhaps more important was the "elasticity pessimism". A further devaluation would alleviate the dollar shortage only in so far it changed the volume of European imports and exports sufficiently to offset the change in dollar prices. Such a favourable outcome can never be taken for granted in the short term. According to Tew [1991], in case of Western Europe the response to devaluation would probably be slow (a prolonged "J-curve" effect), essentially because most of European exportables were considered "uncompetitive" as compared with similar products from dollar sources. Faced by low price elasticity for their exports, west European countries would be ill advised to opt for a "universalist" recipe of devaluation, free trade and current-account convertibility. A multilateral payments arrangement offered an escape from bilateralism, while at the same time providing an effective temporary protection to uncompetitive industries. So, the "regionalist" solution for Europe in late 1940s sought a compromise between conflicting objectives of the need for opening up their economies to international trade in

order to create incentives for competitive restructuring on the one hand, and conceding that without further devaluations western Europe would for some time need to maintain discriminatory trade restrictions against the dollar area.

The strong prejudices against devaluation and immediate convertibility were most probably decisive in opting for a payments union, and not for a free trade zone. Besides, the former offered an easier way of circumventing the free-trade commandments included in the IMF and GATT charters than the latter. The mechanism of the EPU, established in mid-1950, was essentially a combination of a fully multilateral system of intra-European settlements, using a "soft" payment means not fully convertible to dollar, and of discriminating QRs with much stricter licensing of imports coming from outside western Europe.

The commonly held view is that the EPU was highly successful in promoting intra-European trade and in preparing grounds for currency convertibility. But in fact it would be difficult to prove rigorously this proposition. A natural question which comes to one's mind is what would have been the course of events if the EPU had not been established and alternative policy measures used instead (e.g. along the "universalist" recipe)? As we know, the "dollar shortage" practically disappeared already in 1951; could it have been that the establishing of the EPU was the result of overestimating the size of the "dollar shortage" and of considering it (wrongly?) as a structural phenomenon which can be dealt away only in the longer run<sup>1</sup>? And furthermore, if the

---

<sup>1</sup> As far as can be read from statistics there was a surge of exports following September 1949 devaluations. It is therefore difficult to legitimize the view that convertibility-cum-

"regionalist" option was indeed the right one, could it have been that another arrangement, like a free trade area or a customs union, would have worked even better? The preference for QRs and non-convertibility as against tariffs may have been inevitable for political reasons, but on strictly economic grounds it was inappropriate, since though the latter device may reduce to some extent the competitive pressure from abroad, they do not eliminate it altogether, as is the case of QRs.

### 3. The 1950s and the 1990s: Similarities and differences.

It should be clear from this short history of the European Payments Union that a number of necessary conditions had to be met in western Europe in order to make the mechanism of the union to work efficiently. Are these conditions fulfilled in the present context of Eastern Europe? It is commonly held that there are some important similarities between "then" and "now", and that the European Payments Union (EPU) may provide a useful archetype in this respect.

Perhaps the most obvious resemblance derives from the fact that in both situations the existing industrial structures were uncompetitive and in need of modernisation, which in both cases gives rise to two key policy issues: a) how to modernise industrial structures, and b) how to organize international trade and payments during the transition period, during which the

---

devaluation would not work.

industrial transformation is taking place.

Another important similarity is that foreign exchange reserves in east European countries are limited and trade is in many instances hampered by the scarcity of convertible currencies.

In other respects, however, the two situations seem very different, both with respect to initial conditions in production and trade, and with respect to existing institutional framework.

First, the EPU members were all long-established market economies. Although the free workings of the market mechanism might have been distorted or suspended in some areas in the early post-war period, it was generally quite clear that this was a temporary state of affairs. Basic market institutions and a clear system of property rights remained firmly in place, and enterprises were free to seek access to foreign markets. No fundamental restructuring was needed as market distortions were limited.

In the post-CMEA countries market institutions are either non-existent or only *in statu nascendi*, their economic structures are dominated by large state-owned enterprises, and price distortions were substantial. These countries are having to start from scratch, completely remaking their economic systems and learning new marketing and managerial skills. The important implication is, *inter alia*, that current trade flows in Eastern Europe may not reflect comparative advantage of individual countries, and that their continuation may not be economically justified.

Second, the central task of the EPU was to promote the

intra-group trade and create conditions for convertibility (see: Kaplan, Schleiminger, [1989], p.91). It is important to remember, that trade patterns in Western Europe were seen as broadly consistent with the principle of comparative advantage, and while the overall modernisation of industrial sector was essential to improve its competitiveness, no major economic restructuring was deemed necessary.

By contrast, in Eastern Europe the main task is rather a comprehensive restructuring of national economies, coupled with major reallocation of resources among sectors and branches. In pursuing this fundamental long-term objective, industrial policies, technology transfer and availability of investment capital are most effective policy instruments, whereas payments-related policies may be only second-best measures. In other words, the required proportions between current trade financing and structural adjustment seem to be quite different between "then" and "now".

Third, the territorial trade pattern is very much different. The EPU member countries conducted the bulk of their external trade among themselves (e.g. 52.6% of Western Europe exports went to the region in 1953, up from 47% in 1937 - see UN ECE, [1985], p.375). Except for the US market which was explicitly discriminated against, no other important opportunity market existed. Western Europe was relatively competitive market at that time. It should be remembered that the EPU included 17 European countries, and that overseas territories that were part of the currency area of a European country also participated in the

payments system<sup>4</sup>. The combined monetary area of all participating countries covered a large majority of total world trade at the time (about two-thirds in mid-1950s). The implicit trade diversion away from the US market involved therefore only marginal external costs, and was more than offset by a large trade creation effect within the union.

By contrast, trade among East European countries constitutes a relatively small part of their total trade (35-40% in 1990, excl. GDR), and is dominated by bilateral trade flows with the Soviet Union, which accounts for two thirds of the total intra-group trade. This share may further decline after politically-motivated trade links have been discontinued. On the other hand, the neighbouring European Community provides an attractive opportunity market for previously inward-oriented CMEA economies, and a substantial trade diversion towards the West may be expected in the future.

While the geographical structure of West European trade in 1940s was essentially "right" and the main problem was to expand existing export opportunities to strengthen less competitive industries, the key policy issue in the post-CMEA countries is how to address the contradiction between the vital necessity to make a sound trade diversion to the West, and the inflexibility of existing production structures, which limit drastically possibilities to sell anywhere else but on the CMEA markets. If

---

<sup>4</sup> Signatories of the EPU Agreement were all OEEC member countries: Austria, Belgium, Denmark, France, Germany, Greece, Iceland, Ireland (included in the monetary area of the United Kingdom), Italy, Luxembourg (included in the monetary area of Belgium), the Netherlands, Norway, Portugal, Sweden, Switzerland, Trieste (included in the monetary area of Italy), Turkey, the United Kingdom.



the main problem of Western Europe was that large segments of industry were uncompetitive (as compared with the US, but not with anyone else), then the problem of Eastern Europe is both the low competitiveness (as compared not only with the US, but also with Western Europe, the Far East, and increasingly with Latin America) and wrong economic structure. If the crucial problem "then" was the lack of markets, the problem "now" is rather a lack of resources for restructuring and modernization.

Fourth, Western Europe was a fairly homogeneous group of national economies, with largely similar if not identical trade and payments regimes, market institutions and ownership structure. By contrast, east European economies differ from each other in many respects. While Poland introduced current account convertibility already two years ago, and Czechoslovakia followed in 1991, other countries are less resolute, and convertibility of the rouble or lev may come only after some time. Similarly, Poland has one of the most liberal import regimes in Europe, but extensive import licensing is still used in the Soviet Union. It should not be forgotten, that a payments union makes sense only for non-convertible currency regimes.

Fifth, it should be remembered that the EPU was not an isolated undertaking but constituted a part of a broader recovery program for Western Europe. The creation of the OEEC and the lavish finance (estimated at some \$ 70 billion at current values) from one all-powerful source - the US Aid Administration - under the provisions of the Marshall Plan were two key components of the reconstruction effort. Both the multilateral cooperation framework and massive financial assistance from outside are

missing in Eastern Europe today.

Finally, for a multilateral payments union to work smoothly, a firm commitment is needed of all parties involved to observe the established rules, especially not to undermine the liquidity position of the union (e.g. through using the surplus with clearing partners to cover deficit with outside trade partners). But the degree of mutual political trust and confidence among western countries in the 1940s was considerably greater than among east European countries at present. It should not be ignored that underlying the EPU were strong tendencies for economic integration and political alliance in western Europe.

Against the backdrop of this cooperative environment, the current situation in Eastern Europe is in sharp contrast. The strategic priority of the countries in the region seems to be their joining the European Community<sup>5</sup>, which determines main directions of their economic and external policies. This may be illustrated by the strong reluctance of many east European countries to participate in a multilateral payments arrangement which could in any way slow down the process of regaining the economic and political independence from the Soviet Union and of integrating their economies with the European Community.

Therefore, historical analogies do not seem to be close enough to justify the establishing of a payments union of the EPU type in Eastern Europe. The success of the EPU was crucially

---

<sup>5</sup> That was indeed the main message of the Cracow Declaration adopted by heads of state of Czechoslovakia, Hungary and Poland on 6 October, 1991: "...The central objective of the three countries is full integration with the european political, economic and institutional system..." (Rzeczpospolita, 7 October, 1991).

dependent on many institutional, economic and political conditions which are simply non-existent in the post-CMEA region.<sup>6</sup> But the problems of adjustment and restructuring in Eastern Europe do exist and by no means should be ignored; in fact, these problems are much more difficult and complex than problems faced by Western Europe forty years ago. They cannot be possibly solved without extensive external assistance. To the extent they are of a regional (and not bilateral or individual) character, there is a case for a multilateral solution.

#### 4. The gravity model of trade.

The idea of a payments union for Central and Eastern Europe would have indeed important merits, if the current trade levels were below what could be considered as viable trade flow levels. The implicit assumption underlying the concept of the CEPU (or any other scheme supporting existing trade links in Eastern Europe) is that the observed trade destruction is largely affecting economically sound trade flows, thus entailing significant costs in terms of reduced output and employment. If, however, the shrinkage of trade is simply a result of

---

<sup>6</sup> On the other hand, a payments union might be a reasonable solution for the republics of the former Soviet Union, if accompanied by comprehensive market reforms. Increasing political independence of individual Soviet republics cannot change the fact that the existing economic links between the republics are strong, and institutional systems are very similar. The intra-Soviet trade faces growing difficulties arising from tendencies to control foreign trade by republican authorities eager to earn scarce foreign exchange. The payments union would provide a temporary escape from barter trade and prevent a total trade collapse.

discontinuing those trade links which have been maintained in the CMEA era either for non-economic reasons (e.g. political or military), or because of highly distorted relative prices, then the CEPU might be a redundant solution.

In order to verify this assumption, a simple gravity model of trade has been applied to estimate "normal" trade levels in the post-CMEA region. The rationale for using the gravity technique is straightforward. For countries with basically similar economic and institutional structure, the mutual trade depends essentially on their economic potential measured by effective supply and demand levels, and existing impediments to trade stemming from commercial policies and geographical distance.

The procedure adopted involves several steps. First, the gravity model was estimated for 17 West European countries in order to determine the values of structural parameters for exogenous variables (GNP values standing as proxies for demand/supply variables, geographical distances, and several dummy variables reflecting trade policy preferences). Next, these parameters (trade elasticities) have been used for computing hypothetical trade flows among former CMEA members. The obtained results have then been compared with available CMEA trade data for 1990. The key underlying assumption was that the switch to a market regime (both domestically and in foreign trade), initiated in 1989-1990, would in the long run force these countries into a similar trade pattern as the one existing in Western Europe. In the final section, the model is applied for Polish data to assess a potential trade diversion towards Western

Europe.

The results of the study do not confirm the view that the present trade flow levels among post-CMEA members are significantly below their potentially viable levels. Rather, relatively high (though rapidly declining) intra-CMEA trade flows in 1989-1990 may be regarded in most cases as "excessive" under new trade conditions, at least if trade elasticities reflecting West European trade patterns are applied. This is especially true for trade with the Soviet Union. It should be noted however, that the obtained estimates have been unavoidably affected by serious data problems encountered in the course of analysis, especially concerning GNP estimates for the CMEA countries. The results should therefore be taken *cum grano salis*.

A standard gravity model of trade can be formulated as follows (see e.g. Linneman [1966]):

$$x(i,j) = a_0 Y(i)\exp(a_1) Y(j)\exp(a_2) R(i,j)\exp(a_3) P(i,j)\exp(a_4)$$

For estimation purposes a general logarithmic form has been applied:

$$\ln x(i,j) = \ln a_0 + a_1 \ln Y(i) + a_2 \ln Y(j) + a_3 \ln R(i,j) + a_4 \ln P(i,j)$$

where  $x(i,j)$  represents a trade flow from country  $i$  to country  $j$  (exports from  $i$  to  $j$ ),  $a_0 \dots a_4$  are structural parameters (elasticities), and  $Y$ ,  $R$ , and  $P$  are explanatory variables described below.

Elements  $x(i,j)$  of the trade matrix covering trade flows among 17 West European countries in 1987 have been used for estimation, including all EEC countries (Belgium and Luxembourg has been taken as one country), all EFTA countries (except for Iceland) and Yugoslavia. While choosing for independent variables it was decided to take GNP values as proxies for  $Y(i)$  and  $Y(j)$  variables; population figures were not included as their impact on trade is only indirect, working through income and expenditure changes, the latter being captured by GNP figures<sup>7</sup>. Road distances (in km) between capital cities were assumed for  $R(i,j)$  values.

Several trade preference variables  $P(i,j)$  were also used in order to find best regression results. In the base case (Model 0),  $P(i,j)$  was assumed e (basis of natural logarithm) for all pairs of countries belonging to the same integration group (EEC or EFTA), and 1 for all remaining pairs. In Model 1 a distinction has been made for EEC and EFTA, and consequently two separate  $P(i,j)$  variables were introduced, assuming values e or 1. Finally, a similar dummy for neighbouring countries  $N(i,j)$  was introduced in Model 2 to capture the "adjacency" effect<sup>8</sup>.

---

<sup>7</sup> Some recent applications of the gravity technique in trade modelling confirm that the population factor is less significant than the income factor; besides, under the specific model formulation one can expect a strong collinearity of the two variables (see e.g. Biessen [1991]; Hamilton, Winters [1991]).

<sup>8</sup> In one of the simulations, a "historical" dummy variable  $H(i,j)$  has been introduced, aimed at capturing particularly strong and historically durable bilateral trade links for three cases: Germany and Austria, Belgium-Luxembourg and Netherlands, and United Kingdom and Ireland. But the results obtained did not confirm the significance of this variable.

## 5. The data.

Data on trade flows among West European countries for year 1987 were taken from the UN International Trade Statistics Yearbook 1987, (New York 1989), which provides the most recent collection of data available. In few cases the data had to be supplemented from national trade statistics (Portugal, Yugoslavia). The GNP values were taken from UN National Accounts Statistics 1987, (New York, 1990). All trade flows and GNP values are expressed in current 1987 US dollars. The data are given in Table 1 and 2 in the Annex.

Data on trade of East European countries are taken from UN ECE sources which are based on national statistics. Trade figures reported in national statistics were first converted from national currencies into transferable roubles at official exchange rates, and next converted from TRs into US dollars. The problem of choosing an appropriate TR/US \$ cross rate has always raised serious difficulties. There is a widely held opinion among CMEA trade analysts that the official IBEC rate (the TR/dollar rate fixed by the CMEA's International Bank for Economic Cooperation) was obviously undervaluing the dollar (the IBEC rate in 1990 was 0.58 TR/US \$); this is why individual countries in most cases applied higher cross rates for trade transactions.

But the cross-rates differ significantly among particular countries, ranging in 1990 from 0.61 TR/dollar in Bulgaria to 4.52 TR/dollar in Poland. In the absence of solidly based estimates of a "real" TR/dollar rate (to the best of my knowledge the only extensive research carried out in this respect is the

celebrated study by Marrese and Vanous [1983], but their estimates are based on trade flows registered in 1980 and would not be appropriate for 1989-1990), it was decided to take an arithmetic average of national cross rates of individual countries. As arbitrary as it may be, the choice however provides a reasonable first approximation, allows for elimination of extreme cases of overvaluation and undervaluation, and may serve as a starting point for more elaborated analysis<sup>9</sup>. Thus, the conversion of rouble values into dollar values was made at 1.48 TR/dollar for 1989, and 1.82 TR/dollar for 1990 (see Table 3 for national cross rates in 1988-1990)<sup>10</sup>.

Another problem refers to consistency of trade data. It should be noted that the values of trade flows reported by particular countries differed sometimes from the mirror data reported by partner countries. The discrepancies remained within reasonable limits until 1989, but became conspicuously large for certain countries in 1990, one of the reasons for that being probably the increasing proportion of convertible currency transactions in mutual trade (as in the case of trade flows between Poland and the Soviet Union), which were converted into

---

<sup>9</sup> A similar approach has been adopted by the UN ECE in converting rouble trade flows in 1991 into common dollar denominator (see UN ECE, 1992]).

<sup>10</sup> These coefficients may still be viewed as excessively high. Marrese and Vanous [1983] found that the most plausible cross-rates for Soviet exports to the CMEA and for Soviet imports from the CMEA for 1980 trade flows were 0.52 TR/US \$, and 0.96 TR/US\$, respectively. In a more recent study on Polish-Soviet trade these estimates are put at 0.90 TR/US \$ for Soviet exports, and 1.11 TR/US \$ for Soviet imports for 1988-1989 trade flows ("Poland...", [1990]). Thus, the applied cross-rates should be seen as being rather on a high side, especially for Soviet exports, dominated by standard, internationally traded commodities.



national currencies at different cross rates. In all these cases it was decided to take an arithmetic average of mirror statistics to approximate the value of particular  $x(i, j)$  elements. The trade flows among the CMEA countries in 1989 and 1990 are presented in Table 4 in the Annex.

But the most serious problem aroused in the estimation of GNP values in US dollars for CMEA countries. As it is well known, difficulties connected with conversion of East European national accounts figures into GNP- equivalents expressed in dollars are almost unsurmountable (see Marer [1985]; Fink and Havlik [1989]). Many authors attempted to make estimates of East European GNPs, but obtained results differ widely, sometimes even by 100% (sic!), depending on the methodology used<sup>11</sup>. Table 5 presents GNP values in dollars for East European countries obtained from various sources. Low and high extremes (the World Bank data and CIA data) have therefore been taken for calculations, thus setting a range for possible values of dependent variable.

Discrepancies between particular sources are indeed fantastic. In particular, the figures for the Soviet Union seem to be based on totally different assumptions. Both extremes for the USSR are rather unlikely (497 bln dollars vs 2664 bln dollars) and some intermediate value would be perhaps much more reasonable.

---

<sup>11</sup> Results of alternative GNP estimates depend heavily on methodologies used. Estimates based on purchasing power parities (PPP) or on physical indicators (PICs) applied by CIA or PlanEcon yield typically much higher GNP figures than estimates based on official or market exchange rates conversion (the World Bank, the IMF).

Table 5: Alternative estimates of GNP for Eastern Europe and the Soviet Union (in million US dollars).

Country	The World Bank		CIA	PlanEcon	IMF	WEFA
	(a) 1989	(b) 1989 1990				
Bulgaria	20880	20300 22400	51200	50700	-	32200
Czechoslovakia	53820	50300 46500	123200	118600	50325	80000
Hungary	27454	29100 32100	64600	68800	28866	47430
Poland	67841	68400 62300	172400	207100	82223	127520
Romania	-	53500 35500	79800	94800	53557	55850
Soviet Union	496898	-	2663700	1589500	-	1346000
Yugoslavia	69204	62300 58900	129500	115600	-	58130

Sources:

- 1) The World Bank (a): World Development Report 1991, Washington 1991, p.204 (per capita GNP figures multiplied by population); the figure for the Soviet Union refers to 1988 and has been taken from World Development Report 1990.
- 2) The World Bank (b): A.H.Gelb, Ch.W.Gray "The Transformation of Economies in Central and Eastern Europe: Issues, Progress, Prospects", The World Bank, Washington, 1991, Annex 1, p.4.
- 3) CIA "Handbook of Economic Statistics", Government printing Office, Washington, 1990.
- 4) PlanEcon Reports, various issues, (quoted from S.Collins, D.Rodrik "Eastern Europe and the Soviet Union in the World Economy", Institute for International Studies, Washington, D.C., May 1991, p.7-8)
- 5) IMF: International Financial Statistics, various issues. Estimates of GNP (GDP) in national currencies converted into US dollars at market exchange rates.
- 6) WEFA: The WEFA Group, World Economic Outlook, vol.3, April 1991, Chapter 6. All figures for WEFA are in constant 1980 US dollars (cumulated CPI in the United States over 1980-1989 period is 158.7%).

In view of such large differences in various GNP estimates it has been decided to find an arithmetic average of two extremes: the lowest estimate by the World Bank, taken from World Development Report data, and the highest estimate reported by the CIA<sup>12</sup>. The GNP values thus obtained for 1989 were next

<sup>12</sup> In a similar exercise, Hamilton and Winters [1991] also opt for GNP estimates which fall in the middle of the range of published information (but they do not give actual GNP figures).

adjusted with reported rates of change for Net Material Product in 1989-1990 to obtain estimates for 1990<sup>13</sup>. Specific GNP figures eventually taken for trade flows computations are presented in Table 6.

Table 6: The GNP values used for computations (in million US dollars).

Country	Arithmetic averages		Rate of change 1990/1989
	of high and low estimates 1989	1990	
Bulgaria	36040	31201	-13.6%
Czechoslovakia	89212	86474	-3.1%
Hungary	46027	43564	-5.5%
Poland	120120	105706	-12.0%
Romania	59700	53460	-10.5%
Soviet Union	1586262	1522811	-4.0%

Remarks: Averages obtained from Table 5; Rates of change refer to Net Material Product (except for Poland where the rate of change in GDP is given), and were taken from UN ECE Economic Survey of Europe 1990-1991, New York 1991, p.221.

## 6. The results.

In the estimation procedure for West European trade matrix the ordinary least square technique (OLS) was applied over 272 observations (zero trade flows were omitted from calculations). Several model specifications have been used to find the best approximation. The results are summarized in Table 7.

All three models display a similar, reasonably high goodness of fit, as measured by R(Squared) coefficients. Both GNP values

<sup>13</sup> In 1990 the NMP declined in all CMEA countries. While GDP rates of changes for the period are not available as yet (except for Poland and Hungary), it may be assumed that they are generally slightly lower than the NMP figures, as the sector service was less affected by the recession as was the material production. In other words, in terms of GDP the recession might have been less severe.

and geographical distances are statistically strongly significant at 5% confidence level (with respective t-statistics well above 10). Trade policy preference variable is also statistically significant in Model 0; but when decomposed on EEC and EFTA effects (Models 1 and 2), the statistical significance of the EEC variable proved to be much stronger.

Table 7: Estimation results of alternative gravity model formulations.

Independent variable	P a r a m e t e r s		
	Model 0	Model 1	Model 2
Constant	1.6866 (0.6485)	1.7522 (0.6496)	0.6924 (0.6455)
ln GNP(i)	0.7914 (0.0386)	0.7894 (0.0392)	0.7912 (0.0389)
ln GNP(j)	0.7852 (0.0386)	0.7832 (0.0392)	0.7850 (0.0389)
ln R(i,j)	-0.9784 (0.0687)	-0.9809 (0.0693)	-0.8499 (0.0933)
ln P(i,j)	0.3559 (0.0808)	-	-
ln P(i,j) - EEC	-	0.3637 (0.0850)	0.3665 (0.0845)
ln P(i,j) - EFTA	-	0.3150 (0.1580)	0.2830 (0.1577)
ln N(i,j)	-	-	0.2932 (0.1409)
R(Squared)	0.8610	0.8610	0.8632

Remark: Figures in parenthesis are Standard Errors.  
Source: Own calculations.

An interesting inference from Models 1 and 2 is that the EFTA effect and the "neighbourhood" (or "adjacency") effect are

both rather insignificant in explaining trade flows (respective values of t-statistics in Model 2 are 1.794 and 2.081, thus being situated on borderline of the confidence intervals). Thus, it was decided to use Model 0 for calculation of hypothetical intra-CMEA trade flows, with the variable  $P(i,j)$  assuming e values for all intra-CMEA trade flows. This assumption may be justified on the grounds, that the intra-CMEA economic links have been relatively strong, more resembling to intra-EEC relations than to purely free-trade-type links, characteristic for the EFTA grouping. The results of the simulation are presented in Table 8 (GNP/GDP values were taken from Table 6).

Table 8: Intra-CMEA trade flows in 1989 and 1990, actual and hypothetical values, in million US dollars.

Country		T r a d e f l o w s					
i	j	1989			1990		
		actual	theoret.	ratio	actual	theoret.	ratio
BG	CS	316.8	205.5	1.54	174.2	179.0	0.97
BG	HU	103.0	207.7	0.50	69.3	177.5	0.39
BG	PL	266.0	240.4	1.11	125.9	193.9	0.65
BG	RO	147.0	495.8	0.30	178.2	406.0	0.44
BG	SU	4786.1	1214.7	3.94	3123.2	1047.6	2.98
CS	BG	335.1	206.7	1.62	185.5	180.1	1.03
CS	HU	621.1	586.0	1.06	496.4	547.4	0.91
CS	PL	1211.6	1146.2	1.06	777.2	1010.5	0.77
CS	RO	267.6	298.6	0.90	158.8	267.3	0.59
CS	SU	4477.6	2928.5	1.53	3203.3	2760.7	1.16
HU	BG	94.6	209.1	0.45	32.7	177.9	0.18
HU	CS	694.3	583.6	1.19	473.6	544.7	0.87
HU	PL	380.9	620.3	0.61	209.9	536.6	0.39
HU	RO	194.9	295.1	0.66	176.8	258.8	0.68
HU	SU	3343.2	1742.8	1.92	2435.9	1612.0	1.51
PL	BG	370.1	242.1	1.53	242.9	195.4	1.24
PL	CS	1372.5	1148.5	1.20	1281.2	1011.6	1.27
PL	HU	423.6	624.1	0.68	301.2	539.8	0.56
PL	RO	266.9	435.8	0.61	287.6	360.8	0.80
PL	SU	5319.5	5460.2	0.97	4907.6	4765.9	1.03
RO	BG	123.2	497.8	0.25	62.7	407.6	0.15
RO	CS	234.4	298.0	0.79	106.7	266.5	0.40
RO	HU	200.1	295.4	0.68	97.1	259.4	0.37

RO	PL	217.8	434.1	0.50	62.6	359.7	0.17
RO	SU	1668.6	2197.9	0.76	954.0	1949.3	0.49
SU	BG	3843.2	1243.0	3.09	2720.7	1073.0	2.54
SU	CS	4268.4	2978.7	1.43	2806.2	2810.9	0.99
SU	HU	2796.1	1779.8	1.57	2029.6	1647.9	1.23
SU	PL	3820.0	5548.3	0.69	3472.7	4847.6	0.72
SU	RO	1832.0	2242.3	0.82	1350.3	1988.7	0.68
Total CMEA		43996.2	36406.0	1.21	32504.0	32384.1	1.00

-----  
 Remark: "Ratio" is the actual value divided by the corresponding theoretical value.

Source: Own calculations.

In 1989 14 out of 30 trade flows exceeded corresponding theoretical values, with intra-CMEA trade links especially strong in case of the Soviet Union, and then Czechoslovakia and Bulgaria. The least integrated country was Romania, followed by Hungary and Poland. Total CMEA trade was 21% higher than its theoretical level.

A significant decline in intra-CMEA trade could have been observed in 1990. Only 9 out of 30 empirical trade flows exceeded corresponding theoretical values, with 6 of them being with the Soviet Union; but the total intra-CMEA trade was almost exactly at par with its theoretical value. As in 1989, the Soviet trade was "excessive" in case of Bulgaria, Czechoslovakia and Hungary, with Romania remaining the most isolated country in the region. While all countries reduced their intra-CMEA linkages in 1990, the process was particularly strong in case of Hungary (both on export and import sides) and Poland (imports).

The decline of CMEA trade by some 25% in 1990 is partly due to a general recession in CMEA countries (in 1990 the total NMP dropped by 10.2% in smaller East European countries and by 4.0%

in the Soviet Union), but to some extent it also reflects early steps aimed at replacing the traditional CMEA trade system by market-oriented mechanisms of convertible currency settlements and increased reliance on world market prices<sup>14</sup>. The process of trade diversion towards the West was especially strong in the case of Polish and Hungarian imports.

The results obtained are broadly compatible with the findings reported in Hamilton and Winters [1991]. One of their key conclusions is that the overall intra-CMEA trade in 1985 was roughly twice as high as the hypothetical level, with most "excessive" trade flows observed in case of the Soviet Union, Bulgaria, GDR and Czechoslovakia. However, their analysis is based on national rouble-dollar exchange rates, which may have

<sup>14</sup> Even though the switch to the market system was formally planned to take place on January 1, 1991, the share of convertible currency settlements in intra-CMEA trade increased dramatically already in 1990. The following figures illustrate the share of "non-rouble" (i.e. convertible currency) transactions in the Polish trade with selected CMEA countries in 1990, in percent:

Country	1st quarter	4th quarter
Soviet Union		
- exports	19.5	43.8
- imports	23.1	75.9
Bulgaria		
- exports	3.2	17.0
- imports	1.4	22.8
Czechoslovakia		
- exports	12.7	19.2
- imports	1.5	8.1
Hungary		
- exports	11.8	40.2
- imports	16.7	32.7

Source: GUS data (Central Statistical Office).

Taking into account the dominant position of the Soviet Union in the Polish trade, it may be assumed that at the end of 1990 approximately half of CMEA trade was conducted already in convertible currencies.

distorted trade flow values used for computations.

#### 7. Trade projections for 1991.

The last step of the analysis is to apply the model to 1991 data in order to examine the impact of the CMEA dissolution on trade flows in the region. Since GNP figures for 1991 are unknown at the moment of writing (November 1991), some projections have to be used instead. Preliminary data for the first half of 1991 provide sufficient evidence to predict a further sharp decline of GNP in all CMEA countries. The recession is likely to be particularly severe in the USSR and Bulgaria.

Therefore, a sensitivity test has been run for three different hypothetical rates of change of GNP: -5%, -10%, and -15%. Furthermore, the trade preference policy  $P(i,j)$  has been assumed 1 (i.e.  $\ln P(i,j) = 0$ ) to take account of the fact of the elimination of intra-CMEA trade preferences (transferable rouble clearing and low commodity prices in particular). The results of the simulations are presented in Table 9.

The following observations can be made. First, former CMEA countries are bound to reduce their mutual trade as a result of: (a) the likely decline of their GNPs, and (b) of the dissolution of CMEA trade regime. Depending on the scale of GNP changes, the fall in trade in 1991 may be expected to fall between 35% and 45%. Most recent estimates foresee the decline of the Net Material Product of 12-15% and of industrial output of 20% in



Table 9: Projections of "normal" intra-CMEA trade in 1991, in million US 1990 dollars.

Country i	Country j	T r a d e		f l o w s i n		1 9 9 1	
		r(GNP) = -5%	r(GNP) = -10%	r(GNP) = -10%	r(GNP) = -15%	r(GNP) = -15%	
		A	B	A	B	A	B
BG	CS	115.6	-33.6	106.2	-39.0	96.4	-44.7
BG	HU	114.8	65.7	105.5	52.2	95.7	38.1
BG	PL	125.4	-0.4	115.2	-8.5	104.5	-17.0
BG	RO	262.2	47.1	242.1	35.9	218.8	22.8
BG	SU	677.4	-78.3	621.6	-80.1	564.1	-81.9
CS	BG	116.3	-37.3	106.8	-42.4	97.0	-47.7
CS	HU	353.6	-28.8	324.8	-34.6	294.8	-40.6
CS	PL	652.8	-16.0	599.6	-22.9	544.7	-29.9
CS	RO	172.5	8.6	159.1	0.2	143.6	-9.6
CS	SU	1783.3	-44.3	1638.0	-48.9	1486.6	-53.6
HU	BG	115.0	251.7	105.7	223.2	95.9	193.3
HU	CS	352.2	-25.7	323.2	-31.8	293.6	-38.0
HU	PL	347.0	65.2	318.7	51.8	289.5	37.9
HU	RO	167.2	-5.6	154.4	-12.7	139.4	-21.1
HU	SU	1042.4	-57.2	957.4	-60.7	868.0	-64.4
PL	BG	126.4	-48.1	116.0	-52.2	105.2	-56.7
PL	CS	654.1	-48.9	600.2	-53.2	545.2	-57.4
PL	HU	349.1	15.9	320.3	6.3	290.7	-3.5
PL	RO	233.3	-18.8	215.1	-25.2	194.3	-32.4
PL	SU	3081.7	-37.2	2830.6	-42.3	2568.9	-48.7
RO	BG	263.0	319.5	242.8	287.2	219.7	250.4
RO	CS	171.8	61.0	158.7	48.7	143.3	34.3
RO	HU	167.4	72.2	154.7	59.3	139.7	43.9
RO	PL	232.1	268.3	214.5	242.7	193.7	209.4
RO	SU	1256.7	31.8	1161.2	21.7	1048.6	9.9
SU	BG	693.1	-74.5	636.7	-76.6	577.2	-78.8
SU	CS	1813.9	-35.4	1667.8	-40.6	1512.1	-46.1
SU	HU	1064.5	-47.6	978.7	-51.8	887.4	-56.3
SU	PL	3131.4	-9.8	2879.1	-17.1	2613.0	-24.8
SU	RO	1283.4	-5.0	1184.7	-12.3	1069.8	-20.8
Total CMEA		20919.6	-35.6	19239.2	-40.8	17141.5	-47.3

Remark: A - values in million US dollars; B - percentage rates of change over 1990 figures.

Source: Own calculations.

1991 in Eastern Europe, and the decline of 15% and 9%, respectively, for the Soviet Union (see: Economic Bulletin for Europe, vol.43, December 1991, p.25). The decline of GNP in these countries would thus be 2-3 percentage points lower than the corresponding NMP figures. Under these assumptions the total

intra-CMEA trade would decline by some 40-45%, and 19 to 21 out of 30 bilateral trade flows would be further reduced compared with 1990.

Second, the main victim will be trade with the Soviet Union, especially in case of Bulgaria, and to a lesser extent Hungary. This is a reflection of the traditional "radial" structure of intra-CMEA trade flows. The fall will generally be stronger on the Soviet import side, and weaker on the Soviet export side (this is precisely what has been observed in the first half of 1991). The only country which may still expand its Soviet trade is Romania, as its actual trade is much below theoretical levels. In general however, trade levels of smaller East European countries with the Soviet Union seem to be "excessive", (at least in terms of the functional relations specified in the model), and will most probably be further reduced in 1991. But it should not be ignored, that even if trade links are "excessive" in the longer run, their abrupt cut may involve substantial short-term costs in terms of lost output and unemployment.

Table 10: Most "excessive" and least developed bilateral trade links: Expected rates of change in 1991, in percent.

Country		Expected rates of change of GNP		
i	j	-5%	-10%	-15%
I. Most "excessive" flows:				
1.	BG SU	-78.3	-80.1	81.9
2.	SU BG	-74.5	-76.6	78.8
3.	HU SU	-57.2	-60.7	64.4
4.	PL CS	-48.9	-53.2	57.4
5.	PL BG	-48.1	-52.2	56.7
6.	SU HU	-47.6	-51.8	56.3
7.	CS SU	-44.3	-48.9	53.6

II. Least developed flows:

1. RO	BG	319.5	287.2	250.4
2. RO	PL	268.3	242.7	209.4
3. HU	BG	251.7	223.2	193.3
4. RO	HU	72.2	59.3	43.9
5. BG	HU	65.7	52.2	38.1
6. HU	PL	65.2	51.8	37.9
7. RO	CS	61.0	48.7	34.3

-----  
 Source: Data from Table 9, own calculations.

Third, the fall of intra-CMEA trade will probably be smallest in Hungary (except for trade with the USSR), as it seems that major part of trade reorientation to the West and away from the CMEA took place already in 1989-1990 (actually, Hungarian trade with Bulgaria and Poland fell already to historical lows). Poland is in a similar position, especially on the import side.

Fourth, most dependent on intra-CMEA trade are Bulgaria and the Soviet Union, and to a lesser extent Czechoslovakia, while least dependent are Romania and Hungary. Poland is much more dependent in its exports, while Romania and the USSR in their imports. This is illustrated by Table 11, which contains the average ratios of actual to theoretical values for individual countries. Extremely high ratios for the Soviet Union suggest that adverse multiplier effects of the observed trade destruction in 1991 may in fact be much more harmful for the Soviet economy than for other countries.

Table 11: Average, non-weighted ratios of empirical and theoretical trade flows for individual countries

Country	1989		1990	
	exports	imports	exports	imports
Bulgaria	1.48	1.39	1.09	1.03

Czechoslovakia	1.23	1.23	0.89	0.90
Hungary	0.97	0.90	0.73	0.69
Poland	1.00	0.79	0.98	0.54
Romania	0.60	0.66	0.32	0.70
Soviet Union	1.52	1.82	1.23	1.43

-----  
Source: Own calculations, data from Table 8.

8. Potential trade diversion to Western Europe. The case of Poland.

The intra-CMEA trade culminated in 1985-1987. Since then a significant trade diversion towards western markets has been observed in the region, and the tendency was particularly strong in Poland and Hungary. Nevertheless, trade links of the CMEA countries with outside world are still very modest at present. The application of our gravity model to trade with the West allows for interesting conclusions concerning the size of potential trade diversion. Table 12 shows actual and hypothetical trade flows between Poland and west European countries. Hypothetical values have been calculated for 1989 GNP values, under the assumption that  $P(i,j) = 1$ .

Interpreting the results it is important to note that in 1990 Poland registered an exceptional export expansion (convertible currency exports increased by 40%) and import contraction (by 15%), which explains large differences between export and import data. Out of 36 trade flows only two actual flows exceeded theoretical values, and that was Polish exports to Germany and Switzerland. But it should be remembered that German export figure includes exports to former GDR in 1990 while the GNP figure is for West Germany only. If, however, the GNP

figure is adjusted for East German GNP (some 15% more), then the theoretical value would be higher than actual value. High export figure for Switzerland is explained by a large share of indirect export transaction, traditionally effected through Swiss companies. All other actual trade flows are significantly below their corresponding hypothetical values.

Table 12: Actual and theoretical trade flows between Poland and west European countries in 1990, in million US dollars.

Country	Exports (to)		Imports (from)	
	Actual	Theoretical	Actual	Theoretical
Austria	525.2	855.1	463.5	856.0
Belgium	218.5	529.7	115.4	530.7
Denmark	239.1	514.5	92.7	514.5
Finland	213.8	290.1	115.5	290.7
France	439.1	1826.7	246.7	1852.4
Germany	3421.4	3112.7	1640.7	3159.7
Greece	77.2	138.7	23.9	138.3
Ireland	55.0	85.0	18.3	85.0
Italy	401.2	1485.1	610.1	1504.5
Luxembourg	15.3	39.7	1.8	39.1
Netherlands	427.1	769.9	214.5	773.7
Norway	57.7	305.6	108.4	305.6
Portugal	9.1	70.5	1.1	70.2
Spain	95.9	492.9	42.5	496.8
Sweden	357.2	539.8	159.4	541.4
Switzerland	639.8	585.4	525.1	587.7
United Kingdom	971.3	1548.8	461.3	1567.5
Yugoslavia	212.7	283.2	166.9	282.1
Total EC (12)	6370.2	10614.2	3469.0	10732.4
Total EFTA (5)	1793.7	2576.0	1371.9	2581.4
Total (18)	8376.6	13473.4	5007.8	13595.9

Remark: Trade values from Statistical Bulletin, No.7, 1991, Central Statistical Office (GUS) Warszawa, converted from zlotys into US dollars at the rate 9500 zl/\$; GNP figures for 1989 were taken from IMF's International Financial Statistics (line 99a converted into US dollars at the average market exchange rate - line rf); the GNP 1986 figure is taken for Luxembourg, GNP 1988 for Portugal, Gross Social Product 1988 for Yugoslavia, and GDP 1989 for Finland; road distances between capital cities assumed for  $R(i,j)$ , and  $P(i,j)$  assumed 1 for all trade flows.  
Source: Own calculations.

Under given assumptions, the Polish trade with Western Europe may be expected to increase by 60% (exports) and 170% (imports) within few years. Any GNP growth on both sides will further boost these figures. Interesting enough, trade with the EC is likely to increase more than with EFTA countries (67% as compared with 44% for exports, and 209% as compared with 88% for imports). Most dynamic export markets for Poland will likely be France, Italy, Norway, Spain, Portugal and Belgium-Luxembourg; these countries can be also expected to increase fast their exports to the Polish market.

#### 9. Alternative solutions.

The essential problem of Eastern Europe is not that the intra-trade declines but that it declines so abruptly, with no time and resources available for an orderly adjustment. Not only sudden cuts in production and trade involve unnecessary economic costs, but they may be also politically dangerous. However, what must be offered to the region is not a scheme for maintaining existing trade patterns, but a mechanism allowing for smooth restructuring of eastern economies over a longer time horizon.

To this end the payments union may be of little help as it is essentially a short-term, "lubricating" mechanism. Furthermore, the CEPU-type of arrangement is a "trade-protecting" mechanism, whereas what is needed in Eastern Europe is a "production-shifting" mechanism. Intra-CMEA trade patterns reflect distorted production structures and should not be

supported across-the-board; instead, the fundamental distortions should be addressed at source, i.e. in the production sector.

On the other hand the current trade collapse reflects the foreign exchange liquidity crisis in several CMEA countries (the former USSR, Bulgaria, Romania), and may be responsible for destroying also economically sound trade flows.<sup>15</sup> This in turn is a short-term issue, and should be addressed through trade and financial measures.

Therefore, essentially two types of initiatives are necessary (Rosati, [1991]):

- a) Immediate measures to alleviate the current liquidity crisis;
- b) Structural measures to allow for competitive restructuring of production and trade.

In the context of the first issue several solutions are possible. The least desirable perhaps is the observed return to barter trade on massive scale. Bilateral or preferably multilateral clearing covering as many categories of goods as possible would be much more efficient. The clearing, with all its shortcomings (it distorts prices and trade structure), is still much better than ordinary barter trade, because the latter is very inflexible and may lead to serious income losses in countries with subsidized prices (the USSR). The clearing

---

<sup>15</sup> It is often argued that the reduction of the intra-CMEA trade, due primarily to the apparent shortage of foreign exchange, may also lead to a discontinuation of (or sharp fall in) economically justified trade, thus resulting in a loss of welfare. Although this possibility cannot be dismissed, it is difficult to explain why this should not happen also in trade with the Western economies - which after all has always been settled in convertible currencies - and therefore why one should not envisage a similar trade-supporting mechanism for trade with the West as well.

solution offers also possibility of introducing a partial convertibility of national currencies (in case they are not mutually convertible). It is certainly superior to the situation of no-trade at all.

But even a multilateral clearing would allow only for limited benefits. First, as the experience of AMMC from 1947 demonstrates, the multiclearing alone is not sufficient to extend trade possibilities. Second, with trade imbalances pertaining mostly to trade with the Soviet Union, the multilateralism would be largely fictitious if all other countries develop deficits with the Soviet Union. Third, the insistence of the Soviet Union to sell "hard" goods only for convertible currencies, and the corresponding reluctance of east European countries to buy from the Soviet Union anything else except the "hard" goods, leave little room for a comprehensive multilateral clearing system in immediate perspective.

This problem can be overcome by an infusion of funds from outside to extend the import budget constraint of countries suffering from the foreign exchange shortage (mainly the Soviet Union, but also Bulgaria and Romania). The idea of extending credits to Soviet enterprises to allow them to continue with imports from east European countries has been advanced already some time ago within the so-called Dienstbier Plan. This concept has been also behind the recent EC decision to finance east European exports of grain and meat to the Soviet Union, which would otherwise be supplied to the EC market.

But these initiatives can be only considered as ad-hoc, emergency measures. While they may provide immediate relief to



east European exporters and allow for increased supplies of essential imports to the Soviet market, they do not solve the underlying structural problems. To avoid the risk of channelling funds to financing trade flows which are not viable in the longer run, and to promote the restructuring process, the external financial assistance should be provided within a comprehensive program geared at market-oriented reconstruction of particular industrial sectors and enterprises in eastern Europe. This solution would therefore combine an immediate relief with structural measures.

The program of external financial assistance to eastern Europe should aim at filling the gap left by the absence of flexible capital markets in the region: while based on commercial criteria, adjustment loan allocation should concentrate in areas where market fails to attract private capital, but substantial externalities exist. The essential requirement is to assure the appropriate conditionality for external assistance. Western credits have to be accompanied by a mutually agreed system of domestic policy monitoring and surveillance in debtor country, allowing for efficient targeting and optimal use of funds.

The EBRD would be perhaps the most natural candidate to provide this assistance because it has resources and technical expertise, but its present focus is too narrow and powers are too inadequate to cope with this task. A dedicated, high-powered organization is needed, where donors and recipients would participate and cooperate in setting plans of the distribution of aid, monitoring progress, and agreeing on macroeconomic policies pursued by recipient countries.

To alleviate the costs of the restructuring and to reduce requirements for financial resources, various supportive measures of industrial and trade policies should be also applied. One of them could be a free trade area covering selected east European countries with most compatible market economic systems and relatively balanced economies (Poland, Czechoslovakia and Hungary). The Central European Free Trade Area (CEFTA), similarly to the CEPU, would increase relative competitiveness of local producers, while discriminating against external firms. But the resulting trade distortion would be less harmful than in case of the CEPU.

First, there is a crucial issue of competition. While the CEPU-generated trade distortion is more of a quantitative restriction character (as it does not allow to import from other countries because of the currency inconvertibility), the CEFTA-generated trade distortion is of a tariff character. The tariff is superior to quota for it does not eliminate external competition, is more transparent and has less undesirable redistribution effects. Second, the free trade zone may be easily introduced for a group of countries with different exchange rate regimes; specifically, the convertibility is neither a necessary condition nor an obstacle for establishing a free trade area. Finally, it also seems, that the idea of the CEFTA is more likely to be politically accepted by interested countries than a payments union or a more advanced cooperation mechanism (e.g. customs union).

The CEFTA could be extended to include some other countries from the region, like Austria, Sweden, Finland, Yugoslavia and

the Baltic states.<sup>16</sup> This would increase the competitive pressure on east European producers while still leaving them with relatively large shares of their domestic markets. The restructuring process would be accelerated without necessarily ruining entire industrial sectors in the post-CMEA countries, which might be the case if the region opened rapidly to the EC (as was the case in the eastern part of Germany).

While the political and economic cooperation in Central and Eastern Europe seems to be in a disarray at present, it would clearly be to the advantage of the countries in the region to develop extensive trade and economic links among themselves, provided they are based on market principles. Not only geographical proximity, but also established trade and business contacts, and above all common problems faced by all these countries on the road to market economy and to united Europe, create a solid background for closer multilateral cooperation. A regional all-European organization, supported by the Group of 24 would be certainly helpful in promoting trade and cooperation, and providing a forum for negotiations between countries in the region.

---

<sup>16</sup> An alternative solution would be to extend EFTA to include some east European countries. The Secretary General of EFTA Georg Reisch declared recently that his organization is already prepared to accept new members, specifically Hungary, Czechoslovakia and Poland, while other countries may become candidates in the future (see the interview in Le Nouveau Quotidien, 3 October, 1991).

## 10. Conclusions.

The foregoing analysis suggests that the shrinkage of intra-CMEA trade is to a large extent a "natural" outcome of exogenous developments, like domestic recession and dismantling the preferential trade regime in the CMEA. While the first factor is hopefully of a temporary character and may reasonably be expected to disappear in the medium term, the demise of the "transferable rouble area" seems to be a more permanent, if not irreversible, change. Even if Central and East European countries may be expected to resume economic growth and gradually increase their GDP levels within next two or three years, it will take much longer to compensate the elimination of the preferential trading system. Therefore, the "normal", sustainable trade levels in the region, corresponding to current levels of economic development, are rather below those observed in 1989-1990. On the other hand, trade with western Europe is expected to expand fast (see also Hamilton, Winters [1991]).

But if this is the case, then the problem of trade collapse in Eastern Europe should be placed in a different perspective. Trade protection and support for existing trade flows cannot be regarded as the best policy. What in fact is needed in the region is a mechanism of smooth restructuring of production and reorientation of trade, leading to a more balanced market structure and elimination of the strong pro-CMEA bias (absolute or relative) in current trade of east European countries. But this can be achieved within a reasonable period of time only if international competitiveness of formerly centrally-planned

economies is substantially enhanced. Financial assistance geared to structural adjustment and not just current trade financing, possibly coupled with gradual trade liberalization both within the region and vis-a-vis western Europe, would thus be superior to any multilateral payments arrangement, restricted to eastern countries only.

While these conclusions seem reasonable, it should not be forgotten that they have been derived under some critical assumptions concerning the input data. In particular, a different approach to the aggregation of rouble and dollar trade flows as well as to the estimation of GNP values for east European countries may have yielded different results as to the magnitude of the trade diversion effect; it is, however, unlikely that the modification of the underlying assumptions would indeed lead to entirely different conclusions.

## ANNEX

Table I: Trade flows, Western Europe, 1987.  
in '000 dollars

Country i, j	Austria	Belgium-L	Denmark	Finland	France	Germany(Y	Greece	Ireland	Italy	Netherlan	Norway
Austria	0	643453	309467	242196	1253071	9543325	161382	47501	2849152	755364	246865
Belgium-Luxembourg	788008	0	878451	483005	14035452	16695832	415532	282373	5763391	15120372	620385
Denmark	219524	492782	0	555113	1362123	4154734	175115	120400	1231175	1049394	1807435
Finland	237858	349344	784245	0	1107438	2266792	102778	118405	550280	779603	961735
France	1259141	13144521	1318980	773070	0	25164130	1067550	575822	17780350	6968063	866588
Germany (West)	15116310	20871730	6990047	3352761	33328380	0	2812281	1211780	25979338	24976657	3359199
Greece	106619	186882	87377	49260	620270	1733039	0	18266	1145446	244543	33399
Ireland	95819	669654	139566	81217	1356757	1878398	64168	0	573735	977098	176538
Italy	3004164	3742431	1018682	801177	18778250	21762695	1644006	315459	0	3512877	817592
Netherlands	957121	13875374	1393528	628192	9505910	25240948	893487	492681	6490031	0	956227
Norway	158720	403849	1088559	418732	1445688	3139802	52061	75974	471389	1469254	0
Portugal	131972	281071	238587	152679	1501943	1497508	21741	50668	375273	563554	199081
Spain	251760	1011840	262815	183522	6649880	4322039	204539	158324	2911292	1566522	208938
Sweden	555990	1967143	3202113	2655908	2498349	5357794	163176	220145	1766085	2039064	4522581
Switzerland	1622371	1188197	513452	392356	4043317	9978067	227719	96420	4170192	1316214	353564
United Kingdom	770351	6310671	1938094	1355402	11746362	15458716	679303	5955519	6579465	8195662	2005867
Yugoslavia	419243	93132	59181	25348	532941	2206512	211340	8594	1865047	190582	63313
Total imports of	*25694971	65233074	19331144	12149938	1.1E+08	1.5E+08	8901228	9748332	80501841	69724823	17199306

Source: International Trade Statistics Yearbook 1987  
United Nations, New York, 1989.Table I:  
in '000 d

Country i	Portugal	Spain	Sweden	Switzerland	United Ki	Yugoslavia	Total Exp
Austria	108217	450197	543870	1983528	1260619	629323	21027730
Belgium-L	424308	1593873	1202950	1761082	7010983	173072	67249119
Denmark	129427	368401	2792599	538193	2920399	66842	17981656
Finland	65619	269172	2993738	339667	2376997	55866	13359538
France	1522338	6992868	2004378	5779048	12915791	649606	98782244
Germany (	2018589	8146107	8847875	17553461	25719041	3089129	2.02E+08
Greece	22380	121458	93919	81225	560041	68016	5152139
Ireland	47029	291586	268524	262911	5578784	34415	12499199
Italy	1208123	4293647	1633054	5309380	8467814	1550201	77859552
Netherlan	514752	1611081	1728002	1847031	10506127	272675	76919165
Norway	119303	141779	2389072	226263	5534760	29103	17164308
Portugal	0	836311	450859	197306	1330995	5380	7832928
Spain	1568283	0	432965	615095	3394054	43485	23785353
Sweden	260558	840389	0	974450	4665829	207490	11897044
Switzerland	313462	806271	873088	0	4352413	349741	30626844
United Ki	1106798	3416003	3721846	3012201	0	371651	72623911
Yugoslavi	6330	80035	131011	127202	314334	0	6334145
Total imp	9435516	30257158	30107550	40608043	96908981	7595995	

Table 2: GNP values for west European countries, 1985-1987, in million US dollars, (current prices).

Country	1985	1986	1987
Austria	65159	93193	117584
Belgium-Luxembourg	85014	118953	148201
Denmark	58048	82033	101813
Finland	53344	71069	89428
France	522242	726541	881450
Germany (West)	621770	889963	1116161
Greece	33423	39600	47190
Ireland	18547	25058	28250
Italy	425649	601231	755865
Netherlands	125420	175461	215910
Norway	58183	64584	83123
Portugal	20681	24551	36828
Spain	164013	228115	289186
Sweden	100056	130785	159560
Switzerland	92776	135270	170087
United Kingdom	457983	573704	688727
Yugoslavia (a)	44237	61705	71018

(a) Net Material Product.

Source: National Accounts Statistics 1987, United Nations, New York, 1990.

Table 3: National rouble/dollar cross-rates in the CMEA countries, 1988-1990, in TR per US dollar.

Country	1988	1989	1990
Bulgaria	0.64	0.65	0.61
Czechoslovakia	1.44	1.51	1.79
Hungary	1.94	2.09	2.30
Poland	2.21	2.96	4.52
Romania	1.03	1.03	1.11
Soviet Union	0.61	0.63	0.59

Source: UN ECE DataBase, calculated from national statistics.

Table 4: Intra-CMEA trade in 1989 and 1990, actual and theoretical values.

Intra-CMEA trade in 1989, (GNP averages)

Country i	Country j	$x(i,j)$ in mln \$	$x(i,j)$ theoret. in mln \$	$R(i,j)$ in km	$GNP(i)$ mln US \$	$\ln GNP(i)$	$\ln R(i,j)$
Bulgaria	Czechoslovakia	316.8	295.5	1360	20880	10.49238	7.21524
	Hungary	103	207.7	790	20880		6.672033
	Poland	266	240.4	1470	20880		7.293018
	Romania	147	495.8	400	20880		5.997465
	USSR	4786.1	1214.7	2230	20880		7.709757
Czechoslovakia	Bulgaria	335.1	206.7	1360	55224	11.39877	7.21524
	Hungary	621.1	586	570	55224		6.345636
	Poland	1211.6	1146.2	620	55224		6.429719
	Romania	267.6	298.6	1400	55224		7.244228
	USSR	4477.6	2928.5	1890	55224		7.544332
Hungary	Bulgaria	94.6	209.1	790	27454	10.73698	6.672033
	Czechoslovakia	694.3	583.6	570	27454		6.345636
	Poland	380.9	620.3	580	27454		6.522093
	Romania	194.9	295.1	330	27454		6.721426
	USSR	3443.2	1742.8	1880	27454		7.539027
Poland	Bulgaria	370.1	242.1	1470	67841	11.69625	7.293018
	Czechoslovakia	1372.5	1148.5	620	67841		6.429719
	Hungary	423.6	624.1	680	67841		6.522093
	Romania	266.9	435.8	1210	67841		7.098376
	USSR	5319.5	5460.2	1270	67841		7.146772
Romania	Bulgaria	123.2	497.8	400	39600	10.99709	5.991465
	Czechoslovakia	234.4	298	1400	39600		7.244228
	Hungary	200.1	295.4	330	39600		6.721426
	Poland	217.8	434.1	1210	39600		7.098376
	USSR	1668.6	2197.9	1830	39600		7.512071
USSR	Bulgaria	3843.2	1243	2230	508824	14.27878	7.709757
	Czechoslovakia	4258.4	2978.7	1890	508824		7.544332
	Hungary	2796.1	1779.8	1880	508824		7.539027
	Poland	3820	5548.3	1270	508824		7.146772
	Romania	1832	2242.3	1830	508824		7.512071
Total intra-CMEA trade		43996.2	36406				



Table 4: Continued.

## Intra-CMEA trade in 1990, (GNP averages)

Country i	Country j	$x(i,j)$ real in mln \$	$x(i,j)$ theoret. in mln \$	$x(i,j)$ theoret. in mln \$	GNP(i) in mln \$	$R(i,j)$ in kn	$\ln \text{GNP}(i)$	$\ln R(i,j)$
		$P(i,j)=e$		$P(i,j)=1$				
Bulgaria	Czechoslovakia	174.2	179	125.4	31201	1360	10.34821	7.21524
	Hungary	69.3	177.5	124.4		790		6.672033
	Poland	125.9	193.9	135.8		1470		7.293018
	Romania	178.2	406	284.4		400		5.991465
	USSR	3123.2	1047.6	733.8		2230		7.709757
Czechoslovakia	Bulgaria	185.5	180.1	126.1	86474	1360	11.3676	7.21524
	Hungary	496.4	547.4	383.5		570		6.345636
	Poland	777.2	1010.5	707.9		620		6.429719
	Romania	158.8	267.3	187.2		1400		7.244228
	USSR	3203.3	2760.7	1933.8		1890		7.544332
Hungary	Bulgaria	32.7	177.9	124.6	43564	790	10.68199	6.672033
	Czechoslovakia	473.6	544.7	381.6		570		6.345636
	Poland	209.9	536.6	375.9		680		6.522093
	Romania	176.8	258.8	181.3		830		6.721426
	USSR	2435.9	1612	1129.2		1880		7.539027
Poland	Bulgaria	242.9	195.4	136.9	105706	1470	11.56842	7.293018
	Czechoslovakia	1231.2	1011.6	708.6		620		6.429719
	Hungary	301.2	464.5	325.5		680		6.522093
	Romania	287.6	360.8	252.7		1210		7.098376
	USSR	4907.6	4765.9	3338.4		1270		7.146772
Romania	Bulgaria	62.7	407.6	285.5	53460	400	10.88669	5.991465
	Czechoslovakia	106.7	266.5	186.7		1400		7.244228
	Hungary	97.1	223.2	156.4		830		6.721426
	Poland	62.6	359.7	252		1210		7.098376
	USSR	954	1949.3	1365.5		1830		7.512071
USSR	Bulgaria	2720.7	1201.4	841.5	1522811	2230	14.23607	7.709757
	Czechoslovakia	2806.2	2810.9	1968.9		1890		7.544332
	Hungary	2029.6	1647.9	1154.3		1880		7.539027
	Poland	3472.7	4847.6	3395.6		1270		7.146772
	Romania	1350.3	1988.7	1393		1830		7.512071
Total intra-CMEA trade		32504	32401.1	22696.1				

## REFERENCES

1. Biessen, G. [1991], "Is the Impact of Central Planning on the level of Foreign Trade Really Negative?", *Journal of Comparative Economics*, vol. 15, No.1, 1991.
2. Bofinger, P. [1990], "A Multilateral Payments Union for Eastern Europe?", CEPR, Discussion Paper No. 458, London, 1990.
3. van Brabant, J.M. [1990], "On Reforming the Trade and Payments Regimes in the CMEA", *Jahrbuch der Wirtschaft Osteuropas*, vol.14, No.2, 1990.
4. van Brabant, J.M. [1991a], "Convertibility in Eastern Europe Through a Payments Union", in J. Williamson, ed., "Convertibility in Eastern Europe", Washington, D.C., forthcoming.
5. van Brabant, J.M. [1991b], "Key Problems of Creating a Central European Payments Union", *Banca Nazionale del Lavoro Quarterly Review*, No.177, June 1991.
6. CEPR [1990], Proceedings from the conference on "A Payments Union for Eastern Europe", (Rome, 28-29 June, 1990), CEPR Bulletin, August, 1990.
7. Ethier, W.J. [1990], "Multi-Country Payments in Eastern Europe", Washington D.C., mimeo.
8. Fink, G., Havlik, P. [1989], "Problems of East-West GDP Comparisons", The Vienna Institute for Comparative Economic Studies (WIIW), Discussion Paper, No. 152, Vienna, January 1989.
9. Hamilton, C., Winters, L.A. [1991], "Opening Up International Trade in Eastern Europe", paper presented at Economic Policy Forum, Prague, 17-19 October, 1991, mimeo.
10. Kaplan, J.J., Schleiminger, G. [1989], "The European Payments Union", Clarendon Press, Oxford, 1989.
11. Kenen, P.B. [1991], "Transitional Arrangements for Trade and Payments Among the CMEA Countries", *IMF Staff Papers*, Vol.38, No.2, pp.235-267.
12. Linneman, H. [1966], "An Econometric Study of International Trade Flows", North-Holland Publ.Co., Amsterdam, 1966.
13. Marer, P. [1985], "Dollar GNPs of the USSR and Eastern Europe", The John Hopkins University Press, Baltimore, 1985.
14. Marrese, M., Vanous, J. [1983], "Soviet Subsidization of Trade with Eastern Europe", Berkeley, 1983.
15. Michalopoulos, C. [1991], "Payments Arrangements in Eastern Europe in the post-CMEA Era", Washington, D.C., mimeo.

16. Poland...[1990], "Poland: Impact of Replacing CMEA Trade Regime by a Market Trade Regime", Warsaw, 1990, mimeo.
17. Rosati, D.K. [1991], "After the CMEA Collapse: Is the Central European Payments Union Really Necessary?", Foreign Trade Research Institute, Discussion Paper, No. 18, Warszawa, May 1991.
18. Soldaczuk, J. [1990] "The Multilateral Payments System for Middle and Eastern Europe", Foreign Trade Research Institute, Discussion Paper, No. 19, Warsaw, 1990.
19. Tew, B. [1991], "Then and Now: Trade and Payments in Western Europe in the 1950s and in eastern Europe in the 1990s", UN ECE, unpublished manuscript.
20. UN ECE [1990]: Economic Survey of Europe in 1989-1990, UN ECE, New York, 1990.
21. UN ECE [1992]: Economic Bulletin for Europe, Vol. 43, UN ECE, New York, 1992.