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## Trade in differentiated product, trading regimes and unemployment

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May 1997

**"TRADE IN DIFFERENTIATED PRODUCT, TRADING REGIMES AND  
UNEMPLOYMENT"**

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**Abstract:** One of the most important consequences of the transition in Central and Eastern Europe has been the dismantling of the Council for Mutual Economic Assistance (CMEA). It is argued in this paper that the abrupt loss of trading partners for the former CMEA countries and the Newly Independent States (NIS) of the former Soviet Union is responsible for the ensuing contraction of output and the emergence of unemployment. A model in which trade is conducted in vertically differentiated products is constructed with the implication that the dismantling of "clearing trade" arrangements among CMEA countries may make unemployment more than just a short-run phenomenon.

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## **1. Introduction**

The motivation for this paper derives from the continuing experience of the previously centrally planned economies of Central and Eastern European (CEE) in dealing with the transition from "clearing" (or barter) trade between themselves to trade with the rest of the world. The decline in output and the rise in unemployment in CEE has been far greater than expected by most economists. The World Bank estimates that GDP fell, on average, by about 16 percent in five CEE countries between 1989 and 1994, and by about 30 percent in eleven Newly Independent States (NIS). Kazakstan and Ukraine have shown the largest declines, with GDP in 1995 being less than 50 percent of its 1989 level (World Bank, 1996). Total registered employment has also fallen in CEE and the NIS, although there has not been a clear relationship between employment and output declines. Unemployment has risen more in CEE than in NIS, because in the former labour market adjustment has largely come through layoffs, whereas in the latter the response has mainly been to cut working hours. The unemployment rate in 1994 in CEE countries was about 3 percent in the Czech republic, about 11 percent in Hungary and Romania, 13 percent in Croatia, 14 percent in Bulgaria, 15 percent in Slovenia and the Slovak republic, 17 percent in Poland and 18 percent in Albania.<sup>1</sup>

The consensus of professional opinion is that overzealous stabilisation programs and the collapse of the Council for Mutual Economic Assistance (CMEA) agreements are the main factors explaining the dramatic fall in output and rise in unemployment. In this paper, I first present a highly stylized model of "clearing" trade in order to capture the institutional setting under which CMEA countries operated. The current trading regime of "free trade" for the CEE and NIS is then modeled, and it is shown that the abrupt loss of trading partners for these countries could be responsible for the ensuing contraction of output and emergence of unemployment. The claim will also be made that the dismantling of CMEA trade may make

unemployment more than just a short-run phenomenon for some of these countries.

The view that the contraction in output and the rise in unemployment may not be long-lasting has been (implicitly) put forward in the macroeconomic literature dealing with the transition from central planning to allocation by markets. Focusing on Poland's experience, Berg and Sachs (1992) have argued that the decline in output occurred

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**1. Real wages in 1994 as a fraction of their 1989 level were about 80 percent in the Czech republic, 100 percent in Hungary and 75 percent in Poland (World Bank, 1996).**

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because macroeconomic policy had to be tight enough to reign in the hyperinflation caused by the abolition of price controls in early 1990. By contrast, Calvo and Coricelli (1992, 1993) argue that the negative demand shock was far less important than the negative supply shock caused by the contraction of bank credit to enterprises at the end of 1989. They assume that credit is a "real" productive input. Firms need credit for their daily operations, for example, to pay their workers or acquire inventories of intermediate inputs. Any reduction in credit facilities implies a lowering of firms' working capital and therefore prevents them from operating at "full" capacity. The resulting fall in output and rise in unemployment under both the Berg and Sachs and Calvo and Coricelli scenarios must then be interpreted as a short-run phenomenon. Once the inflationary problems engendered by the move from planning to markets disappear, output and employment would return to their long-run (or "natural") level.

Doubtless, the emphasis by these authors on domestic factors is relevant. But, in this paper, I want to emphasize the importance of international trade in vertically differentiated products as an explanation for the disappointing performance of some CMEA economies in recent years. My main argument is that the breaking up of "clearing" trade arrangements amongst the CMEA countries has resulted in a balance of payments constraint which can only partially be relaxed by wage (or exchange rate) adjustment. The reason for this is that the "natural" (in terms of geography)

partners for most of these countries are the European Union (EU) countries. But both the Common Agricultural Policy (CAP) and policies over textiles, steel and steel products of the EU place severe restrictions on trade with the Central and Eastern European (CEE) countries and the Newly Independent States (NIS) of the former Soviet Union in exactly those goods in which these countries have a comparative advantage. Moreover, the difference in per capita incomes between the two groups of countries makes the quality level of industrial goods demanded by Western European (WE) consumers significantly higher than the one demanded by CEE consumers and which CEE firms are accustomed to supplying. This implies that my analysis applies more for the countries which had the smaller per capita incomes before the dismantling of "clearing" trade arrangements.

Nevertheless, what is to prevent the CEE countries from exporting to the developing world, and in this way gaining the necessary foreign exchange to pay for the

imports of intermediate inputs? In answering this question, the first thing to notice is that most developing countries impose tariff and non-tariff barriers to trade which are more difficult to break than the EU ones. In any case, when trading relationships between two countries are intensified, both exports and imports increase. It is therefore doubtful whether trade with the developing world will result in a trade surplus for the CEE economies large enough to finance their imports of intermediate inputs. Moreover, the implicit assumption in most of international trade theory that entry into a market is costless should not be taken for granted. For the CEE firms to enter into distant (culturally and geographically) foreign markets and to become successful exporters, they must not only be competent manufacturers, but they will also need to manage the international marketing, distribution and servicing of their products. These are tasks which typically involve large fixed costs. It can therefore be argued that very few of the rather small CEE firms may be able to afford the high fixed costs for the development of transport, communication and financial services that are needed to support export activities (Keesing and Lall [1992], examine this argument in detail for the developing countries). For the above reasons, I ignore in the rest of the paper trade relations between the CEE's and the developing world.

The focus on the dissolution of CMEA and the resulting loss of markets is by no means novel. Rodrik (1992) has argued that the loss of Soviet markets for the CMEA countries has caused the severe drop of GDP in (former) Czechoslovakia, Hungary and Poland. He argues that the trade shock consisted of three conceptually different effects: a terms of trade effect, a market-loss effect and a removal-of-import-subsidy effect. By combining these three with a Keynesian multiplier, Rodrik concludes that the trade shock accounts fully for the decline in Hungarian GDP, for about 60 percent of the decline in Czechoslovakia, and between one-quarter and one-third of the decline in Polish GDP.

The novelty in the present paper lies in giving a stark explanation of the consequences of the "market-loss" effect. Rodrik models this effect as a loss of rents from the exports of manufactured goods to the (former) Soviet Union since, he argues, these goods..... "could be sold in Western markets only at deep discounts, if at all....." The present paper presents a "clearing trade" model in which the CEE economies under CMEA are assumed to have comparative advantage and to export to the Soviet Union

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vertically differentiated products in return for intermediate inputs (e.g. oil) which are necessary for the production of these goods. The dismantling of CMEA arrangements and the loss of Soviet markets implies that for the CEE countries exports to the West can be the only source of purchasing intermediate inputs. The "free trade" model of the paper explains why it can be very difficult for the CEE countries to export to the West. This is based on the assumptions that the CEE countries have comparative advantage at low quality varieties and that consumers with high incomes demand high quality varieties. High-income Western consumers may, thus, register no demand for low quality CEE goods. The resulting balance of payments constraint implies a scarcity of imported productive inputs and leads to a fall in output and employment which wage reductions may not be capable of ameliorating. It is also argued that the Balance of Payments Constraint can be present even if we assume that there exists a third good which is homogeneous and is exported by the CEE economies to the West.

In the following section I first present a highly stylized model of "clearing" trade, and then I explain the circumstances under which the abandonment of "clearing" trade can give rise to unemployment. The final section offers some concluding remarks.

## **2. A model of "clearing trade".**

The model of this section is a highly stylized representation of a situation in which foreign trade is conducted on a bilateral basis. I take this to be a close approximation of the trading regime under which the previously

planned economies of CEE operated. For ease of exposition, and since I want to concentrate on the implications of a switch in trading regime, many simplifying assumptions will be made. Nevertheless, these assumptions may not provide a wholly unrealistic description of the type of economies under consideration.

I consider an economy which is assumed to be populated by identical individuals, each of them offering one unit of labour inelastically.<sup>2</sup> I term this economy the domestic economy and assume that it trades exclusively with another country which is also a member of CMEA. I call the other country the partner country. Given the type of trade that I will assume to be taking place between these two countries, one may think of the domestic country as one of the small CEE countries, and of the partner country as

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**2. I relax this assumption in Section 4**

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the former Soviet Union (for evidence supporting this assumption see Brada [1993]).

I assume that there are two final goods produced and consumed in the domestic country. The first good is a homogeneous good (H), which may be thought of as being the product of the agricultural sector. This good is non-traded and is produced under constant returns to scale, with the use of domestic labour (L) and imported intermediate inputs (e.g. oil). In what follows, I use this good as the numeraire and set its price equal to unity. For simplicity, I assume that it takes one unit of labour and one unit of imported intermediate inputs (S), to produce one unit of the H good. This assumption implies that whether we assume that the domestic country's authorities set prices equal to average cost or alternatively that perfect competition prevails has no implications for the rest of the model. In both cases the price of the H good is equal to



$$P_H \equiv 1 = W + P_S \quad (1)$$

where  $W$  is the economy-wide wage rate (common to both sectors) and  $P_S$  is the price of  $S$ . I assume that  $P_S$  is determined by bilateral negotiations between the domestic country and its trade partner, and that the factors determining the outcome of these negotiations are independent of other variables in this model (it may, for example, be determined by the dollar price of oil in world markets).

The other good is also produced under perfectly competitive conditions (or its price is administratively set so that the firm makes no profits), with the use of labour and  $S$ . This good is exported to the partner country, in order to pay for the import of  $S$ . The most important characteristic of this good - which I term the quality good ( $Q$ ) - is that it can be offered at various quality levels. I assume that quality is measured by an index  $Q$  in the range  $[1, \infty]$ , and that there is complete information regarding the quality index. I assume further that costs depend on quality and that each unit is produced at constant cost. That is, the production function is

$$y_Q = \min \{L/\tilde{a}Q^\epsilon, \quad S/\tilde{a}\tilde{E}Q^\epsilon\} \quad (2)$$

where  $y_Q$  denotes the number of units of quality  $Q$  produced and  $\tilde{a}$  ( $\tilde{a} > 1$ ),  $\tilde{a}$  ( $0 < \tilde{a} < 1$ ) and  $\tilde{E}$  ( $\tilde{E} > 0$ ) are parameters. The above equation implies that the price at which each unit of

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quality  $Q$  is offered is equal to  $\tilde{a}Q^\epsilon(W + \tilde{E}P_S)$ . From equation (2), it is also obvious that although there are constant costs per unit in terms of quantity, costs are increasing per unit of the quality index. The latter assumption is motivated by the fact the increases in quality - for a given state of technological capability - involves the "sacrifice" of an increasing number of personnel. These workers must be allocated not only to the production of a

larger number of features attached to each good (e.g. electric windows, air bags, ABS etc. in the case of automobiles) that directly absorb labour and intermediate inputs, but also to the development and refinement of these features as well. I assume that the latter endeavour is subject to diminishing returns (see, also Helpman and Flam (1987) for a similar assumption).

Preferences over the two goods are described by a Stone-Geary utility function

$$U = \hat{a} \ln(H - \bar{a}) + (1 - \hat{a}) \ln Q \quad (3)$$

where  $H$  is the consumption of the  $H$  good and  $\bar{a}$  is the minimum consumption requirement of the  $H$  good necessary for the participation of each worker in the production process. It is assumed here that each person consumes only one unit of the quality good, and that there is no substitution between quality and quantity of this good. In other words no one that can afford a Mercedes would ever buy ten Ladas instead. Consumers maximise utility subject to the constraint

$$W = H + \tilde{a} Q^\epsilon (W + \tilde{E} \tilde{N}_s).$$

The demand functions implied by from the above maximisation are

$$H = \frac{\epsilon b W + a(1 - b)}{b(\epsilon - 1) + 1} \quad (4)$$

$$Q = \left( \frac{(1 - b)W - a(1 - b)}{g[(\epsilon - 1)b + 1](W + qP_s)} \right)^{1/\epsilon} \quad (5)$$

I assume that the quality offered to domestic residents is identical to the quality offered to the partner country. I interpret "clearing trade" to imply

that the value of imports and exports are equal. With regard to imports I assume that the country cannot produce the II which are required for the production of both the H and Q goods. It imports them from its partner country and in return pays with exports of the Q goods. The equation showing "clearing" trade is

$$\tilde{a}Q^{\epsilon}\tilde{E}P_S(L + X) + P_S HL = \tilde{a}Q^{\epsilon}(W + \tilde{E}P_S)X \quad (6)$$

where X is the volume of exports. A crucial assumption behind equation (6) is that the domestic country can always get all the II it needs in order to employ all its population. Note as well, that equation (6) also assumes that the price of exports is equal to both the domestic price and cost of production.

Equations (1), (4), (5) and (6) determine the equilibrium values of W, H, Q and X recursively. In Figure 1 the determination of Q and X is shown. From equation (5) it is obvious that the desired level of quality is independent of the volume of exports, and depends only on the wage rate (or equivalently, because of equation (1) on the price of S,  $P_S$ ). This is depicted as the qq schedule in Figure 1. The bb schedule - derived from equations (1), (4) and (6) shows that an increase in the volume of exports must be

[ FIGURE 1 ABOUT HERE]

associated with a decrease in the quality of goods produced (and exported) for "clearing" trade. An increase in  $P_S$  shifts the qq schedule downwards and the bb schedule outwards resulting in a fall in Q and an increase in X. The movement of Q and X in opposite directions is necessitated by the need for labour market equilibrium; an increase in X increases the demand for labour and must be associated with a fall in quality which decreases the demand for labour. Although we have not explicitly taken into account the condition for labour market equilibrium, Walras' Law ensures it if equations (1), (4), (5) and (6) are satisfied. In any case, what the above comparative static exercise

has demonstrated is that in a trading regime with full employment, an increase in the price of

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imported II will not result in equivalent increases in the "real" income of the partner country, as it will have to accept lower quality exports from the domestic country.

### **3. Free Trade and Unemployment.**

In this section I first construct a model describing the situation in which some of the CEE economies and the NIS found themselves after the dismantling of CMEA arrangements. I assume that the partner country no longer has any obligation to buy the quality good from the domestic country (or that it buys significantly smaller amounts and in significantly lower prices than before) in exchange for its exports of intermediate inputs, without which the domestic country can not produce either H or Q. If, for example, the domestic country wants to keep buying intermediate inputs from the partner country the latter would require the payment to be in an internationally accepted currency (e.g. dollar). But the domestic country may not be able to compete with WE producers and acquire the foreign exchange needed for its imports of intermediate inputs. I also demonstrate in this section that this problem can persist even if I assume that there exists a third good which is homogeneous and is exported by the CEE economies to the West.

In order to describe how such a situation can arise, I use some simplifying assumptions in order to concentrate on the issue I wish to highlight. With regard to the WE economies I assume first that their wages (expressed in common currency) are many times larger than the domestic country's wage rate. Second, I assume that the production function of the quality good in WE is

$$y_D = \min\left(\frac{L}{g^*Q}, \frac{S}{g^*\Theta Q}\right), \tilde{a}^* < \tilde{a} \quad (7)$$

Equation (7) implies that in WE there are constant returns both with respect to the quantity and quality level of the Q good. The latter assumption is by no means necessary, and nothing in the analysis which follows depends on it. It is simply made in order to contrast the technological capabilities of the WE countries with the CEE ones. For given wages in the two countries these two assumptions set an upper level of quality

up to which the Q good will be produced at a lower cost in the domestic country. This "dividing" level of quality ( $Q_d$ ) is found by equating costs in the two countries, i.e.

$$\tilde{a}Q^\varepsilon(\tilde{u} + \tilde{E}\tilde{N}_s) = \tilde{a}Q(\tilde{u}^* + \tilde{E}\tilde{N}_s)$$

which implies that

$$\tilde{r} Q_d = \left[ \frac{g^*(w^* + \Theta P_s)}{g(w + \Theta P_s)} \right]^{1/(\varepsilon-1)} \quad (8)$$

where  $\tilde{u}^*$  is the wage rate in WE. The determination of the "dividing" level of quality is shown graphically in Figure 2. The curved and straight lines show how costs in East (domestic country) and West (WE) vary with the level of quality produced respectively. These lines are drawn for given wages in the two countries, and it is obvious that a fall

[FIGURE 2 ABOUT HERE]

in the domestic country's wage rate will increase the range of qualities over which the domestic country has a competitive advantage. But this may not necessarily guarantee that the domestic country will be exporting to the West. Figure 3 illustrates this. Let  $Q^*$  be the quality level desired by Westerners which is determined by their incomes (wages).<sup>3</sup> If before the dismantling of CMEA wages in the domestic country were equal to  $w_0$ , then the country would not be able to export to the West. But it may still not be able to do so even if wages decreased to their lowest possible level of  $\bar{a}$  (the wage necessary for participation in production). In Figure 3 the quality level  $Q^*$  desired by Western

[FIGURE 3 ABOUT HERE]

consumers remains higher than the new "dividing" level of quality  $Q'_d$ .

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**(3) In this section domestic consumers are always assumed to have a desired level of quality which is smaller than  $Q_d$ .**

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From the above it is obvious that - ceteris paribus - the higher is the wage rate in the West, the more likely it is that the domestic country will not be able to be competitive for the quality level demanded by Westerners. For the rest of this section I assume this to be the case for at least some of the CEE countries.

Under these circumstances - given that the H good is assumed to be non-traded - the domestic country will face a balance of payments constraint (I assume in this section that there is no possibility of trade with non WE economies). Yet the country must import II in order to undertake any production. The magnitude of foreign loans and official foreign assistance will then determine the volume of S imported and (indirectly) the level of domestic employment. Letting N stand for the level of employment, and K for the sum of loans and assistance from abroad, the balance of payments constraint is

$$(H + \tilde{a}Q^E \hat{E})I \leq \hat{E}/P_S \quad (9)$$

An implicit assumption behind equation (9) is that all available foreign exchange is used for "production" purposes - there is no consumer demand for imports of the Western produced qualities. (This assumption is relaxed in the following section). I assume that the constraint is always binding. Equation (9) along with equations (1), (4) and (5) determine now the level of employment which may well be smaller than the labour force. The model remains recursive with  $w$ ,  $H$  and  $Q$  being determined first, and equation (9) then determines  $N$ .

Although the analysis so far precludes any beneficial effect of a decrease in domestic wages on exports, this should not lead one to conclude that a reduction in wages will not increase employment. A fall in wages will decrease both the quantity demanded of the H good and the quality demanded of the Q good. This will in turn reduce the indirect "consumption" of S per person ( $= H + \tilde{a}Q^E$ ), thereby allowing a higher number of persons be to employed. Increases in employment can thus be secured at the cost of reductions in the wage (and utility) of those already employed. Nevertheless, the lower bound on wages placed by  $\bar{a}$  may again not allow full employment to be achieved.

From the above one may surmise that had I assumed that the country is able to produce a homogeneous traded good, wage flexibility would once again be a cure to

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unemployment. It may be thought that wage reductions, by reducing the relative price of this good could ensure that the required foreign exchange is made available for imports of intermediate inputs. To achieve this, however, would require a price elasticity of demand for the country's exports significantly higher than unity. With an elasticity equal to unity, an increase in competitiveness brought about by the reduction in wages could actually deteriorate the balance of trade in this model (even if it is assumed that trade is balanced initially). This will certainly be the case if for the production of the exportable good it is necessary to import intermediate inputs. For example, if the value of intermediate goods imports are 10 percent of the value of exports, then an export price elasticity of about 2 is required for an improvement in the trade balance. Such a value is certainly well above realistic estimates of export price elasticities. (See, Goldstein and Khan, 1985).

#### **4. Free trade, distribution and unemployment.**



In this section I relax the assumption of a representative individual. Although this assumption might have been a reasonable one to make when the CEE economies were centrally planned (on both "cultural" and economic grounds), this is no longer the case. The (partial) move in these countries towards governance by markets has resulted in wide disparities in income distribution. The consumption choices of the nouveaux riche may differ drastically from the rest of the population, and this can further worsen the employment prospects for these countries.

In order to show in the simplest possible way how this can arise, I assume that individuals (households) in the domestic country (East) are still endowed with one unit of labour which they offer inelastically. There are, however, differences in skill between households which are reflected in differences in the endowment of effective labour supply. This is in turn reflected in differences in income across households. Without any loss of generality I assume that there are only two income classes: the low income and the high income class. Let  $K_l$  and  $K_h$  signify the effective labour endowments of members of the low and high income class respectively. Income of the two classes is then defined as  $E_l = K_l w$  and  $E_h = K_h w$  with  $K_l < K_h$ .

The free-trade price of each quality level will be equal to the lower cost of producing in East and West,

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$$\tilde{N}(Q) = \min\{\tilde{a}Q^{\bar{f}}(w + \tilde{E}_{NS}), \tilde{a}Q(w^* + \tilde{E}_{NS})\} \quad (10)$$

where  $P(Q)$  is the price at which quality  $Q$  can be bought under free trade. Equation (8) implies that the budget constraint discontinuous at the "dividing" level of quality  $Q_D$ .

This discontinuity implies that there may be an income class whose households are indifferent between buying the domestic (Eastern) and Western qualities. Figure 4 provides an illustration of how such a situation can arise. Points A and B denote the maximum quantity of the homogeneous good and the maximum quality of the

[FIGURE 4 ABOUT HERE]

differentiated good that a household with income  $E_i$  can buy. The budget constraint is discontinuous at point D, which corresponds to the "dividing" level of quality  $Q_D$ . It is then possible that there may be an income  $E_i$  such that the household is indifferent between buying the domestically produced quality  $Q_E$  and the Western produced quality  $Q_W$ . It is also clear that in this case there will be no demand for qualities in the range  $(Q_E, Q_W)$ . Further consideration of such a situation presents no new insight for the analysis which follows. It is for this reason that I assume income of both classes to be such that consumers have a clear preference for either Eastern or Western qualities (varieties). This is also demonstrated in Figure 4, in which a higher income than  $E_i$  creates a preference for a Western produced variety, and an income less than  $E_i$  creates a demand for an Eastern (domestic) produced variety (points a and b respectively). These two income levels can be identified with the incomes of the high and low income classes respectively.

Given the assumption that Western consumers' incomes are such that only Western produced varieties are demanded, the domestic country faces a balance of payments constraint as in the previous section. The difference is now that there will be a demand for Western produced varieties by members of the high income class. The larger the proportion of the scarce foreign exchange which the government allows to be used for importing Western produced varieties, the smaller the attainable level of employment. Note, that this negative externality between satisfaction of one group's consumer wants and the level of aggregate employment is present even though I have assumed that high income earners are paid according to their (marginal and average)

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productivity. The negative employment effects are thus present even though the high income class does not "exploit" the low income earners.

It is obvious that in such a case, the government could intervene and secure an increase in employment (given the balance of payments constraint) by not permitting imports of consumer goods. The resulting increase in availability of foreign exchange for imports of intermediate goods will permit the production of more units of both the homogeneous good and the quality good. The increase in employment can thus, again, be achieved only by reducing the utility (of at least some) of those already employed. The government can, of course, instead of prohibiting foreign exchange to be used for imports of consumer goods, tax high income earners so as to reduce their after tax income to a level where fewer or no Western produced varieties are demanded. The latter method may be preferable since the government could use its tax revenue to support the unemployed. Nevertheless, any policy which restricts individuals from enjoying the fruits of their labour is bound to have adverse effects on human capital accumulation in a dynamic context.

## **5. Concluding Remarks.**

The main point of this paper has been that the abrupt loss of trade partners for the centrally planned economies of Central and Eastern Europe and the NIS can result in employment reductions which wage flexibility may be unable to cure. The problem of unemployment may be further exacerbated by the almost inescapable rise in income inequality accompanying the transition away from central planning to guidance by the market.

What are the policies which could enable these countries to escape (faster) from this predicament? Obviously, as trade links are fostered with countries of similar levels of development (and incomes) an outlet for exports could be established. This can gradually relax the foreign exchange constraint and allow employment to increase. For this purpose, some writers (see, for example, Havrylyshyn and Williamson (1991), Van Brabant (1991) have proposed the establishment of a payments union and a free-trade area amongst the ex-CMEA countries. But as Brada (1996) has forcibly argued, this may not be feasible given the unwillingness of the

(former) Soviet Union exporters to sell energy and raw materials to the CEE in return for non-hard currency payments.

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Moreover, as Brada argues, even if such a free-trade area were feasible, it would present the restructuring of the region and it could lead to the re-establishment of the inefficiencies that ruled under CMEA. Incentives for the establishment of foreign (Western) multinationals should possibly be the major concern of economic policy as an aid to integration of the CEE countries to the world economy. By attracting multinational firms within their national boundaries, the CEE countries will be able to gain access to technologies which they cannot generate themselves. In terms of this paper's model, this would be equivalent to making the cost function for East (Figures 2) flatter and to move downwards as well. Such a development can result in a rise in employment without reducing the incomes of those already employed. In addition, multinational enterprises (MNEs) may be a natural conduit for foreign markets. Indeed, there is a lot of anecdotal evidence that the process of breaking into foreign markets is far from trivial (Morawetz (1981), Kessing (1983)). Aitken, Hanson and Harrison (1994) present more formal evidence from Mexico that MNEs act as export catalysts for domestic firms. They do this because by their nature MNEs have a multi-market presence. This allows them to have (and to disseminate) information about the structure of foreign markets and preferences of foreign consumers without which domestic firms would find it difficult to sell their goods abroad. To the extent that MNEs directly or indirectly provide information and distribution services, their activities enhance the export prospects of domestic firms.

The beneficial effects of MNEs have on the domestic economy are, however, by no means guaranteed. It is well known that many undeveloped regions have failed to attract firms from the developed countries. As Jacobs (1984) has argued underdeveloped regions can not supply the wide variety of specialized intermediate inputs which are necessary for producing final goods, and which it is very costly for a MNE to import. Consequently, the

only MNE, that are attracted to these regions are ones which generate few linkages with the rest of the economy. Such operations are almost always of an "enclave type". Care should therefore be taken to disentangle policies of regional development from policies targeted at attracting MNEs, since the establishment of MNE, in the backward region of a country is unlikely to generate any significant backward and forward linkages. Export processing zones should thus be established in

the most developed (or "agglomerated areas") of a country. (see, Rodriguez-Clare, 1996a, 1996b).

The above comments should not be interpreted as implying that the governments of CEE countries and of the NIS should avoid other forms of intervention. For example, tax revenue could be used for establishing applied research institutes whose purpose would be the dissemination of improved production techniques to domestic entrepreneurs. Nevertheless, the gestation period of such policies can be so long that reform, guided by the need for inward foreign direct investment may be a necessary companion to these policies.

## Non-Technical Summary

The main argument in this paper is that the collapse of the Council for Mutual Economic Assistance (CMEA) agreements has been responsible for the dramatic fall in output and rise in unemployment amongst the previously centrally planned economies of Central and Eastern Europe (CEE) and the Newly Independent States (NIS) of the former Soviet Union. The World Bank estimates that GDP fell, on average, by about 16 percent in five CEE countries between 1989 and 1994, and by about 30 percent in eleven NIS. The unemployment rate in 1994 was more than 10 percent in all CEE countries except the Czech republic.

In this paper I first present a highly stylized model of "clearing" trade in order to capture the institutional setting under which CMEA countries operated. Trade amongst these countries was conducted on the basis of bilateral agreements and cleared, at first through bilateral clearing accounts and later by means of the transferable ruble. Another feature of CMEA has been the effort to promote specialisation in production by promoting broad agreements on the patterns of production and investment. In many cases, this took the form of granting to a member country a monopoly position in the production of certain goods. An important feature of the "clearing" trade agreements was that the Soviet Union supplied its CMEA partners with almost all their needs in energy and raw materials and it was their main outlet for manufactures.

The current trading regime of "free" trade is characterised by switch to trade on a hard-currency basis and a decline in the demand by Russia and the NIS for manufactures produced in CEE countries. This implies that for the CEE countries, exports to the West can be the only source of foreign exchange which is necessary for purchasing the intermediate inputs which are necessary for domestic production. The "free" trade model of the paper explains why it can be very difficult for the CEE countries to export to the

West. This is based on the assumptions that manufacturing goods are differentiated according to quality and that the CEE countries have comparative advantage at low quality varieties. In such a case, high-income Western consumers may register no demand for low quality CEE goods. The resulting balance of payments constraint implies a scarcity of imported productive inputs and leads to a fall in output and employment which wage reductions may not be capable of ameliorating.

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Unemployment may thus be more than just a short-run phenomenon for those countries which will not manage to produce competitively the high quality varieties demanded by Western consumers.



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