PN-ABL-684

INSTITUTE
FOR
POLICY
REFORM

Working Paper Series

The objective of the Institute for Policy Reform is to enhance the foundation for broad based economic growth in developing countries. Through its research, education and training activities the Institute will encourage active participation in the dialogue on policy reform, focusing on changes that stimulate and sustain economic development. At the core of these activities is the search for creative ideas that can be used to design constitutional, institutional and policy reforms. Research fellows and policy practitioners are engaged by IPR to expand the analytical core of the reform process. This includes all elements of comprehensive and customized reform packages, recognizing cultural, political, economic and environmental elements as crucial dimensions of societies.

1400 16th Street, NW / Suite 350
Washington, DC 20036
(202) 939 - 3450

This paper was prepared under a cooperative agreement between the Institute for Policy Reform (IPR) and Agency for International Development (USAID), Cooperative Agreement No. PDC# 0095 A-00-9079-00. Views expressed in this paper are those of the author and not necessarily those of IPR or USAID.

INSTITUTE
FOR
POLICY
REFORM

Liberalizing Foreign Trade in a Socialist Economy: The Problem of Negative Value Added

Ronald I. McKinnon

Economics Department
Stanford University

and

Advisory Board Member
Institute for Policy Reform

March, 1991

Quite often, transition economies are characterized by centrally owned and planned industries, many of which would not be economically viable if they were privately operated. In a traditional Stalinist economy, the implicit structure of tariff equivalents "cascades" downward from very high levels for the domestic production of finished consumer goods through manufactured intermediate products through industrial raw materials and energy, whose production is negatively protected because of implicit export taxes (or import subsidies). This highly cascaded structure of implicit tariffs raises effective protection in finished goods to the point where most manufacturing will exhibit negative value added at world markets prices. In such circumstances, a move to free trade would provoke the collapse of most domestic manufacturing industries -- no matter how the exchange rate is set, and no matter that some of these industries might eventually be viable at world market prices. A proposed reform is the simultaneous "tarification" of quantitative restrictions on competing imports and the elimination of implicit export taxes on energy and material inputs as the economy moves quickly to a market-based system. Once made explicit, the highest tariffs in the cascade can then be phased down step-by-step to zero over a preannounced five to ten year time horizon. The newly marketized economy would then converge to free foreign trade at a more deliberate pace -- one that better adjusts to the problem of overcoming distortions from the preexisting system of protection.

(revised) March 17, 1991

LIBERALIZING FOREIGN TRADE IN A SOCIALIST ECONOMY: The Problem of Negative Value-Added

by

Ronald I. McKinnon[1]
Stanford University

In their remarkably swift adoption of free trade with full current account convertibility in 1990, both East Germany and Poland experienced rapid industrial decline: the collapse--or threatened bankruptcy--in an astonishingly wide variety of manufacturing and agricultural industries that turned out expost facto not to be internationally competitive. Are there constraints on how fast currency convertibility, and free arbitrage between domestic and foreign markets for goods and services, is best achieved in a liberalizing socialist economy?

At first glance, the great difficulty of East Germany and Poland in expanding (new) export activities as import substitution industries contract seems to refute the Ricardian law of comparative advantage. Whether under free trade or economic autarky, the Ricardian model of comparative advantage assumed that all goods are, or can be, produced according to predetermined production technologies from basic labor. Even if average labor productivity was low, therefore, conventional textbook wisdom had it that the comparative efficiency of at least some major domestic industries soon would assert itself if the real wage could be set sufficiently low, i.e.,

---

[1]This paper is a shortened, adapted version of Chapter 12 in the author's forthcomimg book The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy to be published by the Johns Hopkins Press in July of 1991. I would like to thank John Hussman, David Robinson, John Williamson, and Michael Treadway for their help in preparing this paper.

the real exchange rate was sufficiently devalued. And some reasoning such as this lay behind the willingness of the Polish and German policy makers to move so quickly toward unrestricted foreign trade.

Alternatively, this paper considers the circular flow of production in a "typical" socialist economy. Goods are produced from intermediate products such as energy and other material inputs as well as from labor and capital, and there are substantial substitution possibilities for combining them. In this substitution model, technological capabilities--including labor productivities--are conditioned by the pre-existing structure of protection before liberalization occurs. By taking this implicit protection in the traditional Stalinist economy properly into account, I will

(i) show that, no matter how the exchange rate is set, most manufacturing and food processing industries need not be viable under free trade at pre-existing combinations of factor inputs: in the short run they might well exhibit negative valued added at world market prices; and

(ii) propose a more gradual program of trade liberalization based on temporary tariff protection and the repricing of material inputs so as to winnow out those industries that could not survive in the long run under free trade from those that could[2].

---

[2]Behind the scenes in this paper is the presumption that the liberalizing socialist economy has strong domestic fiscal and credit controls in place that prevent enterprises from overbidding for scarce resources. Thus, the national government need not resort to blocking the cash balance positions of enterprises, i.e to "commodity inconvertibility" [John Williamson, 1991], in order to prevent domestic inflation. To avoid this syndrome of commodity inconvertibility, however, the whole structure of domestic taxation and money and credit may have to be reformed at the outset of the liberalization--see McKinnon [1991a and 1991b]. Here, I simply assume that liberalization has proceeded to the point where enterprise money can be spent freely for domestic purposes.

Implicit Protection in the Traditional Stalinist Economy

In the traditional Stalinist economy for which the Soviet Union will be our leading prototype, virtually all domestic production of more or less "finished goods"--those sold directly to consumers or sold back to industry as plant and equipment--was insulated from foreign competition. Because the ruble was inconvertible into foreign exchange on current account, protection for domestic manufacturers--including processed agricultural goods--was absolute: the State trading agency refused to authorize competing imports unless there were pronounced domestic shortages of similar products. Although there were no formal tariffs or quota restrictions in any legal codes, the implicit rate of protection was very high as if quantitative restrictions had eliminated competitive pressure from abroad. At some "equilibrium" exchange rate (to be discussed below), domestic prices for finished goods--after discounting for their normally poorer quality in the protected setting--were typically higher than their foreign counterparts. Thus, in its general repercussions on economy-wide resource allocation, this price wedge is similar to the effect of a high tariff on the importation of competing finished goods.

At the same time, exports of energy, raw materials, and limited amounts of manufactures (largely military equipment in the Soviet case) were largely determined centrally by "a vent-for-surplus" doctrine. That is, after domestic "needs" for, say energy, at low domestic prices had been more or less satisfied, the residual (quite a large residual in the Soviet case) was then sold abroad at much higher world market prices. The effect was similar to imposing an export tax on, say, energy that drives the domestic price below that paid by foreign buyers. Energy in all forms--together with

non-food raw materials which were similarly "taxed"--amounted to over 60 percent of Soviet exports in 1989, and over 75 percent if one omits "protected" military sales from the export base.

In order to approximate how these relative prices in the Stalinist economy differ from those prevailing in the world economy, therefore, let us partition the tradable goods produced and consumed into two categories: finished goods, which are largely manufactures and processed foodstuffs; and material inputs, which are largely energy products and nonfood raw materials.

For modelling purposes, assume that all finished goods are largely import substitutes or imports and are not exported; whereas material inputs are either exported or used up in the domestic manufacture of finished goods. Reinterpreting the notatation and methodology of Tan [1970][3], denote the gross output of finished goods industry i by Z_i, where the corresponding production function is

(1) $Z_i = Z_i(L_1, L_2, \ldots L_n; M_1, M_2, \ldots M_r)$

The L_i's refer to the primary factors such as labor or land, and the M_i's are intermediate material inputs. In considering the production choices facing industry i (Figure 1), however, let us dispense with all but one intermediate input, M, and one domestic factor L. We can then denote value-added in domestic prices of finished goods industry i as

[3]Tan was concerned with the structure of differential tariffs in LDCs where finished goods--largely consumer manufactures--received high tariff protection; but intermediate inputs entered duty free. For our analysis of the Soviet Union, I treat the taxed export good as the relevant intermediate product. However, for the smaller Eastern European economies where material inputs are imported, one might want to introduce an untaxed importable as a third commodity in the analytical model--as per McKinnon [1966].

(2) $V_i = P_i Z_i - P_m M$

where P_i and P_m are the domestic-currency prices of the finished product and material input respectively. The value added by the domestic factor(s) is simply gross value minus the cost of intermediate inputs--and the normal presumption is that value added at domestic prices is positive[4]. But what determines the relative prices of Z_i and M in domestic commodity markets, and how is that linked to domestic factor costs?

The Coefficient of Protection for Finished Goods

Consider relative commodity prices first--presuming that one unit of the domestic currency exchanges for one foreign. Because we are dealing with an economy that is a small part of the world economy, foreign currency prices--denoted with asterisks--are fixed. Let t_i represent the implicit tariff protecting domestic production of the finished product--the gap between the foreign and quality-adjusted domestic price--such that

(3) $P_i = (1 + t_i)P^*_i$

and let t_m represent the similarly calculated implicit export tax on material inputs such that

(4) $P_m(1 + t_m) = P^*_m$

[4]In any market economy, value added being positive at domestic prices is a necessary condition--although by no means sufficient to assure profitability--for the firm to exist. In a socialist economy, in extreme cases one could imagine a degree of public subsidy that enabled an enterprise to keep going even when it was not covering the costs of its material inputs. But I am ruling out this unlikely possibility.

In order to see the divergence between domestic relative prices and their foreign counterparts, divide (3) by (4) and rearrange to get

$$(5) \quad P_i/P_m = (1 + t_i)(1 + t_m)(P^*_i/P^*_m)$$

(5) captures the dual aspect of the overall protection to the gross output of finished goods: the effect of restricting competing imports <u>and</u> of subsidizing the use of material inputs. Indeed, from Lerner's Symmetry Theorem [Lerner, 1936], we know that restricting imports or taxing exports have "equivalent" protective effects in long-run equililibrium--as worked out more fully in the presence of intermediate products by McKinnon [1966]. For industry i, we thus define the overall "coefficient of protection" to be

$$(6) \quad 1 + r_i = (1 + t_i)(1 + t_m)$$

On the vertical scale of Figure 1, the coefficient of protection shows the domestic relative price of finished goods in terms of material inputs. To better interpret Figure 1, however, let us first consider domestic value added at world prices.

$$(7) \quad V^*_i = P^*_i Z_i - P^*_m M$$

From (5), we can rewrite V^*_i in terms of domestic prices to get

$$(8) \quad V^*_i = \frac{P_i Z_i - (1 + t_m)(1 + t_i)P_m M}{(1 + t_i)}$$

Although we presume V_i remains positive, there can be <u>no presumption that domestic value added at world prices is positive</u>. Indeed, if either t_m or t_i are sufficiently high, and if the relatively cheap M is substituted for other factors of production, equation (8) tells us that $V^*_i < 0$.

These relationships are depicted in Figure 1, which is a modified version of that used by Tan [1970]. For a "typical" finished goods industry i (which is one of many), the unit isoquants Z_i and Z'_i portray alternative possibilities for substituting the tradable material input for the domestic factor of production <u>in the long run</u>, i.e., not taking transitional adjustment costs into account. The distance OA on the vertical axis represents the material inputs which are equivalent to one unit of finished goods at world prices. For example, at the hypothetical free trade equilibrium at point g, where the new budget line AC (whose slope now relects the relatively higher world cost of energy in terms of labor) is tangent to the unit isoquant Z_i, one unit of final output could buy OA in material inputs.

Going one step further, we can scale our measure of output in Figure 1 so that one unit of the finished good is worth just one dollar of foreign exchange: the unit isoquants Z_i or Z_i' denote just one dollar's worth of finished good i. Similarly, we can scale our measure of material inputs on the vertical axis so the one unit of, say, energy is worth just one dollar: the distance OA in Figure 1 is one.

Then, under the preexisting system of implicit protection and using this scaling, equation (5) tells us that the <u>domestic</u> relative price of the final output in terms of material inputs--the distance OH in Figure 1--is simply our coefficient of protection $1 + \tau_i$. The higher domestic price of finished goods compared to that prevailing on world markets (and compared to the price of material inputs) reflects both the implicit export tax on material inputs and the implicit tariff on competing imports.

The Overuse of Material Inputs and the Shoddy Product Syndrome

Under protected domestic prices, all feasible input combinations--feasible in the sense of domestic value added being positive in the production of one unit of finished goods--must lie below the horizontal line HH in Figure 1. Below HH, the domestic value of finished goods output exceeds the domestic cost of the material inputs used in their production.

At world relative prices, on the other hand, all feasible input combinations must lie below AA if domestic value added is to be positive. Indeed, all production points in the shaded area lying above AA in Figure 1 show negative value added at world prices. For example, the point d is profitable under the existing mantle of protection: the budget line HD (whose slope shows relatively cheap energy and expensive labor) is just tangent to the unit isoquant Z_i (or its alternative Z_i'). Nevertheless, d shows negative value added if the final output had to be sold, and material inputs had to be purchased, in unrestricted world markets.

Why is this phenomenon of negative value added at world prices probably commonplace in Soviet (and Eastern European) industry?

First, as drawn in Figure 1, the relative prices of energy and other material inputs to most sectors of the Soviet economy have been kept very low--causing them to be used intensively. In addition, the old Stalinist system of rewarding managers by whether they (over)fulfill gross output targets encourages them to waste material inputs. "According to the calculations of the Soviet Institute of World Economy and International Relations, we use 1.5 times more materials and 2.1 times more energy per unit of national income than the United States... Our agricultural production is 15 percent less than the United States but we use 3.5 times

more energy." [Shemlev and Popov, 1989, p. 128].

Second, the Stalinist planning system based on gross output targets tends to produce manufactured or processed outputs of uncertain quality. "The quality of Soviet produce appears to have been declining steadily since the 1960s, as a result of permanent excess demand, regardless of technical progress". [Asland, 1989, p. 76]. For example, take a common household product like detergent that is introduced at a certain benchmark standard. The (protected) domestic producer will have continual incentive to degrade product quality if, by so doing, more units can be produced. After complaints roll in, the enterprise might get permission to introduce a new and "improved" benchmark detergent at a higher price and for which it gets more weight in its gross output target[5]. Then the slippage in quality begins all over again. For short, I will call this process the <u>shoddy product syndrome</u>.

In Figure 1, the shoddy product syndrome affects the position of the unit isoquant because material inputs at world prices--or, equivalently, units of foreign exchange--is the numeraire by which final output is measured. The shoddier the product or more uncertain the product quality, the further to the northeast will be the unit isoquant, say at Z_i' rather than Z_i. In the sudden German trade liberalization of 1990, for example, the adverse signalling from simply knowing that a good had been produced in East Germany was sufficient to induce East German consumers to reject it in favor of higher-priced West German goods--thus increasing the distress in

[5]This absence of a market test for valuing final outputs is one important reason why the growth in Soviet GNP may have been significantly overstated in the postwar period. Continual decline in product quality did not reduce measured GNP, while the continual introduction of "new and improved" products was allowed to increase it.

East German industry.

In a sudden move to free trade at <u>any</u> exchange rate, therefore, a finished goods industry chosen at random would likely show negative cash flows under the (pre)existing combination of factor inputs and low valuation of the finished product in world markets. A devaluation, coinciding with the (hypothetical) move to free trade, would simply raise material input prices in tandem with the prices of shoddy finished goods. In the short run before input combinations and product quality could be adjusted, negative value added would persist. Because manufacturing absorbs a much higher proportion of the labor force in the Soviet Union than in the United States [Shmelev and Popov, 1989], a wholesale industrial collapse would be intolerable.

The Adjustment Problem

In "long-run" free-trade equilibrium, however, could industry i, as depicted in the substitution model of Figure 1, be viable? Suppose our putative reformers observe the "protected" starting point d, a combination of output and inputs with negative (or very low) value added at world market prices. Yet they do not know whether industry i (and similar finished goods industries) would be sufficiently productive, and capable of ultimately shifting away from its current heavy dependence on material inputs while improving product quality, to become profitable under free trade. In the long run, whether industry i was on an "efficient" unit isoquant such as Z_i running through the point d, or on an "inefficient" unit isoquant such as Z_i' also running through the point d, is uncertain. In the former case, output at world prices would ultimately be sustainable at the point g. In

the latter case, the best industry i could manage in the long run after energy became more expensive was a production point like g': the value of gross output at g' remains less than the total cost of production.

Notice that the long run viability of the industry i depends not only on its production efficiency, i.e., whether it is on the unit isoquant Z_i or Z_i', but also on the prevailing costs of the domestic factors of production after a new free-trade equilibrium is established. Suppose labor is the principal domestic factor of production. Then the budget line AC shows the real wage (in terms of material inputs) to be sufficiently low under free trade so that the point g tangent to Z_i is profitable. However, if the equilibrium real wage is higher, so that AC' is now the relevant budget for producing one unit of the finished good, then industry i will <u>not</u> be profitable under free trade. AC' lies to the left and below Z_i. The real wage in long-term equilibrium facing any particular industry i will be the outcome of a complex macroeconomic interaction as <u>all</u> industries liberalize simultaneously.

Given this fundamental uncertainty about substitution in production, product quality, and equilibrium real factor costs when all industries are finally liberalized in the long run, could the reformers devise a system of <u>interim</u> protection at "correct" relative input prices that

(1) initially sustains the profitability of most existing production of manufactures and processed goods, and

(2) when systematically reduced over the next several years, allows market mechanisms to phase out inefficient finished goods industries while encouraging "learning by doing" in others so that they eventually thrive under free trade?

From Implicit to Explicit-Tariff Protection: The Case of Chile

The trade liberalization in Chile after 1973 was perhaps the most comprehensive and draconian (before the Polish and East German experiences in 1990) of modern times--see Edwards and Edwards [1987] for putting the remarkable empirical details into a solid analytical perspective. Chile's tariff and foreign exchange policies provide useful clues of what to do, or what not to do, in a similarly comprehensive trade liberalization program in a socialist economy like the Soviet Union's.

In 1973, Chile had some very high formal tariffs protecting finished goods, averaging over 90 percent with some, improbably, going as high as 500 percent--as shown in Table 1. However, these numbers conceal the fact that much protection in Chile in 1973 was from non-tariff barriers. Quota restrictions or absolute prohibitions on imports of finshed goods were commonplace--along with restrictions on the export of food and industrial raw materials. In addition, the government refused to allocate foreign exchange for imports that didn't suit its immediate social objectives, and set multiple exchange rates across different categories of imports and exports so that many tariff rates themselves had become rather meaningless.

Therefore, the first order of business in the Chilean liberalization of foreign trade in 1974 and 1975 was to

(i) unify the exchange rate so that all exporters and importers transacted at the same rate, then

(ii) convert all quota restrictions into some rough tariff equivalent--lumping similar commodities together in the same tariff category, then

(iii) move to unrestricted foreign exchange convertibility on current

account.

The net effect of these first steps taken in 1974 and 1975 was to convert implicit protection by direct controls into explicit protection by tariffs--albeit still very high tariffs as Table 1 shows. By 1976, this conversion into a system of explicit tariff protection in Chile was virtually complete. Then the government proceded to phase out the explicit protection slowly over a period of several years by

(iv) reducing the higher tariffs, in preannounced small steps, to converge to a modest uniform import tariff at a prespecified future date.

In the event, Chile speeded up this process slightly and converged to uniform 10 percent tariff on all imports (for revenue) by July of 1979 (Table 1) with no other significant import restrictions. The uniform tariff was justified on revenue grounds, and from Lerner's Symmetry Theorem, we know such a tariff is equivalent to a 10 percent tax on all exports in long-run equilibrium.

Note that after 1973 Chile also removed all controls and other significant taxes on exports per se. However, in parallel with what should be the case for the natural resource based exports of the Soviet Union, the Chilean government continued to tax the profits and other economic rents associated with natural-resource based industries rather systematically. For example, in Chile's huge copper industry, which dominated Chile's exports much like petroleum now does the Soviet Union's, the government retained ownership and control of a number of major mines; and concessions given to private mining companies--whether international or domestic-were rather carefully taxed. The important point for our purposes, however, is these were "profits" taxes rather than export taxes. Hence, after

liberalization, they did not drive a wedge between the price seen by domestic users and by foreign buyers of exportable material inputs--unlike the Soviet energy industry today.

In summary, in difficult political circumstances, Chile in late 1973 eschewed the "cold turkey" approach to free trade adopted by (forced on?) Poland and East Germany in 1990. Instead, Chilean producers of finished goods had some years in which to adjust. The one major mistake was to allow excessive capital inflows that a forced a severe overvaluation of the Chilean peso in 1978-82 and caused widespread bankruptcy in the newly opened tradable goods sectors [McKinnon 1991a, Chapter 6]. Despite this early trauma, Chile's trade liberalization itself, and political commitment to free trade, have been successfully sustained into the 1990s.

A Transition Parable for Soviet Foreign Trade

Suppose the spirit of the deliberate Chilean approach to free trade--as summarized in steps (i) to (iv) above--can be depicted within the confines of our two-commodity substitution model of the Soviet economy. How might an "idealized" Soviet approach to free trade be worked out?

The Soviets got off on the wrong foot in 1989 by decentralizing foreign exchange contracting by domestic enterprises before their budget contraints were hardened so that domestic commodity prices could be decontrolled, and before the regime of multiple exchange rates was unified. In 1990, hundreds of individual exchange rates, ranging from the old official rate of .64 rubles per dollar to more than 20 rubles continue to proliferate. Thus, as a practical matter, the Soviet government might have to recentralize foreign exchange allocations until the domestic financial

controls necessary for supporting a market economy have been established [McKinnon, 1991] and until the exchange rate is unified as per phase (i) above.

But how should this single (unified) nominal exchange rate be set when unrestricted commodity or financial arbitrage with the outside world does not yet exist? We know that the price of exportable material inputs--inclusive of the huge energy sector--must rise sharply relative to domestic factors of production including labor. Moreover the ruble prices of these fairly homogeneous material inputs can be directly compared to those prevailing on world markets, which are typically quoted in dollars. Thus, the exchange rate, in rubles per dollar, can be set according to a limited version of the principle of purchasing power parity as follows.

Take the prevailing domestic wage level in rubles as a starting point. Then estimate the average increase in the relative price of energy (and other material inputs) against wages that would prevail in long run equilibrium if the economy were to move toward free trade. Accordingly, adjust the domestic ruble price of energy (and other material inputs) sharply upwards--doubling or trebling it in terms of wages at the outset of the trade liberalization process. In Figure 2, the slope of the budget line BB', running through the old production point d, now represents this higher price of energy relative to labor; whereas HD, also running through d, represents the old budget line when energy was previously underpriced.

Simultaneously, to make the new ruble price level for material inputs effective, set the exchange rate in rubles per dollar to equate (average) domestic prices of material inputs to those prevailing in world markets. This new unified exchange rate would now apply to all current account

transacting, on either the import or export sides, for material inputs, finished goods, or services. Once established, this nominal ruble/dollar exchange rate would be invariant to further ups and downs of world prices for material inputs. At the fixed exchange rate, continual minor changes in the domestic ruble prices of individual material inputs (and other tradables) would keep them aligned with their counterparts on world markets.

What have we accomplished by this exercise in exchange rate unification? First, the implicit export tax on energy and other material inputs has been eliminated as their ruble prices rise sharply to world levels. (Note, however, that the revenue position of the government would be greatly enhanced if it retained a full claim on the profits or surpluses being generated by natural resource based industries at the higher domestic prices.) In the short run, producers in industry i would have immediate incentive to begin economizing on energy and other material inputs.

Second, this nominal exchange rate is now capable of sustaining the real purchasing power of domestic money in terms of material inputs--a very broad class of primary commodities produced, traded, and consumed throughout the economy--once full current account convertibility is achieved. This potentially stable "real" exchange rate also provides a benchmark for converting the implicit tariff protection associated with quota restrictions and with the existing system of exchange controls into <u>explicit</u> tariff equivalents. That is, the authorities may now calculate the t_i's sufficient to keep most finished goods manufacturing in existence--a calculation requiring a stable real exchange rate if effective protection by tariffs is, itself, to remain operative at some prespecified level.

For finished goods industry i portrayed in Figure 2, the vertical

scale at point H shows the coefficient of protection, $1 + \tau_i$, prior to this elimination of the domestic subsidy to the use of material inputs. This total implicit protection depends on the preexisting implicit tariff on imports of finished goods and on the old input subsidy. As before, the resulting budget line for producing one unit finished good i at point d is HD, whose steep slope reflects the low relative price of energy and other material inputs relative to domestic labor.

After the prices of material inputs increase to world levels, however, explicit tariff protection from competing imports of finished goods would have to be adjusted upwards from its old implicit rate if industry i is to survive. Suppose t_i' is the new <u>explicit</u> tariff needed to keep industry i in business once exchange controls were removed and current account convertibility was achieved. Then $t_i' > t_i$. To compensate for the increased price of energy and other inputs, the initial explicit tariff would have to be somewhat higher than the previous quality-adjusted differential between the foreign and domestic price of finished good i.

The vertical distance AB in Figure 2 shows the level of this new (hypothetical) explicit tariff relative to the (newly increased) prices of material inputs. Insofar as the domestic price of material inputs now equals the world level of one dollar, AB also represents the actual ad valorem tariff needed to protect the domestic industry. BB' is the corresponding new budget line just sufficient to sustain production at point d (at the old combination of domestic factors and material inputs). BB' is somewhat flatter than the old budget line HD in order to reflect the newly increased price of material inputs relative to labor. Because the price of material inputs has also increased relative to that of the finished goods,

the distance AB is correspondingly less than AH.

But this is not the end of the parable. Because the slope of the new budget line BB'is flatter (reflecting higher energy costs), BB' now cuts the unit isoquant Z_i at point d rather than being tangent to it. This induces the manager of industry i to raise profits by increasing the demand for domestic factors and reducing energy dependence, i.e., to start moving along the new budget line from d in the direction of B' as fast as the re-equipment of the enterprise permits. The great advantage of raising material input prices rather sharply at the outset of the trade liberalization is that firms immediately see the "right" relative factor costs for inducing them to economize on material inputs, exports of which will then slowly increase.

Nevertheless, our controlled liberalization differs from a strategy of jumping directly to free trade. Under immediate free trade with no interim protection for domestic finished goods, industry i would face the budget line AC in Figure 2, which could <u>not</u> support existing production at point d. Because the world market would bid them away from domestic uses, exports of material inputs and energy would jump sharply and so cause the collapse of most domestic manufacturing and goods processing activities.

That said, our parable based on interim tariff protection should leave no doubt in the minds of domestic industrialists, merchants, and farmers that the economy will eventually move to free trade--as in stage (iv) of the Chilean program cited above. Simultaneously with the introduction of explicit tariff protection for finished goods industries, the liberalizing socialist government could announce that the higher tariff rates would be scaled down by small steps until, say 10 years hence, all rates had

converged to some low uniform level. Further reductions in this resulting "revenue tariff" would then depend on the government's fiscal position.

Figure 2 nicely illustrates the nature of this declining tariff protection in smoothing the transition to free trade. Starting with the high explicit tariff equal to the vertical distance AB, the relevant budget line supporting production at point d is BB'. Then, some years later, formal tariff protection for our representative finished good is reduced to AE so as to support production at point f along the new budget line EE'. Finally, tariff protection for finished goods industries is phased out altogether; the relevant budget line becomes AC: that prevailing under free trade. (For diagrammatic simplicity, Figure 2 does not show the process ending with a low revenue tariff; and I have simply assumed that the initial guess of the authorities in raising the price of material inputs relative to domestic factors turns out to be correct in free-trade equilibrium.)

During this transition, successful in the particular case of industry i shown in Figure 2, the combination of factor inputs for producing one unit of the finished good shifts along the locus shown by the arrows from d to f to g. Only at the beginning point d, and the end point g, are these production combinations actually on the unit isoquant Z_i. That is, the unit isoquant traces out efficient production points in <u>long-run equilibrium</u> after the industry has the necessary time to rebuild its capital stock and restructure its labor force when relative prices change. The other points on the locus dfg are above the efficient long-run unit isoquant; and their "excessive" use of material inputs and domestic factors represents the real (social) costs of the transition. These costs are covered by the interim tariff protection and thus are shifted forward to the final user of the

finished good in question.

However, the change from implicit quota restrictions and import prohibitions to explicit tariff protection could still benefit users of finished goods.

First, even over high tariffs, the new threat of import competition would curb the monopoly power of concentrated domestic manufacturers. Manufacturing industries in the Soviet Union are indeed highly concentrated. For example, 100 percent of Soviet sewing machines are produced by a single state enterprise; the same is true for such diverse goods as tram rails, locomotive cranes, and coking equipment. All hydraulic turbines produced in the country come from a small number of plants run by a single government ministry; the same can be said for tin plate production and certain consume goods such as color photographic paper and freezers [The Economist, 11 August 1990, p. 67].

Second, the shoddy product syndrome would be immediately alleviated: the worst domestic products would not survive in the face of even modest competition from abroad. Indeed, the successful transitional production locus in Figure 2, the movement from d to f to g, implicitly incorporates improvements in product quality.

A Generalized Cascading Tariff?

These advantages from the move to explicit tariff protection presume that the government does not precisely tailor individual tariffs to keep each finished goods producer in business at the outset of the liberalization. Rather, the vertical distance AB in Figure 2, is best interpreted as simply a representive initial tariff--a common levy--that

applies to imports of all finished goods in a similar category. Following the Chilean experience described earlier and that of other primary products producing countries such as Canada which once had quite high tariffs, one could start off with fairly broad tariff categories: a "cascading" tariff scaled downwards according to the distance from the final consumer and degree of manufacturing complexity. Ranked from highest to lowest, a single tariff rate could apply to each of the following or similar categories:

(1) Consumer durables: autos, home appliances, and so forth

(2) Consumer nondurables: textiles and highly processed foods

(3) capital goods and manufactured intermediate products

(4) industrial materials and basic foods

The highest tariff in category (1) could be over 100 percent depending on how one computed their average survival capability after the prices of material inputs had been raised sharply; whereas the lowest would be the final uniform tariff of say, 10 percent, on imports of material inputs in category (4). As far as possible, the government would set a simple across-the-board "yardstick" tariff in each category. Not only would this general approach weed out the most inefficent producers (basket cases) at the outset, but "rent seeking" by individual industries petitioning for protection especially geared to their own needs would be minimized.

Then, over, say, a ten year interval similar to that used in the recently concluded Canadian-American free trade agreement, the rates in categories (1), (2), and (3), would be gradually but firmly reduced to those prevailing in category (4)--again without accepting special pleading for exceptions. In order to facilitate adjustment in his own mix of inputs and

outputs, each producer should know the cumulative tariff reductions[6] at the end of every year until virtual free trade was established.

A cascading tariff schedule, but one that is not adjusted downwards, is often used by LDCs to protect "infant" industries for producing finished goods. In our transition parable, by contrast, the purpose is quite different: to make explicit and then phase out already very high levels of implicit protection for domestic manufacturing. Moreover, with the degree of uncertainty involved as to which firms would ultimately survive and which not, it is simply not feasible for those firms that would be viable in the long run to jump immediately to free trade--and to cover their early losses and transition costs by borrowing. Indeed, such massive borrowing by socialist enterprises would undermine the hard budget constraints, based on limited access to external capital, which were pivotal for achieving domestic financial control [McKinnon, 1991a and 1991b]. Instead, temporary tariff protection, which increases the internal cash flows of manufacturing firms, is fully consistent with keeping self finance as the main financial mode for liberalized enterprises in a transitional socialist economy.

Are Foreign Capital Inflows Necessary?

Because a properly orchestrated move to free trade presents no inherent problem of foreign exchange shortages for the Soviet Union, our parable of step-by-step trade liberalization did not discuss the role of capital inflows from abroad. Quite the contrary, the country abounds with

---

[6]The authorities don't have to reveal any exact dates on which tariffs would be discretely adjusted--thereby inviting inventory speculation. Continual adjustment by very small amounts to yield a prespecified cumulative change would be much preferred.

energy and other material inputs that are overused at home. Thus the elimination of implicit export taxes should allow exports to increase rather easily. Indeed, flooding the economy with foreign exchange by borrowing abroad could well worsen the adjustment problem. Domestic finished goods industries would face additional competition from "subsidized" manufactured imports that reduced their international competitiveness [Mckinnon 1973].

Are there circumstances where one might want to mitigate this seemingly harsh judgement against heavy reliance on foreign capital inflows to "ease" adjustment to free trade?

Unlike the Soviet Union, some of the smaller countries of Eastern Europe are not particularly rich in natural resources that are easily traded internationally. Worse, their extensive manufacturing and agricultural industries have also become addicted to cheap material inputs--particularly energy. Before 1990, at least, the close trade links among the countries of Eastern Europe simply extended the ambit of the old Stalinist industrial system. Through the trading apparatus of the CMEA (the Council for Mutual Economic Assistance), the Soviet Union sold relatively cheap energy and other material inputs to smaller Eastern European economies in return for manufactured goods of a lesser quality than those traded in Western markets. In fact, the extensive trade among the CMEA countries (Table 2), albeit largely bilateral because of the absence of a freely convertible trading currency, also included the mutual exchange of (shoddy) manufactured goods through direct bargaining by state trading agencies.

The problem for CMEA countries to then adjust to full-scale trade liberalization with the West is obvious. The smaller ones that have not much in the way of primary products (what we have been calling material

inputs) exports would find themselves with an immediate shortage of foreign exchange. First, they stand to lose the subsidies for their Soviet-produced material inputs: the willingness of the Soviet authorities to accept their manufactured products at very favorable terms of trade. Second, the syndrome of negative value-added (at world market prices) means they can't sell their manufactures, without significant improvements in product quality, to the West. In effect, they are currently producing at a point like d in Figure 1; but where the vertical axis showing material inputs now reflects actual imports--rather than potential exportables as in the Soviet case. Hence, a highly industrialized country like Czechoslovakia, where in 1988 about 80 percent of its exports went to other Socialist economies (Table 2), faces an immediate foreign exchange shortage if the CMEA trading umbrella collapses.

In a general equilibrium model based on just two highly aggregated commodities, the Stalinist system of protection under the prototypical "Soviet" case can be distinguished from the prototypical "Czech" case. In the Soviet case, exports of primary materials are heavily (albeit implicitly) taxed with the domestic government collecting the tax revenue, whereas potential imports of finished manufactures face very high (implicit) tariffs. In the Czech case, imports of material inputs such as energy are subsidized by an outside agent (the Soviet Union); and so are exports of finished manufactures subsidized[7]: first by the cheap energy inputs, and second insofar as they can be unloaded in other CMEA countries.

The distinction between these two cases is important. In the Soviet case, a natural method of easing the transition to free trade is to impose

---

[7]I am greatly indebted to Peter Kenen for suggesting this point to me.

temporary explicit tariffs on competing imports of finished manufactures--as sketched above--in order to give domestic producers of these goods time to adjust as the price of energy and material inputs increases to world levels. But that would be insufficient in the Czech case. Czech producers of finished goods need some temporary protection in their export markets when their energy subsidies are removed. And, even if such export subsidies to Czech manufactures were allowed under the GATT, they would be a big drain on the Czech government's budget. Perhaps continuing with CMEA trade for some years into the transition would be a partial solution.

However, converting the CMEA into a full fledged common market with convertible currencies and a common external tariff (in the mode of Western Europe) seems completely out of the question [Schrenk, 1990]. This is much more difficult task than reforming each socialist economy individually. Nevertheless, apart from the schema for tariff based liberalization sketched above, continuing the bilateral exchange of manufactured products through state trading agencies on an interim basis could be helpful for some years before each socialist economy is fully liberalized. Very likely, however, the net debits or credits arising out of bilateral imbalances in such trade would have to be settled in convertible Western monies--rather than inconvertible trade rubles as is presently the case[8].

In proceeding with the main task of liberalizing its foreign trade with the West, therefore, a smaller Eastern European country might well require carefully crafted bridging finance from some international agency, such as the European Bank for Reconstruction and Development set up in 1990.

---

[8]The possibilities for hardening the trade ruble, making it convertible into Western monies, are discussed in McKinnon [1979, Ch. 3].

However, the conditionality imposed by this agency for lending the money might well follow our parable sketched above and reflected in Figure 2: a discrete increase in the domestic price of energy and other material inputs to world levels coupled with conversion from implicit protection through exchange controls to an interim system of explicit protection for finished goods through tariffs or special export subsidies. At the beginning of such a liberalization with otherwise free convertibility on current account, the agency might well provide the foreign exchange necessary for, say, Czechoslovakia, to continue buying material inputs until its manufactured exports become more competitive in world markets.

But accepting official bridging finance based on strict conditionality is not tantamount to a general relaxation of controls over private capital movements. Only after the domestic capital market is fully liberalized, with unrestricted borrowing and lending at equilibrium domestic interest rates, should the socialist economy's currency be made convertible into foreign exchange on capital account. Many years hence, individuals and enterprises--including joint ventures with foreign firms--could be allowed to choose freely between domestic and foreign sources of finance. But this is the last, rather than the first, step in the optimum order of liberalization[9].

Summary of Main Conclusions

Let us now return to summarize the main results of the paper.

In a traditional centrally planned Stalinist economy, protection for

---

[9]That the international convertibility of the ruble on capital account comes last rather than first in the optimum order of economic liberalization is well recognized by Academician Abel Aganbegyan [1988] and is discussed at some length in McKinnon [1991].

domestic manufacturing is almost entirely implicit. Through exchange controls and the apparatus of state trading, disguised subsidies to users of energy and other material inputs are coupled with virtually absolute protection from competing foreign manufactures. Although no formal tariffs appear in any legal codes, the implicit structure of tariff equivalents "cascades" downward from very high levels for the domestic production of finished consumer goods through manufactured intermediate products through industrial raw materials and energy, whose production is negatively protected because of implicit export taxes (or import subsidies).

This highly cascaded structure of implicit tariffs in socialist economies raises effective protection in finished goods to the point where most manufacturing well exhibit negative (or very low) value added at world market prices. In such circumstances, a precipitate move to free trade could provoke the collapse of most domestic manufacturing industries--no matter how the exchange rate is set, and no matter that some of this industry might eventually be viable at world market prices.

Thus, reforms to make commercial policy more explicit should accompany efforts to make the currency convertible on current account. This paper suggested the simultaneous "tarification" of quantitative restrictions on competing imports and the elimination of implicit export taxes on energy and material inputs as the economy moves quickly to a market-based system. Once made explicit, the highest tariffs in the cascade can then be phased down step-by-step to zero (or a low uniform level) over a preannounced five to ten year time horizon. The newly marketized economy would then converge to free foreign trade at a more deliberate pace--one that better recognized the problem of overcoming distortions from the preexisting system of protection.

Figure 1.

Value Added and Protection in Finished Goods

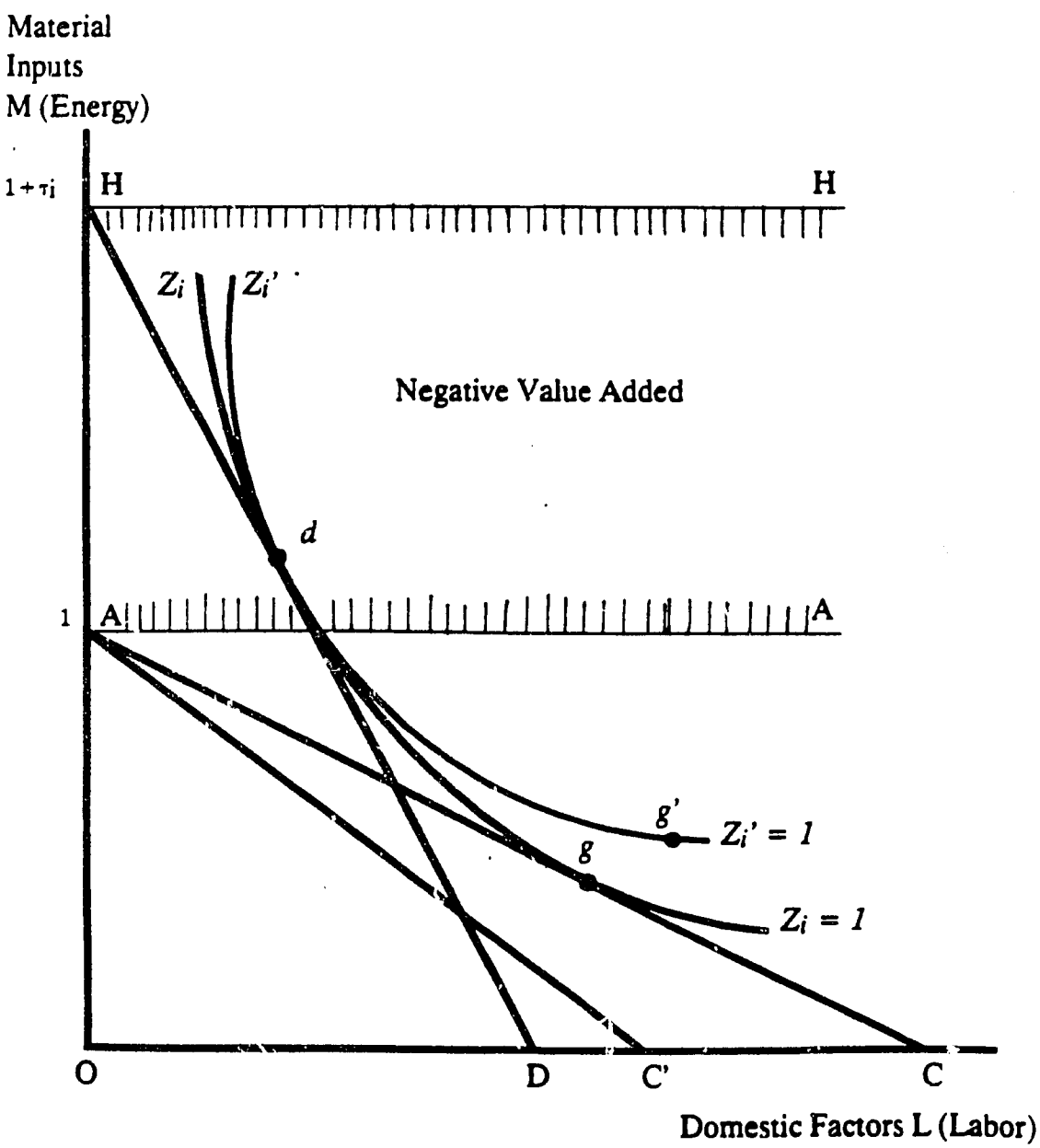

Figure 2

Interim Tariff Protection in the Transition to Free Trade

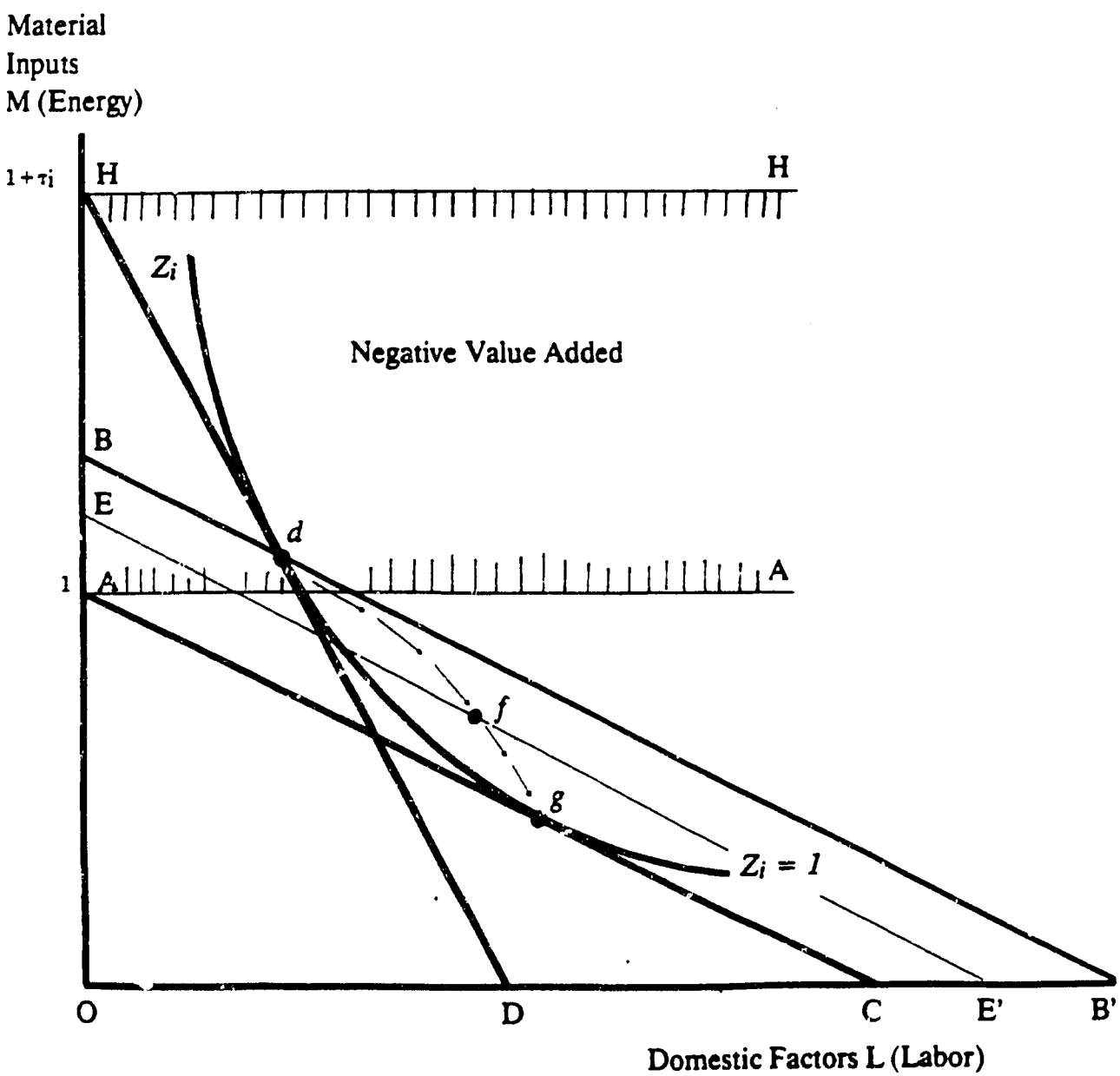

Table 1
Profile of the Chilean Tariff Reform

		Average nominal tariff rate (percentages)	Maximum nominal tariff rate (percentages)[1]
1973	July-December	94	500 +
1974	January-June	80	160
	July-December	67	140
1975	January-June	52	120
	July-December	44	90
1976	January-June	38	70
	July-December	33	60
1977	January-June	24	50
	July-December	18	35
1978	January-June	15	20
	July-December	12	15
1979	June 30 onwards	10[2]	10
1980		10	10
1981		10	10
1982		10	10

1. With a few exceptions for some (but not all) automotive vehicles. Small cars may be imported at the standard tariff rates.

2. Of the 4,301 commodities or tariff lines that are classified for customs purposes, only 12 are exempt from any duties.

Source: Central Bank of Chile

Table 2

Trade flows for the CMEA (1988)
(Percent of total exports and imports)

	Exports				
	Six[1]	USSR	Developed market economies	LDCs	Rest[2]
Bulgaria	18.1	62.8	6.4	9.1	3.6
Czechoslovakia	29.9	43.1	16.3	4.7	6.0
German Dem. Rep.	26.1	34.8	29.9	3.6	5.6
Hungary	17.0	27.6	39.5	9.9	6.0
Poland	16.2	24.5	43.3	10.2	5.8
Romania	15.8	24.0	33.7	19.0	6.5
USSR	48.9	...	21.9	14.2	15.0

	Imports				
	Six[1]	USSR	Developed market economies	LDCs	Rest[2]
Bulgaria	20.1	53.7	15.5	7.8	2.9
Czechoslovakia	32.3	40.3	18.6	3.5	5.3
German Dem. Rep.	25.3	36.8	31.8	2.7	3.4
Hungary	18.7	25.0	43.3	7.7	5.3
Poland	17.2	23.4	45.7	7.1	6.6
Romania	24.6	24.0	13.5	18.8	19.1
USSR	54.1	...	25.1	8.2	12.6

Source: Finance and Development, Sept. 1990, p.29.
Based on official statistical yearbooks of the reporting countries and UN estimates.

[1]Six: Bulgaria Czechoslovakia, German Democratic Republic, Hungary, Poland, and Romania.

[2]Rest: Rest of the world (predominantly Yugoslavia and China).

REFERENCES

Aganbegyan, Abel. 1988. The New Stage of Perestroika, Institute for East-West Security Studies, pp. 25-44.

Aslund, Anders. 1989. Gorbachev's Struggle for Economic Reform. Ithaca, New York: Cornell University Press.

Edwards, Sebastian and Alejandra Cox Edwards. 1977. Monetarism and Liberalization: The Chilean Experiment, Ballinger, Cambridge Mass.

Lerner, A.P. 1936. "The Symmetry Between Import and Export Taxes", Economica, 111, August, pp. 308-313.

Lipton, David and Jeffrey Sachs, "Creating a Market Economy in Eastern Europe: The Case of Poland", 1990, Brookings Papers on Economic Activity, 1.

McKinnon, Ronald I. 1991. The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy. Baltimore: The John Hopkins University Press. (forthcoming).

_____. 1991. "Financial Control in the Transition from Classical Socialism to a Market Economy", Journal of Economic Perspectives, (forthcoming).

_____. 1979. Money in International Exchange; The Convertible Currency System. New York: Oxford University Press.

_____. 1973. Money and Capital in Economic Development. Washington, D.C.: Brookings Institution.

_____. 1966. "Intermediate Products and Differential Tariffs: A Generalization of Lerner's Symmetry Theorem", Quarterly Journal of Economics, vol. 80, November pp. 584-615.

Schrenk, Martin. 1990. "Whither Comecon?", Finance and Development, Sept.

Shmelev, Nikolai and Vladimir Popov. 1989. The Turning Point: Revitalizing the Soviet Economy. New York: Doubleday.

Tan, Augustine. 1970. "Differential Tariffs, Negative Value-Added and the Theory of Effective Protection", American Economic Review vol.60 (1) March.

The Economist. 1990."Industrial Concentration in the USSR," August 11-17,p 67.

Williamson, John. 1991. "Convertibility, Trade Policy, and the Payments Constraint", in J. Williamson ed. Currency Convertibility in Eastern Europe, Institute for International Economics, (forthcoming).