The work leading to this report was supported in whole or in part from funds provided by the National Council for Soviet and East European Research.
Executive Summary

Chapter 1

The US and USSR have not traded very extensively with each other in the postwar period, largely for political reasons. On the one hand, US lead in Cold War policies has caused this nation to claim much less than its fair share of East-West trade; on the other hand, Soviet use of mutual trade and investment as one of the devices to tie the Warsaw Pact nations closer together has operated to keep East-West trade far below its optimum levels.

As a first approximation regarding the possibilities of US-Soviet trade, it is useful to view the two nations in terms of comparative advantage theory, particularly as revealed by relative factor proportions. Basically, the USSR has a larger labor force, more land under cultivation, and approximately the same capital stock. Studies which have been made, however, show that the US labor force is better trained, its capital stock of better quality as well as technologically superior, its land of better quality, and climate hospitable. Because the USSR has a much larger labor force and the same amount of capital (of lower quality), US industry and agriculture are both much more capital intensive and labor productivity much higher. These aggregative data suggest that our major advantage vis a vis the Russians lies in capital- and technology-intensive products. Their advantage falling in labor- and resource-intensive products. While it is obviously the case that we have an advantage in capital-intensive industry, disaggregation into specific industries reveals a number of specific products in which they nevertheless have an advantage relative to us.

Military and political, rather than economic, factors dictate much of trade, of course. For example, the disaggregated data suggest that Russian agriculture is very high cost and that under normal circumstances, it would be wise for that nation to withdraw resources from agriculture and rely more heavily on imports. In fact, of course, the opposite is true--the USSR has been committing enormous investment to agriculture in a serious effort to be as self-sufficient as possible.

Another approach to potential US-Soviet trade is to examine the actual trade between the two nations and to speculate on the extent to which trade in particular might be expanded. An examination of these products suggests considerable room for expansion. Machinery and cereals, for example, are two American exports which might be imported on a much larger scale by the USSR; the US, on the other hand, could well import from the USSR considerably more wood, lumber, cork, petroleum, and non-ferrous metals. It is possible to adjust across the board for the fact that the US trade with the USSR is less than it would be in the absence of discriminatory controls by making the assumption that US share of Soviet trade in different products should be equal to its share in the exports (or imports) of these same products by 14 leading industrial nations to the rest of the world. Calculations along these lines suggest the US-Soviet trade could easily be doubled under more normal circumstances.

Four major possibilities for increased trade, should political conditions normalize, are discussed in some detail. These are US exports of grain and of advanced technology (in various forms) to the USSR and imports of Soviet petroleum and natural gas.

There is a fairly current belief that the USSR stands to make very substantial gains from trade with the West--much greater than those of its trading partners. The various sources of possible gains from trade are explored: increases in efficiency
stimulated by foreign competition; static gains represented in ordinary purchases and sales; dynamic gains—growth from trade-acquired technology; and gains from credits which increase possible investment. It turns out upon close examination that the USSR gains relatively little from trade and credit both in aggregate and per unit of trade. This is also true of the United States, of course. These findings have important implications for those who would use trade with the USSR as leverage on political issues. It is also demonstrated, contrary to views held by many, that while the USSR has a monopoly of its own foreign trade, it is not capable of exerting much monopolistic or monopsonistic power in world markets for purposes of extracting large profits.
Executive Summary

Chapter 2

While the USSR borrowed from the West in the 'thirties and during World War II (Lend-Lease), it borrowed very little for the first 25 years following World War II. Large scale borrowing after 1970 accompanied the rapid increase in East-West trade generated by détente. As of December 1978, the hard currency debt stood at roughly $18 billion and approximately 30 percent of Soviet hard currency export earnings were required to service annual interest and amortization payments. Most of the debt was owed other NATO nations because of US restrictive policies regarding loans to the USSR.

Why the debt buildup? The major Soviet weakness lies in its inability to produce quality manufactured goods and products embodying advanced technology. Further, their type of system puts little or no emphasis on marketing, packaging, servicing, and many other factors necessary to competitiveness in the international market. The result is an inability to export as well as an increased desire to import manufactured products. The deficits were exacerbated by the western recessions which began in 1974. The recessions reduced western demand for imports particularly from the communist world and the communist nations were unable or unwilling to cut back imports immediately to match the decline in exports. A further hard currency drain developed as a result of an inordinately large number of poor grain harvests in the seventies. The Soviet situation would have been much worse than it was had it not been for a sharp rise in the prices of gold, petroleum and other raw materials.

In attempting to assess the creditworthiness of the USSR, it seemed reasonable to divide the question into two parts. If the USSR had to service or repay a hard currency debt, the first question is whether it would be difficult to generate a sufficient amount of domestic savings to free the necessary goods for export. For many LDCs, for example, this so-called "savings gap" presents grave difficulties. A nation with a per capita GNP of $500 may find it very difficult to spend 5 percent or more of that amount every year financing an external debt—and this is not an uncommon percentage. For the USSR with its relatively small hard currency trade and relatively large per capita GNP, the savings gap turns out to be trivial—less than 1/2% of GNP.

The second part of the question is, once having generated the savings, and the exportables they represent, can one sell them for hard currency, i.e. is it difficult to close the foreign exchange or trade gap? So far the Soviets have shown themselves fairly capable of doing so by exporting petroleum (one-half of hard currency receipts in the late 1970's) as well as by selling increasing amounts of gold. The long-run prospects for petroleum, however, are poor and, if predictions are accurate, very little if any hard currency will be available from that source within a few years. Why not divert oil exports away from Eastern Europe and to the West where it will earn hard currency and much higher prices? This would save the situation for awhile but it seems politically infeasible. Certainly relatively cheap and stable supplies of raw materials are among the major advantages to the nations of Eastern Europe of being tied to Comecon and especially to the USSR. A western nation with such a foreign exchange gap would, among other things, devalue its currency in order to sell more manufactured products. Communist currencies are totally inconvertible and devaluation has no impact on trade. They can, of course, lower prices of exports simulating devaluation on the export side. The USSR has done this but with limited success in increasing exports of manufactured products and at the cost of considerable foreign exchange because of lower prices. This leaves the USSR and other Eastern nations no alternative but to rely on import controls when necessary to reduce deficits. This was clearly the major strategy during the 1975-77 period. The USSR succeeded in reducing its deficit substantially, Eastern Europe...
was less successful. Probably the major reason for the difference was that the development plans of the Eastern European nations were more dependent on imports from the West and this made it more difficult for them to cut back imports quickly.

Other devices have been tried to relieve the currency problem. Attempts have been made to get western banks and exporters to hold transferable rubles, the Comecon currency. The conditions for making these rubles convertible do not exist and the attempt was a total failure. Another device is to encourage western enterprises to accept repayment in kind - known as countertrade or compensation agreements. These have been moderately successful in the sense that a fairly significant portion of US-Soviet trade is on such terms (pepsicola for vodka, anhydrous ammonia for phosphates, etc.) They cannot, however, be viewed as a net gain since the transactions could often be made on a straight currency basis which would be much more convenient for everyone concerned. Further, many of these transactions are foundering on the difficulties which the western partner is finding in marketing the products he's agreed to take in payment (Oxidental Petroleum's anhydrous ammonia imports).

It is highly probable that if the USSR had had a capital market and allowed equity capital to flow in, that considerable funds would have so moved. Just the fact that there is no "project" risk, alone, very significantly reduces the deterrence to capital inflow. While some of the Eastern European nations have begun to relax the barriers to the inflow of equity capital, Soviet ideological barriers remain very rigid thereby cutting off this potentiality for balance of payments relief.

Despite the moderately pessimistic scenario described above, the USSR should not be viewed as a bad credit risk. The nation's debt service ratio is still small by present day standards, its resources enormous, and its governmental economic controls almost unparalleled.
Chapter 1
US-USSR Trade Potential and Gains from Trade

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Chapter 1

US-USSR Trade Potential and Gains from Trade

In this chapter, an attempt is made to gauge US-Soviet trade potential and also the mutual gains from trade. It is impossible to do a definitive study of these related subjects because the relevant economic theory is not perfectly quantifiable and also because one would need, in any case, much more data than are available. Nevertheless, it is helpful and useful, in trying to think about trade between these two nations, to have a simple sketch of the relevant theory and to try to apply that theory to the case at hand. We have also resorted to hypothetical calculations based on what appear to be reasonable estimates of some of the variables involved, to come up with ballpark approximations of gains from trade. Finally, we have pulled together data and empirical estimates by others in an effort to put realism into the analysis.

1. Comparative Advantage Theory

The maximum trade potential between 2 nations finally resolves down to the question of which and how many products each can produce and sell cheaper than the other nation. That is to say, in which products does each have a comparative advantage or disadvantage. The "maximum" is, of course, sharply reduced when the trade contributions of the rest of the world are introduced.

The determinants of comparative advantage are many. The most commonly-cited theory of comparative advantage is the factor proportions or Heckscher-Ohlin theory. According to this theory, different commodities require different proportions of basic factors of production--land, labor, and capital--and different nations have these factors in different proportions. Those commodities requiring relatively large amounts of labor will be produced more
cheaply by countries with a relatively large labor supply; analogously with commodities requiring large amounts of land and capital, respectively. A good deal of foreign trade is consistent with this theory. It is particularly obvious in the case of nations which have (or lack) rich natural resources. One hardly need explain why the Middle East exports petroleum and Canada and Australia food; equally obvious are British imports of food, cotton, and petroleum. It is worth noting here that climate and location can be viewed as part of natural resources and determining of comparative advantage or disadvantage in some products.

Despite its seemingly obvious truth, a famous study by Wassily Leontief concluded that U.S. trade was not entirely consistent with the Heckscher-Ohlin factor proportions theory. As a result of this so-called Leontief Paradox, the nature of trade flows has been subjected to much further probing over the past two decades. The result has been that trade flows have been shown to be the result not of any single determinant like factor proportions but of many different economic causes, not all of which apply to the trade of each specific country.

In some studies, the labor forces of nations have been broken down into skill categories. It is shown that those nations which have large numbers of highly skilled workers and professional personnel tend to export products which embody the efforts of this segment of the labor force. On the other hand, the exports of nations with lots of unskilled labor reflect this fact. With imports it is just the reverse. Analogously, exports (and imports) of nations reflect the kinds and levels of technology which they possess. Nations which are on the technological forefront have a comparative advantage in newer products as a result of their monopolistic position. Even-
ually, the monopoly is eroded as other nations copy or license the new technology. Related to technology, it has been shown for the United States, for example, that among manufacturing industries, US exports are most successful in those products in which R&D expenditures are relatively large.

Trade among advanced industrial nations tends to deviate most from the simple factor proportions view of comparative advantage. Since many of these nations are approximately equal in factor endowment, endowment as such is not decisive. Much more important are differences in costs due to the differential degree to which economies of scale exist. In effect, one might even say that economies of scale based on international specialization often determine comparative advantage and trade flows. Which nation has economies of scale in which products may be largely a matter of historical chance rather than of any special capacity. Or specialization may be based on tastes. So in the postwar period, Europe produced small cars and the U.S. large cars and foreign trade took care of those with deviant tastes in their own countries.

Simple factor proportions is what might be called a supply based theory. In order to round it out, demand factors must be taken into account. So, for example, looking just at "supply" one might argue that the US has a comparative advantage in petroleum production and should be an exporter. This was, in fact, the case for at least a half century. In recent history, however, our domestic demand has increased so rapidly that we are now a net importer. The same may soon be true, also, of the U.S.S.R. So, it is not enough to produce something relatively cheaply to be an exporter— one must also be able, in the first instance, to supply one's own requirements, and then have something left over to export.
The factors mentioned so far are the forces which have tended to determine the flows of goods and services in world trade. Financial flows must also be accounted for, of course, particularly capital flows. A few brief remarks. First, investors will put their funds in a foreign country if the returns (profits, interest rates), after additional risks, are higher than at home. Such capital flows often accompany and are used in part to finance imports of technology, equipment, and management. On the other hand, much capital flow--so-called portfolio investment--is purely financial, not specifically related to the actual operation of enterprises in other nations, but rather to shorter-run factors connected with size of dividends, risk factors connected with political and economic stability, fears of devaluation, and so forth. Finally, capital (and reserves) also flow from surplus to deficit nations simply to finance trade imbalances.

The factors which have been mentioned above all tend to apply to communist as well as to capitalist nations. The structure of trade of communist nations is determined in part by relative proportions of factors, labor force skills, availability of natural resources, tastes, and so forth. Trade flows of these nations are also affected, however, by the very nature of central planning itself and by political factors relating to the formation of the CMEA bloc.

Let me describe the impact of political factors first. Political factors affect the trade of all nations, of course, but not quite as dramatically as in the case of the CMEA nations. The major impact of politics on CMEA trade was to redirect it from its former channels, mostly with Western Europe, to an overwhelming concentration of trade with each other. While roughly only 15 percent of the present CMEA nations' trade was with
each other before World War II, this percentage had risen to approximately 75 percent by the early 1950's. The shift was due in large part, of course, to the Cold War. In particular, led by the U.S., a whole string of western export and credit restrictions were introduced which sharply reduced East-West trade from the Western side. At the same time the Soviet Union, in order to gain greater political and economic control over its newly acquired "Bloc," was largely responsible for the diminution of East-West trade on the Eastern side.

What were the implications of this shift for the commodity structure of trade and for specialization? The major implication was that each CMEA nation now had to obtain from other CMEA nations or produce for itself many products which formerly had been imported from Western Europe, the United States and other nations. This shift was relatively easy, initially, for the USSR because of its relative economic isolation in the last half of the 1930's but was much more difficult for the smaller nations of Eastern Europe. The result was that all of the smaller eastern nations attempted to and did become more self-sufficient than they had been in the past. This was evidenced by the considerably smaller trade to GNP ratios which characterized their economies particularly in the first decade after World War II. Further, all nations including the USSR adapted themselves to meet each others' needs to the extent that this was possible. Czechoslovakia, for example, which had not particularly specialized in exporting machinery and equipment in the interwar period, began to produce a very wide variety of such products in order to meet the requirements of the
USSR. The USSR, for its part, exported machinery and equipment to less developed nations of the Bloc. Primarily, however, the USSR took over the role of major raw material and grain supplier to most of the other CMEA nations. The USSR has never relished these roles, particularly that of raw material supplier. In the early years, its reluctance was due to the fact that expansion of output to meet CMEA needs required major capital-intensive investments in a period when capital was scarce and needed to achieve domestic goals. More recently, as is well-known, the rise in world prices of raw materials, particularly of petroleum and natural gas, has sharply increased the cost in hard currency earnings to the USSR of continuing to be the major bloc supplier. Supplying grain to CMEA has also become costly in hard currency terms to the USSR as rising internal demands plus a series of bad crops has involved substantial and continuous imports from the West.

The impact of central planning on trade flows has been just as profound as the political forces mentioned. Further, whereas the political factors tend to distort trade from its most profitable channels as indicated by comparative advantage, central planning by direct controls has had the effect of changing comparative advantage itself. The ways in which this has happened were suggested in chapter 3. Reference is made to the relatively poor quality of CMEA manufactured products and to difficulties experienced in developing and diffusing new technologies. Given their levels of development, the more advanced of the CMEA nations should be producing higher quality manufactured products and should be developing and diffusing new technologies at a more rapid pace. They have the capacity to do it. The USSR has proved, many times, in the military and aerospace industries, that it can keep up with the best in the world. Many other instances of excellence and superiority can be cited (e.g. ferrous metallurgy, medical instruments, high voltage power transmission).
Further, R&D expenditures in the Bloc nations are at high levels. Yet on an overall basis, performance is lacking. Soviet factories undoubtedly produce most products as cheaply and efficiently as western factories. Price does not appear to be a problem. Yet the products are, for the most part, of poorer quality! Not only poorer quality, per se, but poorer servicing, packaging, advertising, adaptation to consumer special requirements, and the like. In the broadest sense, these deficiencies undoubtedly stem from the fact that production takes place in a non-competitive environment. This environment is due, in turn, to the facts that products are "distributed" by plan rather than "sold" and to the sellers' markets which predominate for most products. Problems relating to obsolescent technology similarly have their genesis in the organization of planning. Two major factors can be cited. First, plant managers have little incentive to introduce new technology because of prevalent structure of rewards. Second, the link between the R&D organizations and producing units is very tenuous.

What implications do these factors have for comparative advantage and for trade? As noted earlier, a large part of the trade of more advanced nations results from specialization in manufactured products. Such specialization may be either interindustrial (trucks for chemical fertilizers) or intra-industrial (small cars for large cars). As noted, almost three-fourths of the intra-trade of advanced western nations is of this type. A similar percentage of intra-CMEA trade is in manufactured products. However, the operation of this form of comparative advantage is to a considerable extent thwarted in East-West trade although a certain amount of such trade does, of course, take place. Western consumers (users) do wear Soviet watches, use Soviet tractors, employ Soviet technology in the production of steel, use Soviet technology in hospital operating rooms, and so forth. Nevertheless, the flow is relatively one-sided. The
flow should, of course, be somewhat one-sided especially in technology because
the most advanced western nations are more advanced than any of the CMEA na-
tions. Further, technology is not an activity in which any nation is likely
to be close to self-sufficient—as is almost possible in resources. Since the
advanced western nations represent a larger aggregation of technology-develop-
iers than the eastern, a net flow of technology from west to east would occur
even in the event that all other things were equal.

So, the situation is one in which the CMEA nations are capable of produ-
cing high quality manufactured products and of developing their fair share
of new technology—but do not for systemic reasons. The absence of a compe-
titive milieu leaves them with less than the usual incentives to "sell," im-
prove quality, package, service, improve and diffuse technology, and so forth.
Comparative advantage theory is usually couched in terms of "costs" since com-
parative costs have usually been the crucial variable in determining trade
flows with the operation of other factors (marketing, servicing, etc.) not
distributed among nations in any particularly systematic or biased way. The
centrally planned economies, however, are an exception to this general assump-
tion. They have a systemic and systematic comparative disadvantage in many
of the non-cost dimensions (noted above) of products traded among nations. As
a result, in East-West trade the flow of manufactured goods and of technology
is primarily from West to East. Another consequence, (only partly attributable
to this factor), is the persistent deficit (or pressures for a deficit) experi-
enced by the Eastern nations in East-West trade. Unable to devalue their cur-
rencies to get into "equilibrium," they continue to try to trade at world terms
of trade and without success.

Under the circumstances described just above and in chapter 3, western
theory would ordinarily predict that there would be substantial capital flows
from west to east—including both direct and portfolio investment and, in addition, flow to accommodate the balance of payments pressures which exist. Such capital flows have developed. However, they have been seriously impeded by systemic factors. Direct investment, per se, is actually forbidden in all of the CMEA nations, of course. That is to say, no western investor can have a controlling share of ownership in a CMEA enterprise. In fact, it is only possible for a western investor to hold equity at all in Romania and Hungary, and in these nations the equity is limited to 49 percent. Further, until this time (1980), almost no instances of equity—i.e., true joint ventures—have been allowed. This legal-ideological impediment has not been absolute, however. Interest on both sides has led to types of accommodation which in effect has permitted the equivalent of western direct investments without true equity. As a substitute for equity, the communist nations have contractually guaranteed western partners shares in profits, management control, and other rights which normally inhere in ownership. The same factors which impede direct investment, impede portfolio investment as well. While controlling ownership in a communist enterprise is absolutely forbidden, there is very little opportunity for western investors to acquire any equity in the nationalized enterprises of the East. Basically, there are virtually no financial markets at all in these nations in which western investors might put funds if they so desired.

Two other factors which have reduced capital flows from West to East should be mentioned. First, 25 years of cold war prevented most western investors from even considering the possibility of investing in the East. This impediment was compounded, of course, by the antipathy of communist nations to private enterprise. Second, the eastern hard currency shortages and currency inconvertibilities raised serious questions regarding the ability of
these nations to repay loans (see chapters 5 and 6). It is because of this situation that repayments on loans and investments are often arranged in commodities rather than in monetary form. This type of "barter over time" may ameliorate the situation but certainly does not eliminate its negative effects on capital flows.

2. US-USSR Factor Proportions

Some of the major economic and systemic factors determining international trade and investment flows have been outlined above. Let us turn to the data to see what, if anything, is revealed.

While, as noted above, overall factor proportions (labor, capital, natural resources) do not determine the specific nature of trade, they are nevertheless worth examining. Table 4.1 contains comparisons between the two nations for 1975. Appendix Tables 4.1 and 4.2 contain data put together by Professor A. Bergson for 1960 which include some comparisons not attempted here for 1975.

The data for 1975 show that the USSR has a larger population and more land than, but a capital stock similar in size to that of the United States. The larger Soviet population actually results in a relatively even larger labor force since a larger proportion of the population works in the USSR (53.5%) than in the U.S. (44.3%). On the other hand, in terms of educational equivalents, 1960 estimates (Appendix Table 4.1) show that the US labor force was better trained and, therefore, probably more effective. The difference in training, however, was not adequate to offset the much greater size of the Soviet labor force. The quality of Soviet cultivable land is also below that of American land (Appendix Table 4.1). The difference here is more substantial than in the case of labor and the result was that while the USSR had 53 percent more actual land in cultivation than the US in 1960, in terms of equivalent
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<th>USSR</th>
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<tr>
<td>Population (mns)</td>
<td>254</td>
<td>214</td>
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<tr>
<td>Labor force (mns)</td>
<td>136</td>
<td>95</td>
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</tr>
<tr>
<td>Labor force/population</td>
<td>.535</td>
<td>.443</td>
<td>1.21</td>
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<tr>
<td>Farm labor force (mns)</td>
<td>241</td>
<td>3</td>
<td>8.0</td>
</tr>
<tr>
<td>Cultivated land (mns acres)</td>
<td>555</td>
<td>351</td>
<td>1.58 (for 1974)</td>
</tr>
<tr>
<td>Cultivated acres per worker</td>
<td>23.1</td>
<td>117</td>
<td>0.20</td>
</tr>
<tr>
<td>Net fixed reproducible capital</td>
<td>--</td>
<td>--</td>
<td>0.98-1.1^2</td>
</tr>
<tr>
<td>Capital per member of labor force</td>
<td>--</td>
<td>--</td>
<td>0.68-0.77^2</td>
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Farm labor: USSR - Narodnoe khoz.- 60 let, p. 376.

Cultivated land: USSR - Johnson, p. 10.
US - Carey, p. 578.
US - derived from other two.

Capital: Extrapolated from Bergson's ratio in Appendix Table 4.1.
US extrapolation based on Statistical Abstract, 1972, p. 337,

^1 Soviet farm labor force includes workers on state and collective farms but excludes private farmers.

^2 For explanation of range, see Note 2 to Appendix Table 4.1. Because the extrapolations are based on dollar estimates for both the US and USSR, both ratios are probably too high.
units, that land was estimated to be only 77 percent of the American total. Presumably, this same situation holds for 1975. The lower value of Soviet land for cultivation is due to poorer soil quality and climate (colder, shorter growing seasons, less precipitation). These various factors may be partly responsible for the fact that Soviet agriculture is much more labor-intensive than American with 5 times as many workers per acre—or more if private Soviet farmers are taken into account.

Surprisingly, as of 1975, the USSR is estimated to have had a capital stock of approximately the same size as that of the United States, although as pointed out in Table 4.1, note (2) this may be partly a statistical illusion. However, it can't be too far off because, since 1960, at which time the Soviet capital stock was roughly 40% of ours, they have been investing over 30% of their GNP whereas our investment rate has been less than 15 percent. However, even if the Soviet capital stock is as large as ours, it is, in effect, "relatively" smaller since it is spread among a larger labor force and therefore each Soviet worker has considerably less capital to work with than his American counterpart (Table 4.1). Undoubtedly American superiority here is even greater than suggested by these estimates because of the much higher quality and technology embodied in much American capital. The quality differentials in all factors—land, labor and capital—are suggested in the 1960 data where the USSR requires from 1.70 to 3.05 times as many inputs per unit of output as the US (Appendix Table 4.2).

What do these factor proportions suggest regarding US-USSR trade opportunities. Primarily that the US should have a comparative advantage in products which are capital-intensively produced whereas the USSR should have a comparative advantage in those which require labor-intensive production. With more "effective" units of land under cultivation and a smaller population,
the United States can be deduced to also have an advantage in food production or at least a greater surplus for export. This does not necessarily mean that the USSR will import food from the United States (which it has in fact been doing recently). Viewed in a multilateral context, the USSR could have a comparative advantage in food production vis-à-vis much of the rest of the world and, in normal years, be a net exporter of such products (but see below).

Before going further, one might well question whether or not it is at all reasonable to expect centrally planned economies to conduct their foreign trade according to economic principles (like the Heckscher-Ohlin theory) derived from theories regarding the behavior of market economies. This question has particular force in light of the fact, noted earlier, that US foreign trade does not even conform to a simple Heckscher-Ohlin formulation. Fortunately, an empirical study of postwar Soviet foreign trade designed to answer this very question was conducted by Steven Rosefield (1974). He found that Soviet foreign trade largely conformed to Heckscher-Ohlin predictions. For example, for the period 1955-1968, Rosefield found that Soviet capital/labor ratios in exports were lower than those in imports in trade with advanced western nations and higher in trade with the LDC's. That is to say, exports were relatively capital-intensive and imports labor-intensive with the LDC's and just the reverse with the advanced industrial nations. (Export and import capital/labor ratios with CMEA, on the other hand, were about equal.) Similar results were achieved on a country-by-country basis. Assuming that as per capita income rises, a nation's capital/labor ratio rises, Rosefield ranked the USSR's trade partners by per capita income. He found that with nations having a higher per capita income, the USSR tended to import capital-intensively and export labor-intensively, the reverse holding true for trade with nations having lower per capita incomes whether capitalist or communist.
Rosefielde's results seem a little hard to square with the discussion in chapter 3 of the irrationality of Soviet prices. How, given these prices, could the USSR possibly choose the right products to export and import. The fact is that domestic prices have not been relied on in making foreign trade choices. A study by the present writer (Holzman, 1974, chapter 10) demonstrated, that, often products have been imported at much higher than the domestic prices, and others have been exported at great apparent losses. In fact, the planners realize that their domestic prices are not rational and often make special calculations or notional adjustments to these prices in an effort to determine true import and export profitability. Apparently, these efforts are at least partially successful.

The upshot of Rosefielde's study, then, is that despite the extensive micro-irrationality of the Soviet price system and its economy, its commodity pattern of foreign trade nevertheless seems to have a basic macro-rationality in the sense of the Heckscher-Ohlin theory. This still does not necessarily preclude micro-irrationality in foreign trade. So, for example, while the Soviet Union should be and is exporting capital-intensive products to the LDCs, they may be exporting products in which they are inefficient producers (for reasons other than factor-proportions) and from which little or no gain is extracted. Macro-rationality, then, is consistent with either micro-rationality or micro-irrationality in foreign trade.

Assuming macro-rationality in trade, what can be said about potential trade between the US and USSR? Perhaps the only obvious conclusions are that the US has a comparative advantage in land, capital, and technology-intensive products whereas the USSR has a comparative advantage in labor- and resource-intensive products. Our statement regarding technology- and resource-intensive advantages is based, of course, not on the data presented above but on the
very generally accepted view that, with the exception of a few industries, the United States is far ahead of the USSR technologically; and the equally obvious fact that the USSR is much richer, relative to its domestic requirements, than the US in natural resources.

Studies by both Soviet and US economists of ruble-dollar ratios to some extent support the conclusions just mentioned above, and also reveal a wide range of trade possibilities at the less aggregative level. Ruble-dollar ratios are based on price comparisons in the two countries. Suppose, for example, that the prices of comparable automobiles were $4000 and 8000 rubles and that prices of comparable caviar were $6 and 2 rubles. The ruble-dollar ratios for automobiles and caviar would be 2 and .33, respectively. That is to say, in the case of automobiles, it takes 2 rubles to buy as much as $1 whereas in the case of caviar, 1 ruble buys as much as $3. Clearly, the US has a comparative advantage in automobiles and disadvantage in caviar whereas the reverse is true for the USSR. (We assume, of course, that Soviet (and US) prices properly reflect the cost of resources in each nation, an assumption which may well not be very accurate for the USSR.) Suppose one had ruble-dollar ratios for all potential tradeables and computed a weighted average of these. The average ruble-dollar ratio would represent a kind of purchasing power parity of the two currencies and, under stringent assumptions (like no capital flows), this could be assumed to be roughly equivalent to an equilibrium exchange rate. Under these circumstances, products with ruble-dollar ratios below (above) the average would be ones in which the USSR has a comparative advantage (disadvantage) vis à vis the U.S.

Table 4.2 presents the results of some Soviet studies of ruble-dollar ratios for 1963. The main Soviet comparative advantages appear to be in glass, ferrous metallurgy, machine building and metal working, and fuels.
Table 4.2
Soviet Calculated Ruble-Dollar Ratios, 1963

<table>
<thead>
<tr>
<th>Industry</th>
<th>Soviet Weights</th>
<th>US Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous metallurgy</td>
<td>.56</td>
<td>.57</td>
</tr>
<tr>
<td>Fuels</td>
<td>.65</td>
<td>.50</td>
</tr>
<tr>
<td>Electric power</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Machine-building and metalworking</td>
<td>.57</td>
<td>.67</td>
</tr>
<tr>
<td>Chemical industry</td>
<td>.84</td>
<td>.99</td>
</tr>
<tr>
<td>Woodworking and paper</td>
<td>.88</td>
<td>1.16</td>
</tr>
<tr>
<td>Construction materials</td>
<td>.80</td>
<td>.86</td>
</tr>
<tr>
<td>Glass industry</td>
<td>.48</td>
<td>.53</td>
</tr>
<tr>
<td>Light industry</td>
<td>1.48</td>
<td>1.51</td>
</tr>
<tr>
<td>Food industry</td>
<td>.90</td>
<td>1.00</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1.49 - 1.83</td>
<td>1.75 - 2.38</td>
</tr>
<tr>
<td>Oil refining</td>
<td>.66</td>
<td>.66</td>
</tr>
</tbody>
</table>

Comparative disadvantages are revealed in agriculture, light and food industries and electric power.

Further disaggregation produces even a wider range of ruble-dollar ratios as revealed in Table 4.3 which summarizes Becker's study of producer durables for the year 1955. This study, which covered over five hundred producer durables, shows a range which varies at the extreme from .03 to 2.41 and which averages 0.69. Undoubtedly some of these ratios are now out of date. For example, it appears highly probable that considering the Soviet import of technology and much larger scale of operation today than in 1955, that the ruble-dollar ratio in motor vehicles is presently much lower (less disadvantageous) than it was then. Nevertheless the wide range for the group as a whole undoubtedly still exists. Given such a wide range with some products two and three times the average and others one-half to one-third the average, there is undoubtedly considerable potential for US-USSR trade. This statement must be modified, of course, for the fact that either nation may export (or import) obvious tradeables to (from) third nations rather than each other. Further, as we have already noted, the USSR may be able to produce products cheaper than western competitors but still not be able to export them to the West because of many non-price factors which reduce sale-ability.

To return for a moment to Table 4.2, it is interesting to note that as of the early 1960's to which the data apply, the USSR was a net exporter of agricultural products (with the exception of drought years like 1962-63) and of electric power. This must be viewed as motivated largely by political-military rather than economic factors. Clearly, it would have been cheaper particularly in the case of agriculture, for the USSR to have imported from the West. However, the export of grain and power to the other CMEA nations,
Table 4.3

Ruble/Dollar Ratios for Producer Durables, 1955

<table>
<thead>
<tr>
<th>Category</th>
<th>Weighted Average</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam engines and turbines</td>
<td>.15</td>
<td>.06</td>
</tr>
<tr>
<td>Internal combustion engines</td>
<td>1.09</td>
<td>.42</td>
</tr>
<tr>
<td>Tractors</td>
<td>1.09</td>
<td></td>
</tr>
<tr>
<td>Farm Machinery</td>
<td>.47</td>
<td>.2</td>
</tr>
<tr>
<td>Construction, mining and oil field machinery</td>
<td>.38</td>
<td>.05</td>
</tr>
<tr>
<td>Metalworking machinery</td>
<td>.37</td>
<td>.12</td>
</tr>
<tr>
<td>Special industry machinery</td>
<td>.26</td>
<td>.05</td>
</tr>
<tr>
<td>General industrial machinery</td>
<td>.37</td>
<td>.03</td>
</tr>
<tr>
<td>Electrical industrial apparatus</td>
<td>.28</td>
<td>.03</td>
</tr>
<tr>
<td>Communication and X-Ray Equipment</td>
<td>1.81</td>
<td>.24</td>
</tr>
<tr>
<td>Motor vehicles</td>
<td>.86</td>
<td>.34</td>
</tr>
<tr>
<td>RR equipment</td>
<td>.48</td>
<td>.17</td>
</tr>
<tr>
<td>Professional and Scientific equipment</td>
<td>.38</td>
<td>.07</td>
</tr>
<tr>
<td>All</td>
<td>.69</td>
<td>.03</td>
</tr>
<tr>
<td>All excl. 1 type in Communication and X-Ray</td>
<td>.57</td>
<td></td>
</tr>
</tbody>
</table>


Note: These ratios were reduced to one-tenth of those calculated by Becker for comparability with the data in Table 4.2. This was done to take account of the Soviet price reform in Jan. 1961 which reduced all prices to 10 percent of their previous levels.
not to mention independence from the West, in these areas was important for political and military reasons if costly and uneconomical. On the other hand, the USSR is an exporter of fuels and of ferrous metallurgical products and an importer of chemical products—thereby following the dictates of comparative advantage.

One might wonder why there should be such large discrepancies in ruble-dollar ratios within, say, the area of producer durables? Why should the relative abilities of the two nations to produce various products have differed so greatly from product to product? Two major possible explanations have been offered. First, while US technology typically is more advanced than Soviet, the difference between the nations will vary from commodity to commodity. These differences may be partly random but also partly related to Soviet policies. For example, the ruble-dollar ratio in 1955 was .11 for electrical control apparatus (not shown in Tables 4.2 and 4.3) but close to 1.5 for products of light industry. Undoubtedly, the relatively low ratio for the former reflects in part the priority accorded by the Soviet Government to defense- and growth-related industries whereas the high ratio for light industry products reflects the lack of priority accorded to consumer goods (Boretsky, p. 203). Second, ratios will differ as a result of different scale of operation in different industries (Becker, pp. 47-48). A gross example of this is in motor vehicles where, in 1955, US output exceeded Soviet output dozens of times over and whereas US vehicles were undoubtedly being produced at a very efficient scale, this could not have been true of Soviet vehicles. Differences in technology also probably played a role in this industry. With other products, the USSR may produce on a larger and more efficient scale. This is certainly true of many types of machine tools and may be responsible for the relatively favorable (low) ruble-dollar ratio
in "machine-building and metal working" (Table 4.2).

Relative prices as dictated by factor endowments, scale of operation, technology, and so forth suggest many possibilities for mutual trade between the US and USSR. Differences in technological levels also provide a basis for future trade, particularly exports by the United States, which cannot be documented in terms of product prices. As noted, the USSR is technologically behind the US and other advanced western nations in most industries. Prices of "technology," however defined or traded, are usually unique and not comparable as are prices of ordinary goods and services which comprise the bulk of world trade. Are there indicators which would enable one to predict flows of technology between the US and USSR in the way that differential product prices suggest possible flows of goods? Several possibilities suggest themselves. The most obvious one is that, all other things equal, the purchase of technology will have the greatest impact in those industries in which the USSR lag is greatest. All other things are not equal, of course, and it is not clear that the gains from overcoming technological lag are proportional to the length of the lag. In part, the relationship between gain and lag would depend on how lag were defined. (Lag might be defined in terms of gain.)

The gain from new technology will also depend on the price which has to be paid for it. Pricing the technology is sufficiently idiosyncratic that a large potential gain may be offset if a seller's reservation price is very high. Still another factor which has to be taken into account is the ability of the purchasing nation (USSR) to generate new technology in different areas. While the technological lag might be greater in A than in B, existing Soviet scientific and technical skills might be superior in A, dictating import of technology in B.

A second major set of factors determining the focus of technology flows
are state priorities at particular historical times. These priorities are planners' priorities and not necessarily coincident with those of consumers. What this means is that the gains or profits as would be measured in the West (usually) from overcoming technological backwardness do not necessarily provide the standard for determining in which industries imports (or indigenous developments) of technology are likely to occur. So, for example, while light industry appears to be particularly backward in the USSR, it is unlikely that either imports of technology or substantial amounts of domestic R&D resources will flow in this direction in the near future. On the other hand, at any time the authorities may decide in favor of a big push in light industry and the picture would change completely. The enormous Fiat project begun a decade ago is an example of such an unpredictable change of direction.

An attempt has been made above to demonstrate that there is a substantial bilateral basis for trade between the United States and the USSR. The extent to which these potentialities have been realized has been miniscule, of course. The amount of possible US-Soviet trade is overstated in the above presentation because we ignore the rest of the world as possible buyers and sellers of to each/our two protagonists and because the great distance between the two nations acts as a further natural impediment. Both nations have easier physical access to many other large world markets. Still another factor reducing US-Soviet trade is the greater degree of trade barriers (including credit restrictions) between these two nations than between either nation and most other nations. In effect, the two nations discriminate against each other. In Chapter 2 we outlined the various controls employed by the United States which serve to reduce both exports to and imports from the communist nations. The other advanced western nations also employ controls but these have always been less severe than our own. Therefore, much trade with the USSR and
Eastern Europe which might have been transacted with the United States went to Western Europe and other nations instead. The USSR likewise discriminates against the United States and other Western European nations and in favor of trade with its CMEA partners. Were there no Eastern and Western political "blocs," East-West trade would undoubtedly be double or more its present size. This generalization undoubtedly applies to US-Soviet trade.

3. US-Soviet Trade: Actual and Potential

In the preceding pages, an attempt has been made to suggest in a qualitative way the fact that possibilities for substantial US-Soviet trade do exist and then to qualify these possibilities by pointing out the impediments. Another approach is to look at the actual levels of US-USSR trade and to extrapolate future possibilities by considering, among other things, the implications of removing the manmade barriers to that trade, an unlikely possibility in the near future in view of the Soviet invasion of Afghanistan.

Tables 4.4 and 4.5 below, summarize some major categories of US-Soviet exports and imports for 1974.¹ They also contain categories in which there was not much actual bilateral trade in 1974 but in which there is a potential for trade as evidenced by the fact that both nations have considerable trade in them with all other nations (U.S.) and with the industrialized west (USSR). The dozen or so categories of commodities presented in each of the two tables comprise close to 90 percent of the bilateral trade which amounted to $612 million of US exports and $250 million in imports in 1974. Narrowing down still further, about 80 percent of US exports fall into just two categories: cereals and non-electrical machinery. Similarly, two categories—petroleum and products and non-ferrous metals—account for about 80 percent of US imports from the USSR. Total US-USSR trade represented a very small fraction

¹These tables and much of the discussion is taken from Elias, 1976.
Table 4.4

**U.S. Exports - U.S.S.R. Imports: Selected Commodity Groups - 1974**

(In millions of U.S. dollars)

<table>
<thead>
<tr>
<th>LTC Categories</th>
<th>(1) Total U.S. Exp.</th>
<th>(2) U.S. Exp. to the USSR</th>
<th>(3) Col. 2 x 100</th>
<th>(4) USSR imports from IW</th>
<th>(5) Col. 2 x 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Meat and meat preparations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04 Cereals and cereal prep.</td>
<td>381</td>
<td>0</td>
<td>0.0</td>
<td>75</td>
<td>0.0</td>
</tr>
<tr>
<td>06 Textile fibers &amp; their waste</td>
<td>10,331</td>
<td>278</td>
<td>2.7</td>
<td>364</td>
<td>76.3</td>
</tr>
<tr>
<td>01 Chemical elem., compounds</td>
<td>1,782</td>
<td>3</td>
<td>0.2</td>
<td>42</td>
<td>7.3</td>
</tr>
<tr>
<td>03 Dyes, tanning, color prod.</td>
<td>3,618</td>
<td>14</td>
<td>0.4</td>
<td>287</td>
<td>5.0</td>
</tr>
<tr>
<td>02 Plastic, materials, etc.</td>
<td>304</td>
<td>1</td>
<td>0.2</td>
<td>58</td>
<td>1.2</td>
</tr>
<tr>
<td>01 Leather, dressed, furs, etc.</td>
<td>1,618</td>
<td>8</td>
<td>0.5</td>
<td>250</td>
<td>3.0</td>
</tr>
<tr>
<td>05 Textile yarn, fabric, etc.</td>
<td>164</td>
<td>1</td>
<td>0.9</td>
<td>45</td>
<td>3.2</td>
</tr>
<tr>
<td>01 Iron and steel</td>
<td>1,795</td>
<td>7</td>
<td>0.3</td>
<td>311</td>
<td>1.9</td>
</tr>
<tr>
<td>01 Machinery, non-electric</td>
<td>2,560</td>
<td>8</td>
<td>0.3</td>
<td>1,947</td>
<td>0.4</td>
</tr>
<tr>
<td>02 Electrical machinery</td>
<td>16,669</td>
<td>188</td>
<td>1.1</td>
<td>1,663</td>
<td>11.3</td>
</tr>
<tr>
<td>04 Footwear</td>
<td>7,019</td>
<td>28</td>
<td>0.4</td>
<td>293</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>0</td>
<td>0.0</td>
<td>21</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SITC Categories</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USSR exp. to IW</td>
<td>USSR exp. to U.S.</td>
<td>Col. 2 x 100</td>
<td>Total U.S. imports</td>
<td>Col. 2 x 100</td>
</tr>
<tr>
<td>21 Hides, skins and fur skins, undr.</td>
<td>69</td>
<td>5</td>
<td>6.9</td>
<td>156</td>
<td>3.0</td>
</tr>
<tr>
<td>24 Wood, lumber and cork</td>
<td>1,029</td>
<td>0</td>
<td>0.0</td>
<td>1,105</td>
<td>0.0</td>
</tr>
<tr>
<td>26 Textile fibers and their waste</td>
<td>350</td>
<td>0</td>
<td>0.0</td>
<td>225</td>
<td>0.0</td>
</tr>
<tr>
<td>27 Crude fertilizers and crude minerals</td>
<td>191</td>
<td>1</td>
<td>0.8</td>
<td>438</td>
<td>0.3</td>
</tr>
<tr>
<td>28 Metalliferous ores and metal scrap</td>
<td>228</td>
<td>12</td>
<td>5.4</td>
<td>1,838</td>
<td>0.7</td>
</tr>
<tr>
<td>33 Petroleum and pet. products</td>
<td>2,133</td>
<td>103</td>
<td>4.8</td>
<td>24,210</td>
<td>0.4</td>
</tr>
<tr>
<td>41 Animal oils and fats</td>
<td>3</td>
<td>0</td>
<td>0.0</td>
<td>10</td>
<td>0.0</td>
</tr>
<tr>
<td>42 Fixed vegetable oils and fats</td>
<td>145</td>
<td>0</td>
<td>0.0</td>
<td>100</td>
<td>0.0</td>
</tr>
<tr>
<td>52 Coal, petroleum etc. chemicals</td>
<td>6</td>
<td>0</td>
<td>0.0</td>
<td>10</td>
<td>0.0</td>
</tr>
<tr>
<td>56 Fertilizers, manufactured</td>
<td>59</td>
<td>1</td>
<td>2.5</td>
<td>560</td>
<td>0.3</td>
</tr>
<tr>
<td>68 Nonferrous metals</td>
<td>837</td>
<td>187</td>
<td>22.3</td>
<td>3,925</td>
<td>4.8</td>
</tr>
</tbody>
</table>

of US trade in 1974 whose total exports and imports were each in the neighborhood of $100 billion. This is reflected in the low percentages in col. 3 of Table 4.4 and col. 5 of Table 4.5. Cereals, our largest category of exports to the USSR amounts to only 2.7 percent of our cereal exports in that year. Non-electric machinery, next largest, amounts to only 1.1 percent. Our dependency on specific imports from the USSR is slightly but not much larger: 4.8 percent of non-ferrous metal imports and 3 percent of hides, skins, etc. come from the USSR, all other categories falling below 1 percent. Mutual trade is somewhat more important to the USSR. Soviet exports and imports in 1974 amounted to roughly $25 billion each of which roughly $8 billion was with the IW. So, it turns out that while cereal and non-electric machinery exports are only 2.7 and 1.1 percent of American exports, they amount to 76.3 and 11.3 percent of Soviet imports from the West. The corresponding relationship for individual Soviet export items is shown by comparing cols. 3 and 5 in Table 4.5. So, non-ferrous metal exports to the US amount to 22 percent of Soviet exports to the IW but only 4.8 percent of US imports. The figures for hides, skins, etc. are 6.9 and 3 percents; for metalliferous ores and metal scrap, 5.4 and .7 percents, and for petroleum and products, 4.8 and .4 percents.

We have stressed the relative unimportance of US-USSR trade in the figures just presented. This relative unimportance underlines the potentialities for a much greater absolute value of trade. Thus, col. 3 of Table 4.4 indicates clearly that greater Soviet demand could easily be met by diverting US exports from other sources. More realistically, perhaps, such demands could also be met by an expansion of output or diversion from domestic use. Col.

1 The 1975 figures were $1.8 billion in exports and 277 million in imports. Among other things, exports to the USSR increased as a result of the Soviet crop failure and imports declined as a result of the US recession.
5 suggests the great possibilities for the Soviet Union to substitute additional US supplies for those from other sources. The major opportunity would appear to be in "machinery, non-electric," an item in which the US is a very large exporter, the USSR is a large importer, yet it imports most of this category from other IW. Cereals are, of course, also a great opportunity as the history of US-Soviet grain trade has already revealed (below).

Similar conclusions follow from Table 4.5. With the possible exception of non-ferrous metals, col. 3 demonstrates that the USSR could shift exports from other sources (if not from domestic use or greater output) to meet increased US demand. From col. 5, we see that the US could, if conditions warranted it, easily buy more from the USSR of all categories by shifting its purchases from other sources. For no product does the USSR supply more than 5 percent of US import demands. The major possibilities for substantial expansion would appear to be in: wood, lumber and cork; petroleum and products; and non-ferrous metals. However, in the case of the first two, markets are probably easy enough to come by that the USSR may have little incentive to try to sell to the US; further in the case of petroleum, as will be demonstrated below, Soviet exports to the west may soon dry up.

Another approach to estimating trade potential is to assume, as was suggested in Chapter 2 (p. ) that the US share of Soviet trade in different groups of products would be equal to its share of the exports of these same products by 14 leading industrial nations to the rest of the world--if US discriminatory trade controls were removed. Table 4.6 presents calculations by the US Dept. of Commerce along these lines for major trade categories. Looking at cols. (1) and (2) for chemicals, for example, we see that US exports total .1228 of those of major industrial nations, in general but only .0394 of those going to the USSR. Hence, our potential exports are $87.4
<table>
<thead>
<tr>
<th>SITC-Description</th>
<th>US Exports to USSR</th>
<th>Total US Exports</th>
<th>US Exports to USSR</th>
<th>Total IW Exports</th>
<th>Actual</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Food and Live Animals</td>
<td>0.5706</td>
<td>0.2842</td>
<td>287.0</td>
<td>102.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Beverages and Tobacco</td>
<td>0.1382</td>
<td>0.2306</td>
<td>0.7</td>
<td>1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Crude Materials except fuel</td>
<td>0.1973</td>
<td>0.3027</td>
<td>24.9</td>
<td>38.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Mineral fuels</td>
<td>0.1620</td>
<td>0.1616</td>
<td>1.3</td>
<td>1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Animal and Vegetable oils and Fats</td>
<td>0*</td>
<td>0.2104</td>
<td>0.0</td>
<td>1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Chemicals</td>
<td>0.0394</td>
<td>0.1228</td>
<td>28.0</td>
<td>87.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Manufactures</td>
<td>0.0106</td>
<td>0.0597</td>
<td>27.4</td>
<td>159.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Machinery</td>
<td>0.1089</td>
<td>0.1535</td>
<td>225.0</td>
<td>317.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Misc, Manufactured Goods</td>
<td>0.0619</td>
<td>0.0948</td>
<td>12.5</td>
<td>19.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Commodities and Transactions, NEC</td>
<td>0.0149</td>
<td>0.1354</td>
<td>0.9</td>
<td>7.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>607.7</td>
<td>729.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total, excl. SITC-0</td>
<td>320.7</td>
<td>626.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Bureau of East-West Trade, Dept. of Commerce data sheets.

*1973 = 0.6336.
million in comparison with actual exports of $28 million. Leaving aside the case of Food exports, which have their own special dynamic, we see that our potential exports are almost double that which has been achieved ($626.5 vs. $320.6) and that categories 5, 6, 7 seem to offer the most possibilities for expansion.\footnote{Actually, the Bureau of East-West Trade of the Dept. of Commerce makes other and more complex projections. For example, on the same data sheets cited in Table 4.6, they project trends, based on actual and potential trade from 1969 to 1974, into the future—through 1982. These projections yielded a sufficient number of anomalous results that they were not included here.} Worksheets containing more detailed breakdowns (3 digit SITC categories) were also prepared. These suggested, for example, that the United States might triple its exports to the USSR of organic materials, office machines, textile and leather machinery, and so forth. The aggregate picture yielded by these data was of the same order of magnitude as that provided in Table 4.6.

A technique similar to that described above was used to estimate and project potential US imports from the USSR (Elias and Searing, 1974). The major example of US relative underimporting is in petroleum and petroleum products—and this category constitutes about one-third of the difference between actual and potential. No other commodity or commodity group among the more than 25 leading candidates, by itself, can make much difference by this method of estimate.

Before leaving these estimates, it is worth noting that both those for exports and imports are biased downwards for two reasons. First, they assume that industrialized west trade with the USSR is free of discriminatory controls, which is not the case. Second, they assume that the percentage of Soviet trade with Eastern Europe will not change—in fact, it will probably
decline still further. However, none of these estimates is far enough out of the ballpark to change the facts that Soviet trade with the U.S. is unlikely to exceed, by much, 1 percent of US trade and 0.1 percent of US GNP; and Soviet trade with the U.S. is unlikely to exceed, say, 3-4 percent of Soviet trade and .4-.5 percent of its GNP. Finally, comparison of potential exports and imports suggests that the USSR is likely to continue to run a strong bilateral balance of payments deficit with the United States.

While little more can be done at the micro-level with projecting bilateral trade possibilities in specific industries without a mountain of investigation, there are at least 4 major possibilities of increased trade, politics allowing, which deserve further attention. These four are the export to the USSR of grain and of advanced technology in some form or other, and import from the USSR of petroleum and natural gas. We have already indicated the great comparative disadvantage that the USSR has in agriculture. This is due in part to the very poor organization of Soviet agriculture. But it is also due to climatic factors. As one expert has put it: "...The Soviet Union has no large agricultural area comparable to either the American corn belt or cotton belt. Where there is adequate moisture, it is too cool; where it is warm enough, it is too dry..." (Johnson, p. 15). Despite these facts, the USSR was, until 20 years ago, a regular exporter of grain. In fact, as noted in chapter 2, grain was the major pre-Revolutionary export; the same was true of the early 'thirties. After World War II, the USSR's exports of grain went mainly to other members of COMECON, several of which were and are chronic net importers.

The USSR lost its perfect record as a net exporter in 1963/64 when, in
the aftermath of the very bad 1963 harvest, it was forced to import some 6 million tons of grain in 1963 and another 10 million tons in 1964. The Soviet Union has always had wide crop fluctuations due to climatic factors. In the past, shortfalls had been absorbed through reduced consumption. Reducing food consumption is no longer a politically feasible policy either in the USSR or Eastern Europe; hence, shortfalls lead to imports\(^1\)--primarily from Canada, Australia, and the United States, the big grain exporters. The crop failures of 1972 and 1975 led to even larger grain imports. In fact, the Soviet imports related to these two crop failures amounted, in each case, to more than one-fifth of world exports.

Another factor which has put pressure on Soviet grain supplies has been the attempt to raise the standard of living by increasing meat consumption. As is well-known, it takes many more bushels of grain to generate a pound of food in the form of meat than in the form of bakery products. So, while the amount of grain devoted to the latter has hardly changed over the past 20 years, that which has been used by the USSR as animal feed increased from about 25 million to 100 million tons between 1955 and 1975 (Desai, p. 3a). That is to say, roughly half of the grain consumed by the USSR is consumed in the form of feed, as the following table indicates:

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
<th>Waste &amp; Imports</th>
<th>Net Supply</th>
<th>Total Feed</th>
<th>Food</th>
<th>Seed</th>
<th>Trial</th>
<th>Exports</th>
<th>Stock Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975/76</td>
<td>140.1</td>
<td>15.4</td>
<td>26.4</td>
<td>151.1</td>
<td>183.7</td>
<td>89.6</td>
<td>57.6</td>
<td>27.7</td>
<td>5.5</td>
</tr>
<tr>
<td>1976/77</td>
<td>223.8</td>
<td>24.6</td>
<td>11.8</td>
<td>211.0</td>
<td>199.5</td>
<td>102.3</td>
<td>59.7</td>
<td>28.0</td>
<td>5.5</td>
</tr>
<tr>
<td>1977/78</td>
<td>196.6</td>
<td>21.5</td>
<td>18.4</td>
<td>192.6</td>
<td>209.1</td>
<td>112.7</td>
<td>60.0</td>
<td>27.7</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Source: CIA, *Long-Term Outlook*, p. 15.

\(^1\)Discussed in Chapter 9, part IV.
It is as important to remedy shortfalls in feed as it has been in the grains which are used for bread. For not only is it politically inopportune today to allow the output of meat, hence meat consumption, to fall, a shortage of feed often leads to the necessity for a premature slaughter of livestock which is extremely costly.\(^1\) In 1975, for example, when imports were not adequate to remedy the crop shortfall, there was a decline in the hog population of 14-1/2 million, and in sheep of another 4 million (CIA, *Long-Term Outlook*, p. 14).

Faced with these new inflexibilities, the USSR has attempted to increase its grain output by expansion of acreage, irrigation, increased application of fertilizer, and so forth. The 9th and 10th/Year Plans (1971-80) put between 20 and 25 percent of their gross investment into agriculture. Output has roughly doubled since 1955--but this has not been enough to cover Soviet and East European domestic requirements in years of serious shortfall. Further, much of the increase in output is believed by some experts to be the result of better than normal weather conditions (CIA, *Long-Term Outlook*, p. 3,4,7).

The near-term outlook (through, say, 1985) may be particularly bleak if the trends projected by CIA climatologists materialize. They believe that they have detected a weather cycle and that not only did the USSR's grain output benefit enormously from above normal weather conditions in the decade ending around 1975, but that the USSR is now roughly in the middle of a below-normal trend in precipitation. How much grain will be imported in the next half dozen years will depend very much on the weather as the following table demonstrates:

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\(^1\) As noted in Chapter 7 some calculations indicate by buying a dollars worth of feed grain in years of poor crops, the Soviets save approximately $5 worth of capital in the form of livestock.
Table 4.8

USSR: Projected Grain Balance

(million metric tons)

<table>
<thead>
<tr>
<th></th>
<th>1980</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assuming favorable weather</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>output</td>
<td>212</td>
<td>236</td>
</tr>
<tr>
<td>utilization</td>
<td>217</td>
<td>228 to 238</td>
</tr>
<tr>
<td>gap</td>
<td>-5</td>
<td>8 to -2</td>
</tr>
</tbody>
</table>

| **Assuming long-term average weather** |      |      |
| output         | 190  | 212  |
| utilization    | 217  | 228 to 238 |
| gap            | -27  | -16 to -26 |

Source: CIA, Long-Term Outlook, p. 7.

On the other hand, over the longer-run, if the weather reverts, per this model, to higher than average precipitation again after 1985, it would appear to us then, that a reduction in grain imports or even self-sufficiency might result. ¹

In the recent past, the USSR has been importing about half of its grain from the United States. As it has imported more and more grain, it has depended more heavily on the United States. The United States is the largest exporter in the world and is better able than the other large exporters to increase its acreages and sales on short notice. Further, a large part of the Soviet demand for grain is for feed grains, mainly corn. This is the sector of grain in which the US has its greatest comparative advantage over other grain exporters. This suggested that if the Soviets are increasingly unable to keep output of grain increasing as rapidly as demand, then a large

¹The climatological discussion is contained primarily in CIA, USSR: The Impact..., Oct. 1976. Balance of payments implications of the weather scenario are discussed in chapter 5.
multibillion dollar grain trade between the two nations annually may be in the cards.

Unlike the case of grain, there has been almost no petroleum trade between the US and USSR although the USSR is the world's largest producer and third largest exporter, and the US, the world's largest consumer and importer. The USSR has been exporting almost 30 percent of its output of which 10 percent goes to hard currency buyers; and the United States, as is well-known, is currently importing half of its total consumption. Half of the Soviet Union's hard currency earnings are from sales of oil; a significant part of the US trade deficit is oil-induced. If ever there appeared to be a match made in heaven, US-Soviet trade in petroleum would appear to be it. However, so far it hasn't worked out. The US has traditionally imported its external requirements of petroleum from the Middle East; the USSR has exported most of its surplus to Eastern Europe, the rest to nations whose ties with the Middle East, both political and commercial, have not been as close as those of the US. In fact, it is not clear at this point whether the United States would be willing to allow itself to depend on the USSR for any significant part of a commodity, so important to the economic and military performance of the US economy as petroleum is.

While in the past, and at present, the two nations exhibit as much potentiality for trade in petroleum as in grain, the outlook for the future of such potential is in question. The major reason for this uncertainty is that, in the face of steadily increasing demand for domestic and East Europe consumption, some experts believe that Soviet petroleum output will not continue to increase as rapidly as in the past and may even decline—as happened to the US several years earlier. In 1950, the USSR produced 30 million tons of petroleum. By 1970, production had reached 150 million tons or 7 million barrels
per day; and by 1976, output reached 520 million tons, exceeding that of Saudi Arabia by roughly 15 percent. Differences of opinion on the future of Soviet output are presented in Table 4.9:

Table 4.9
Projected Soviet Oil Output
(mn. metric tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Official Soviet</th>
<th>Western Oil specialists</th>
<th>CIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976 (actual)</td>
<td>520</td>
<td>520</td>
<td>520</td>
</tr>
<tr>
<td>1980</td>
<td>640</td>
<td>580</td>
<td>585</td>
</tr>
<tr>
<td>1985</td>
<td>750</td>
<td>580</td>
<td>500</td>
</tr>
</tbody>
</table>

Source: Collected from various other sources by: Levine and Bond, Jan. 1978.

Soviet authorities, while openly cognizant of difficulties in continuing to increase petroleum output, nevertheless foresee output continuing to grow if perhaps at a somewhat slower rate. Independent western oil specialists and the CIA each see a peaking of growth in the next few years and the CIA pessimistically projects a declining output over the next decade. Western pessimism is due to several factors. Over most of the postwar period, the growth of Soviet output has been due largely to exploitation of fields in the Urals-Volga region. As one large field would become exhausted, another would take its place. While the region remained at least until 1976 the major source of Soviet petroleum, growth has slowed over the past decade and after 1975, output actually began to decline. The slack was picked up in the late 1960s by the development of rich new fields in Western Siberia, particularly the giant Samotlor field which is currently producing approximately 130 mn. tons alone. Samotlor appears to have reached its peak however and, at the moment, there
do not appear to be any large fields to take its place. Possible large scale discoveries may turn up in various parts of Eastern Siberia which are being explored, but at the moment this is speculative and, further, conditions would be hostile to exploitation in many of these areas. Certainly nothing much could develop in Eastern Siberia in less than a decade.

The old areas in Western Siberia also appear to be additionally handicapped by the use of production methods which have prevented the Soviets from getting as much oil out of wells as they had planned and by making extraction difficult in the latter stages of production. For example, in order to get a rapid flow of oil through the wells, the Soviets have injected water under pressure into the reservoirs. While this has minimized the number of wells that had to be dug and increased flows in the early stages, the end result has been that in the later stages, the pumps are removing about as much water as oil from underground. This means less oil, and a need for more pumps and wells in the latter stages. As a result, productivity has dropped sharply; this is one of the reasons why western experts do not feel that the Russians will come near achieving their 1980 targets. In fact, it is worth noting that while targets tended to be achieved before 1970, actual output has fallen consistently below plan since then. Many other problems plague the petroleum industry. It is, furthermore, a fact that in the short-run many of these problems could only be ameliorated by imports of western equipment, especially from the United States (such as: electric submersible downhole pumps, gas-lift equipment, deep drilling equipment, various kinds of pipe, etc.).

1 Much of the above is from: CIA, Prospects for Soviet Oil Production: A Supplemental Analysis, July 1977.

2 Since 1971, the USSR has ordered $3.1 billion worth of oil and gas equipment and $4 billion worth of steel pipe. As of July 1977, at least another $1 billion of equipment was expected to be ordered to convert Samotlor and other West Siberian fields to gas-lift production. Between 1972-76, orders from the US totalled $530 million. (CIA, Prospects for Soviet Oil Production: A Supplementary Analysis, July 1977).
In order for petroleum output to keep rising, new large fields must be discovered and many of the handicaps mentioned above (plus others) have to be overcome. Long preparatory periods are required to develop new sources and outputs of oil. Western experts feel that Soviet preparations are behind schedule and that while output may rise for a few more years, the 1980 target will not be fulfilled and, shortly after that, output will peak, if not decline. With sufficient and wise effort (i.e., investment), of course, output could recover in the last decade of the century.

If petroleum output continued to rise, there would be some question as to whether exports to the West could be maintained or increased since both domestic consumption and the requirements of Eastern Europe would be rising simultaneously. Generally speaking, Soviet energy experts have assumed that future domestic energy requirements would continue to rise at roughly 5 percent per year (Jack, Lee and Lent, p. 474). In the past, petroleum has been of rapidly increasing importance as an energy source rising from 28.9 percent in 1960 to 42.5 percent in 1975 (op. cit., p. 469). This will have to change but whether it will change sufficiently rapidly to maintain an exportable petroleum surplus, is a big question. Output of natural gas is rising rapidly and will substitute for petroleum both domestically and as a hard currency export. No doubt, attempts will be made to increase relatively the output and use of coal and other solid fuels, hydroelectric and nuclear power but progress along all of these lines is not likely to be dramatic.

If official Soviet plans are fulfilled, there is some substitution of other fuels for petroleum in domestic use, and the USSR does not continue to meet all of the rising requirements for petroleum by East Europe, then exports to hard currency nations will continue to rise and a potential for exports to the United States will exist. If, on the other hand, the CIA prediction is accurate, fuel
exports will actually fall rapidly in the 1980s and the USSR will be a net importer by 1985. Finally, if western specialist projections are realized, export of petroleum will decline after 1980. Under the latter two projections, trade between the US and USSR in petroleum appears highly unlikely. All in all, the potential for trade in petroleum between the two nations in the 1980s does not appear bright.

Soviet export of liquified natural gas (LNG) to the United States is a third major trade possibility between the two nations. The United States is the largest natural gas producer in the world, the USSR ranks second. However, US output has been declining since 1973 whereas Soviet output has doubled since 1970. Further, while US proven reserves were approximately 7 trillion cubic meters in 1974, Soviet proven reserves were equal to that in 1968 and had almost tripled to 22.4 tcm by 1974 (Campbell, 1976, p. 49). Despite the rapid increase in proven reserves and in output, the Soviets have not been net exporters of natural gas in recent years but have had small net imports. However, because output is increasing rapidly and, especially, because certain as yet undeveloped fields have been earmarked for possible exports to the West, particularly to the United States and Japan, the possibility of such sales cannot be discounted. American interest in these fields stems back at least to 1972 when, while the U.S.-U.S.S.R. Commercial Agreement was being negotiated, then Secretary of Commerce Peter Peterson spoke of getting an expansion of some $10 billion in Export-Import Bank lending authority in order to help

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1The CIA reports argue that if the Soviets are not successful in conserving energy, in shifting from oil to other energy sources domestically, and continue to grow as rapidly as before, then by 1985 they may be importing between 3.5 and 4.5 mn. barrels per day. However, many feel that the USSR can be expected to take heroic measures to avoid the costs of such enormous imports. A recent CIA study, just reported in the press (IHT, 3/27/79 p. 3) forecasts Soviet exports to the West until 1981 after which it becomes a net importer. Clearly, the CIA has not changed its view despite criticisms from various sources.
finance these enormous projects (see chap. 10). The major fields involved were the Middle Viliui near Yakutsk and the Urengoi field in Western Siberia, the so-called North Star project. Gas from the Yakutsk field would be exported eastward through a 2,000 mile pipeline exiting in Nakhodka on the Pacific Coast from whence it would be shipped in tankers to the US West coast. Gas from Urengoi would be shipped through a 1,500 mile pipeline to Murmansk on the Barents Sea and thence to the U.S. East coast. The major American firms in the Yakutsk deal have been El Paso Natural Gas and Occidental Petroleum; in the North Star project, Tenneco Corporation and Texas Eastern Gas. The Japanese are potential participants in the Yakutsk project. In addition to the pipelines, large amounts of capital would be required to develop the wells, construct liquefaction plants, as well as fleets of special tankers to carry the LNG (Goldman, 1975, 118-123). There are no up-to-date estimates of the amounts of western credits required to meet these capital costs. As of approximately 1975, figures like $4 billion for the Yakutsk project and $6-8 billion for the North Star were reported (Lenz, p. 6); current estimates would undoubtedly have to be much larger. The Japanese Eximbank would probably pick up part of the Yakutsk bill (Ibid.). There is no prospect, however, that the remainder would be available from the United States under present conditions.

Regardless, if the projects should be financed and consummated, there would be a very large increase in trade between the two nations for the 20-25 years over which the projects would be expected to run. Goldman (pp. 118-119) sees a value of LNG of approximately $1-1/2 billion a year; Lenz (p. 1) envisages as much as $4 billion (1978) each way for 25 years or a total $200 billion flow in 25 years. The Lenz scenario includes LNG going from the USSR to the US in return for which the US will have provided capital, knowhow, and machinery and equipment for the projects. To the extent that the US receives
more LNG than they supply goods and services for the projects, the USSR can be expected to spend its surplus on the many other products in the American market in which they are interested.

The beauty of the LNG deal is that the two nations are truly complementary. The US needs the energy and this would provide it with a way of importing energy without running a deficit. The USSR needs (1) hard currency, (2) capital and know-how assistance in developing these two gas fields and (3) larger supplies of LNG (which presumably would be available over and above the amounts shipped to the US and Japan) all of which would flow out of these two contracts.

Negotiations over these two projects have been proceeding at least since 1972-1973 and will probably continue for some time yet before all problems are ironed out. Aside from the financing problems, there are other outstanding issues: whether the US wants to "depend" on the USSR for energy and have so much potentially hostage capital in Siberia; whether the project is, in fact, profitable for the U.S. especially in view of the extremely high transport costs of LNG; whether the USSR might not find that it is more economical to keep the natural gas from Urengoi for its own needs in European Russia--since the distance is not as great as to Yakutia. In connection with the second point, the high cost of transporting LNG, Campbell (1978, p. 50) suggests that it would be cheaper for the USSR to substitute natural gas from Urengoi for oil for its domestic requirements and export to the West the surplus oil which results.
The fourth possibility of expanded trade mentioned above is the export to the USSR of advanced technology financed by U.S. credits. This might be implemented by just exporting the knowhow, or by exporting products embodying the technology, or by the construction by US management and technicians of factories (turnkey projects, joint ventures, etc.) in the USSR capable of producing such products. In all of these cases, but especially the latter, the export of technology is likely to be financed in part at least by exporter nation credits.

Current Soviet interest in importing advanced technology is well-known and needs no documentation here. For its part, the United States is probably still the technological leader of the western world although that lead is diminishing; further, the United States also leads all other nations in the scope of its direct investment activities. These facts suggest that all other things equal, there should be a substantial interchange of capital and technology from the US to the USSR. In fact, that interchange is on a much smaller scale than one would expect. This is primarily because of US discriminatory restrictions on the export of technology (Chap. 7), on extensions of credit (Chap. 6), and on imports from the USSR (Chap. 8). A relaxation of US discriminatory restrictions would undoubtedly lead to a sharp increase in US capital and technology exports to the USSR. Of the four factors mentioned here, this undoubtedly presents the greatest potential for expansion of trade and investment between the two nations should political and economic relations ever achieve a non-adversarial status.

4. Benefits from US-Soviet Trade

In the previous pages of this chapter, we have discussed the basis of US-Soviet trade and to some extent explored the possible and probable limits of that trade over the near future. The next question to be raised is: what
are the possible economic benefits to the US and USSR from increased trade and investment? The discussion will be mostly in terms of possible Soviet benefits.

Basically, at least 4 sources of gains from international trade and investment can be distinguished. First, competition from foreign commodities forces domestic producers to be more efficient, to innovate, and so forth. This is a very important dynamic benefit from trade, especially for small nations whose domestic markets are too small to support a large number of competitive or oligopolistic firms. Second, there are the ordinary gains from division of labor. A nation exchanges "cheap to produce" exports for expensive or "impossible to produce" imports. These are the usual "gains from trade" that theorists normally speak of. Third, nations obtain technology from each other. This technology may come embodied in imports of equipment or be disembodied and obtained from foreign technical experts, purchases of licenses, scholarly journals, blueprints, or what have you. The gains from this source are dynamic to the recipient and should increase its rate of growth. The gain to the exporter of technology is what economists call a "rent"; since the costs of the development are already "sunk," anything the developer receives for the transfer of technology can be viewed as a gain. Fourth and last, gains come from international investment. Those nations with urgent needs or profitable investment opportunities, which they do not have the funds to finance, borrow from those with relatively greater savings, less urgent requirements and less profitable investment opportunities. Presumably both lenders and borrowers profit from such financial transactions. Let us turn now to examine possible magnitudes involved.

**Competition**

The USSR gains little if anything from the competitive pressures
generated by foreign trade. This is because it usually does not allow imports to compete with domestic enterprises. Some pressures may develop on the export side as enterprises which are supposed to sell their products abroad fail to do so (for reasons outlined in chapter 3), and are admonished by the authorities to make their products saleable. There is little evidence that these pressures are important. Since there is little evidence that Soviet global trade induces competitive pressures, it seems obvious that the tiny fraction of that trade which is bilaterally conducted between the US and USSR could have virtually no effect whatsoever. In fact, most of what the USSR wants to import from the US--food and technology--fall into the category of non-competitive imports in any case.

The United States gains from foreign trade competition but much less so than almost any other capitalist nation because trade is such a small part of GNP. That is to say, in almost every phase of the American economy, the major competition is from other domestic enterprises. There are exceptions, of course--small foreign cars, for example--but these are exceptions. Potential imports from the USSR are so small as to be insignificant. This is especially true since a large percentage of these potential imports are in raw materials in which we have what amount to absolute shortages.

Trade: Static Gains

In discussing the ordinary gains from trade, it is useful to distinguish between large self-sufficient nations like the US and the USSR on the one hand, and smaller and medium-size nations which cannot hope to be self-sufficient in a large range of the commodities which they consume. Many smaller nations, not having large internal markets, are dependent upon foreign trade not only for products otherwise totally unavailable, but in two other major respects. First, those which have large raw material resources depend
on exports to get any value at all out of these resources. The Middle East oil producers are a classic example. Second, many nations do not have large enough domestic markets to produce for themselves at levels which would yield economies of scale. Economies of scale from mass production of manufactured products can reduce unit costs of production to a fraction of their previous levels. Clearly, the gains from trade will be much greater to the smaller than to larger nations because they receive greater gains per unit of trade and because they trade a greater percentage of their GNP's.

To make this discussion more concrete, let us take a few examples. The United Kingdom, for example, is a nation in which exports and imports are each approximately 25 percent of GNP. The gain to such a nation from its more important imports is enormous, measurable in the hundreds of percents over cost. What would happen to the British textile industry without cotton? to its machine building industry without imports of iron ore? to the whole economy without petroleum? or without imports of food? Similarly with Japan! Such nations would be reduced to a much simpler and more rural way of life in the absence of imports. On the export side, the gains are equally enormous. The greatest gains come to the raw material rich smaller nations which have no use, except for exports, for their natural wealth. A barrel of oil at Kuwait, a nation which must export 80 percent of its GNP, is reported to cost less than 25 cents as it comes out of the ground. Without the possibility of export, it wouldn't even be worth that. Profits through trade on exports of petroleum must amount, in the Middle East, to thousands of percents. On the other side of the ledger, the earnings from sales of petroleum make it possible for the Middle Eastern (and other third world nations) to purchase manufactured products which it would be impossible for them to produce for themselves—again providing very large gains from trade. To sum up the gains
from trade for the smaller and medium-size nations: the possibility of trade may increase GNP, relative to autarky, by say 100 or more percents in the advanced industrial nations (like the UK and Japan) and by literally thousands of percents in the small one or two resource nations like Kuwait.¹

Let us turn now to the importance of trade to the self-sufficient giants --the US and USSR. First, US exports and imports are each in the neighborhood of 7-8 percent of GNP. If we rank our imports in terms of profitability, we would undoubtedly find that the top 10 percent (equal to 1 percent of GNP) must have a very high profitability--measured in the 100's of percents. We refer to such products as petroleum, unavailable non-ferrous metals, etc. Most products we import are not like this, however. A typical import might be small foreign cars or pineapples. If small foreign cars were absolutely unavailable, who can doubt that the US could produce them, if not at the same price as Italy or Japan, at not much higher. Or, if still unavailable and not produced in this country, that current domestic models could be substituted reducing buyer satisfaction by, say, 25 percent--but certainly not more on the average. Pineapples, if not available from abroad, would probably be very expensive to produce in the United States on a sufficient scale. However, how much is consumer satisfaction reduced by the substitution of other fruits for pineapples. With minor exceptions, US imports do not fill absolute needs but are simply better and cheaper substitutes for products which can be produced domestically.

Consider US exports. A very large percentage of these are manufactured products of which 90 percent of the output is sold domestically, the remainder being exported. Hence economies of scale in the U.S. do not depend on exports, usually. The profits on exports are usually not much, if at all higher, than the profits on domestic sales. Were exports to cease, the

¹Evidence that this is the case is provided by comparing the GNP per capita of LDCs with a few valuable crops or resources with those that have gone.
previously exported goods would be sold in the home market, perhaps at a lower price, or the resources would be used to satisfy other slightly lower priority needs. What are the profits on such exports? Again, probably not more than 25 percent on the average.

What are the static gains from trade of the United States? Leaving out the few special products like petroleum without which the gears of part of our economy would stop working for awhile, let us say that we gain on the average 25 percent on each dollars worth of imports and another 25 percent on each dollars worth of exports. Since we export and import about 8 percent of GNP, the gains from trade by this calculation amount to 4 percent of GNP (0.25 x 8 + 0.25 x 8). If we lost all our gains from trade, we would make it up in a year or year and a half through normal growth. This is all very hypothetical—but probably in the right ball park.

Our gains from trade with the USSR would be very small because US-USSR trade is such a small percentage of total US trade (around one percent) and only a fraction of one percent of US GNP. Our exports to the USSR are predominantly grain and machinery. There is no reason to believe that the gains from sales of these products, with the possible exception of machinery embodying new technology, is much greater (or less) than the gains from trade in general. As for the profits on exporting technology, each transaction is sufficiently idiosyncratic as to defy generalization (but see Chap. 7). Our gains on the import side are, for the most part, identical with our average profit on imports because, given the unbalanced nature of US-Soviet trade, we end up with more foreign exchange (to be spent in other countries) than goods.

Consider now Soviet gains from trade. Basically, the USSR is in very much the same position as the U.S.—a large and relatively self-sufficient nation. There are differences between the two nations, however. First, the
USSR does not trade to the limits of profitability of trade but, for reasons mentioned in chapter 3, trades less than a comparable capitalist nation would. This was particularly true of the period before 1960, less so now. This, of course, reduces the total gains from trade. Second, the USSR does not trade freely in a single world market but, as noted earlier, discriminates heavily in favor of its CMEA partners and against the West. Such discrimination involves not buying in the cheapest and not selling in the most profitable markets. The result is smaller gains from intrabloc trade. On the other hand, trade with the West is likely to be more profitable because it has been repressed and one can assume that the more profitable opportunities have been given priority.

A third complication in assessing Soviet gains from trade is that their gains from a given value of imports seem to exceed those from the same value of exports, when imports and exports are measured in world prices (dollars). As noted in chapter 3, trade is conducted at world prices because of inconvertibility and related issues. Very recently, a western scholar (Treml, 1979) converted Soviet exports and imports into domestic prices. He found that while a dollar's worth of exports converted into, say, a rubles worth of goods domestically, a dollar's worth of imports converted into 2 rubles worth of goods domestically. Although domestic prices are not "rational," that this should happen on such a systematic scale suggests that the gains from trade are larger from imports than--although one cannot be sure--from exports. Also, since Soviet trade in world prices is typically balanced, in domestic prices imports are twice as large a percentage of GNP as exports. While in the early 1960s, the percentages ranged around 6 and 3 percents, respectively, Treml's estimates for the mid-1970's are approximately 12 and 6 percents reflecting the growing importance of trade to the economy.
In light of these figures, what are the static gains from trade earned by the USSR in intrabloc and East-West trade? On the export side, the USSR is similar to the US: it does not depend on exports for economies of scale—in fact, no more than 25 percent of its exports are manufactured products. Further, exports of raw materials do not bring in the huge rents (profits) that is true of, say, OPEC oil. Extraction costs are known to be high, exportable surpluses relatively much smaller, and the alternative uses of the labor and capital employed in mining much higher than in an LDC. So, in fact, the 25 percent assumed for the US as the gain per unit of exports is probably a good ball park figure for the USSR as well. Exports to the west may actually be somewhat less profitable than to CMEA, particularly in manufactured products, because they do have a much harder time selling and often have to sell at below the world price. To sum up on exports: say a 25 percent profit on the 6 percent of GNP that exports now represent involves a gain to the economy of some 1-1/2 percent of GNP.

The static gains on imports are undoubtedly larger. This statement is suggested by Treml’s findings (above)¹ and, with regard to East-West trade, by the conventional view, probably largely correct, that the machinery and other manufactured products purchased in the industrial west are of much better quality and higher technology than is usually available in CMEA. Nevertheless, abstracting from the dynamic impact of new technology on growth (below), it is hard to believe that if the USSR had to produce everything for itself, that (1) it couldn’t produce a large percentage of its imports at a moderately higher cost or (2) that its losses, from having to use products made from domestic

¹Treml’s findings can be interpreted either as implying a greater profit per unit of trade on imports than exports; or that imports are a greater percentage of GNP than exports.
ingredients and technology rather than foreign (say Moskviches rather than Fiats), would generally be very large. It is important to recognize that loss of trade, for the USSR as for the US, generally involves higher costs but not absolute deprivation of the kind which would dictate a total recon- structuring of the economy (like not having petroleum or iron ore).

In light of this discussion, assume that the gain per unit of imports valued in world prices\(^1\) from CMEA and from the West, are 50 and 100 percent, respectively. Since intra-CMEA trade is much larger than East-West, the average profit on imports from these two areas combined would be in the neighborhood of 65-70 percent. As Soviet trade with CMEA and the industrialized western nations is about 5/6ths of the total, the static gain from imports amounts to some 3+ percent (5% x 2/3) of GNP by the above assumptions.

What would be the gain if Soviet trade with the West were suddenly to double? This would depend on whether the increase was at the expense of intrabloc trade or replaced domestic production. In the latter case (called trade creation by economists) the additional imports would amount to, say, 1-1/2 percent of GNP, and that would be the amount of the gain to the USSR.\(^2\) If, on the other hand, imports from the West replaced imports from CMEA, (trade diversion) then the gain would be the difference between the gain on imports from the West (100%) and imports from CMEA (50%) or approximately 3/4 percent (1-1/2% x .5) of GNP.

---

1 In world prices, we "view" imports equal to 6 percent of GNP; in domestic prices, they are 12 percent. However, converting them to domestic prices is part of the process of including the profits from imports in the GNP. Hence, if we viewed imports as 12 percent of GNP, the profit rate would have to be reduced--or we would be double-counting.

2 The gain is likely to be less than 100 percent because the rate of profit would decline as lower ranked products are imported.
The gains on imports from the United States are apt to be larger than those from the West in general. This is because Soviet gains on imports of feed grain may be larger, on the whole, than imports of any other category of goods. In times of bad crops, shortfalls of feed grain often force the Soviets to slaughter a larger percentage of their livestock herds than is desirable (see chap. 9, part 4). It usually takes several years to reconstitute these herds. It has been estimated by Levine and Bond (1978, p. 18) that in order to save a rubles worth of increased meat--livestock, it is necessary to import only 25 cents worth of grain. Since the ruble has been worth, officially, between $1.25 and $1.50 for some years, the profit on Soviet imports of feed grain is clearly very high if not four or five hundred percent as calculated by these two analysts.

To sum up: Soviet static gains from trade with the West and with the United States are rather small, as are the gains of the United States from trade with the USSR and CMEA. The Soviet gains are somewhat larger than those of the US because its trade with the West is a larger percentage of total trade and of GNP and because the rate of profit on imports appears to be somewhat larger than the comparable figure for the United States.

Credit for Investment

The Soviet Union has borrowed fairly heavily in western financial markets over the past 10 years and had an outstanding debt in 1977 which probably exceeded $15 billion of which approximately $11 billion was for imports of machinery and equipment (CIA, Handbook, p. 48). These deficit-financed imports affect growth in two ways. First, the imported equipment may raise productivity especially if it embodies advanced technology. Second, if it does not substitute for other domestic equipment which would have been produced, it raises the rate of investment. In the next section, we consider the
productivity-raising effects of imported machinery. Here we consider the effect on the economy of foreign credits in raising the rate of investment.

On the face of it, the possible gains appear quite small. In view of past pace of borrowing by the USSR and the fact that it is more likely to slow down rather than speed up as the level of outstanding debt rises, $5 billion in credits per year for a number of years would seem to be a maximum amount which the USSR might borrow. We will assume that this increases Soviet investment by the same amount—which is highly unlikely since part of it undoubtedly substitutes for domestic investment. Now, $5 billion of foreign investment adds little to the USSR's approximately $250 billion worth of fixed investment per year (1977). The USSRs $250 billion of investment is responsible each year for an approximate 4 percent rate of growth—amounting to approximately a $40 billion increase in GNP a year. By itself, $5 billion more of investment financed by foreign borrowing would, according to our assumptions, increase the growth rate by .08 percent (out of 4 percent) or by approximately $800 million ($1 trillion x .0008). This is not very large. Further, it must be recalled that part of the growth must be attributed to other factors of production combined with the new investment (below); and that from any gross increase in growth must also be deducted eventual repayments of credits.

Dynamic Gains: Trade in Technology

We turn now to what may be the most important form of commercial tie between the US and the USSR, namely, the import by the latter of new technology.

1 GNP is estimated at $1048 billion of which 24 percent is fixed investment (CIA, Handbook, pp. 9,45).

2 Technology has two aspects, static and dynamic. From a static standpoint, trade in technology whether the technology is embodied in machinery and equipment or is transferred through licensing contracts, etc., is just
That this is true from the Soviet point of view has been made clear in statements by Soviet leaders over the past 10 years as well as by the large numbers of actual projects which have been under negotiation, if not always concluded. The importance of new technology to an economy cannot be gainsaid. New technology, along with the development of new skills on the part of the labor force, are the major forces behind economic growth per capita. That is to say, if one were to compare any advanced industrial nation today with that same nation in 1925, the major differences would be those of skills and technology. The importance of technology was demonstrated analytically some 20 years ago when an American economist, Robert Solow, first demonstrated that it was not the quantity of new capital investment that was crucial to US economic growth (1900-1950) but rather the change in technology. In this study, it was shown that that part of US economic growth which was due to investment (as opposed to increase in labor force and skills, new resources, economies of scale, etc.) would have been less than 20% of what it actually was if the rate of investment had proceeded according to the historical record but there had been no change in technology.

Looked at from this standpoint, crude proportions suggest that imports of technology from the West have not and could not be of great significance to the Soviet economy although they might be well-worth doing. So, estimates which have been made in the West until 1977 place imports of machinery and equipment at no more than $5 billion per year (Hanson, 1978, p. 22). As we like the purchase or sale of any other commodity and its discussion was meant to be included in the section above: Trade, Static Gains. The question which concerned us in that section was the price at which products were traded relative to alternative costs of producing or purchasing, those products elsewhere. In this section, we look at the technology dynamically and are concerned with how it affects future growth.

1 It is a coincidence that we have assumed maximum credits per year at $5 billion and also that the amount of imported machinery and equipment has the
Saw above, $5 billion of ordinary investment (with an average for the economy of new technology) yields a growth rate of approximately .1 percent per year. If one assumes that imported technology is 3 times more productive (per Robert Solow), then one might infer that $5 billion of imported technology helps to increase the GNP growth rate by .3 percent per year or by about $3 billion a year. Doubling the amount of imported technology to $10 billion would increase this amount by still more but probably not proportionately (by, say, another .2 percent) since it is highly probable that the most urgent and productive imports are included in the first $5 billion. One must also recall that while the imported technology is necessary to the projected growth possibilities, it is not sufficient. Other factors of production must be contributed and some part of the resulting output is required for repayment where credit has been extended. Therefore, the net benefit of technology imports, while undoubtedly still important, falls short of the gross estimates just calculated of a .5 percent (.3 + .2) maximum increase in the growth rate of GNP per annum from importing $10 billion worth of machinery annually. This is not to be ignored of course, but it is not earthshaking. And it is a larger amount of machinery than is likely to be imported.

This very schematic analysis has been more or less corroborated in an exploratory econometric study by Green and Levine (1977). Among other things, they attempt to estimate how much the Soviet growth rate would have been reduced in the 1968-1973 period in the absence of technology imports from the West. This estimate takes account of both the direct and indirect effects of the technology transfer. The direct effects are the actual increase in output same value. While some machinery and equipment is financed by medium and long-term credits, much is purchased outright; and part of the credits extended to the USSR are not for machinery and equipment. The coincidence of numbers does, however, simply the presentation below.
from the imported machines themselves. There are many indirect effects. Two of the most important are (1) the added productivity of the products which result from the imported machines and (2) increase in productivity of Soviet made machinery which is based on imported products.

Green and Levine found for the 1968-1973 period that imported machinery was 3-4 times as productive as domestic capital (p. 394). This squares with our assumption, based on Solow's work, if one assumes that domestic capital contains little if any new technology. For the 1968-1973 period, Green and Levine estimated that the growth in industrial output would have been 29.6 percent instead of 32.1 percent, a drop of 8 percent, had machinery not been imported. Another way to look at these figures is that the absence of foreign machinery would have reduced the growth of industrial output by .5 percent per year \(((32.1 - 29.6)/5 \text{ yrs.})\) and GNP by about .2 percent per year--since industrial output amounts to about one-third of GNP. The increase in GNP growth of .2 percent per year due to machinery imports derived from Green and Levine is in line with our .5 percent increase from a hypothetical $10 billion in current imports of machinery because $10 billion in imported machinery at present would constitute a three times larger percent of machinery investment as was actually true in 1968-1973 (calculated from Hanson, 1978, p. 22).

It is worth noting that over the past 10-15 years as imports of foreign machinery and equipment have increased, the rate of growth of the Soviet economy has declined. This could imply that the Soviet Union needs western machinery even more desperately than before; it could also imply that the state of disorganization of the economy is such that even less effective use is being made now of western machinery than has been true in the past.

It is also worth stressing, as Philip Hanson (1976) did, in commenting on Green and Levine, that one must be aware of the fact that if imports of
technology do not take place, it cannot be assumed that the economy continues on the same path as it otherwise would have. Certainly domestic innovation or imports of technology would be substituted, however imperfectly, for western technology so that the losses to the USSR would not be as large as the above calculations suggest.

If the USSR could import the maximum amount of capital that we have hypothesized, Soviet economic growth would get a worthwhile boost. Such an amount would constitute around 3 percent of gross investment and close to 10 percent of investment in machinery and equipment. That such improbably huge imports of capital equipment are so small a part of total Soviet investment helps explain why it is difficult to make a greater impact on Soviet growth through imported technology.

Along these lines, it is worth comparing the current import of technology effort with that of the First Five Year Plan, 1928-1932. The present effort is indeed puny in comparison. Imports of producers' goods amounted to from 12-14 percent of gross investment during the FFYP. This is equivalent to some $30-35 billion a year at present (1977). Further the capital stock was smaller to begin with so that each 1 percent of GNP invested in those days added a larger percent to the capital stock than is true today. Finally, the technological gap was much greater then than it is now so that each dollar's worth of imports then had greater potential benefits. One caveat: the Soviet economy of the 1930s was less capable of absorbing new technology and the benefits were slower in coming.

Of course, the benefits are not realized as rapidly or as extensively today in the USSR as they would be in a dynamic capitalist economy. This is especially true of the indirect benefits because of the lack of incentives to diffuse new technology--as discussed in Chapters 3 and 7. But it is even
true of direct benefits. Many examples can be cited in support of the proposition that imported technology is simply not always used effectively by the Soviets. Feshbach, for example, cites the case of 5 chemical plants which were imported and which, in the West, were designed to use 91 auxiliary workers. The plants were modified in such a way that under Soviet operation 430 auxiliary workers would be used. When they finally were completed and operating, they used 732 such workers! This issue is discussed further in chapter 7.

Soviet trade in technology with the advanced West including the United States is not one-way but it is fairly one-sided. For this reason, we have not discussed the Western gains from importing Soviet technology since they would be very small, indeed. We also have not discussed Western gains from selling technology to the USSR. This is in part because there is so little to be said on the matter and also because the subject is discussed in Chapter 7.

Monopoly Power in US-Soviet Trade

There is a preoccupation among those who oppose expansion of East-West trade with the idea that most of the gains from this trade go to the East—especially to the USSR. Generally speaking, in trade among advanced western nations it is assumed that all nations gain from trade and there is little, if any, concern with the distribution of these gains. However, there is precedent for concern over distribution of gains if one looks at the history of trade between the advanced and less developed nations. We need not go into this well-known "terms of trade" controversy here except to note that the distribution of gains has been related to the income and price elasticities of the products traded between the two sets of nations and to the relative monopolistic and monopsonistic powers of the private traders in each group of nations. This latter issue has been the major basis for the argument of
those who feel that centrally planned economies gain excessively from trade with the west.

The monopolistic or monopsonistic market powers exerted by communist nations is due, according to the argument, to the fact that foreign trade is nationalized and operated by state monopolies and monopsonies. It is a fallacy, however, to assume that because the foreign trade monopoly has the exclusive right among Soviet domestic institutions to export and import, that it has an analogous position in world markets. The market power that a foreign trade monopoly can exert in East-West trade depends basically on its relative share of trade in the different product markets and, perhaps, to some extent on types of products traded. The larger its share of a market, the lower the elasticities it faces, and the greater its ability to affect prices (and to extract gains from trade). The aggregative share of Eastern trade in that of the advanced western nations is only around 5 percent. This suggests that unless trade is quite concentrated in specific commodities, the Eastern nations must be viewed economically as very "small" countries and price-takers rather than price makers in world trade. In contrast, the share of the advanced western nations in Eastern trade probably exceeds 30 percent at present. Further, since many of the western companies which trade with the Eastern nations are giant multinationals, one can almost say on a priori grounds that the West probably has at least as much market power as the East in East-West trade.

In recent years much of the stimulus in the United States for the view that the USSR exerts excessive market power stems from the so-called "Great Grain Robbery" of 1972. The Russians had a very poor grain crop in that year and, in order to meet their own domestic requirements and to maintain their export commitments to Eastern Europe, purchased almost 20 million tons of
grain from the United States in a 6 week period, not to mention large amounts from other grain exporting nations. In terms of market shares, the USSR should indeed have had market power in 1972 (as well as in other years of large purchases) since they purchased over 20% of the grain purchased on world markets in that year and a larger percentage of U.S. exports. Use of the term "robery" refers to the relatively low price at which they were able to buy the grain—low compared with the price on U.S. and world markets shortly after, and partly as a result of, the Soviet purchase. Actually, the "robery" resulted partly from an exercise of monopsonistic power, partly from "sidestepping" price system (below), and partly because of inadequacies in U.S. Government arrangements relating to the farm subsidy program. Russian negotiators approached the various large American grain dealers separately and secretly so that none of them knew the total volume of grain being demanded. Under these circumstances, neither shortages nor serious price consequences were envisaged. At the same time, given the Government's subsidy program, the dealers didn't have to cover themselves in the futures markets—so the large temporarily shift in demand was for this reason also hidden from the market. So it is true that the monopsonistic nature of the Soviet grain organization both as agent of the Government and in share of world market made it possible for the USSR to buy grain in 1972 at a relatively low price. However, this is a unique case and under present arrangements is not likely to reoccur (see chap. 9, part 4).

Fuel has been added to the monopoly-monopsony argument by the US General Accounting Office which, in a study entitled The Government's Role in East-West Trade - Problems and Issues (1976), argued strongly for government involvement in East-West trade on the grounds that US firms and banks are manipulated by powerful communist trading organizations which come off with most
of the gains from trade. Manipulation consists of playing foreign exporters off against each other—a process called "whipsawing." To test this hypothesis, the Department of Commerce Advisory Committee on East-West Trade sent questionnaires to some 500 American enterprises exporting to the USSR. Most of the respondents reported profitable trade with the USSR and either no whipsawing or no more than they experienced in trade with other capitalist countries.\(^1\) Jacob Dreyer (1978) of the US Dept. of Treasury tried to test the whipsaw hypothesis empirically by comparing the prices at which the USSR imports a wide range of products from the US with prices paid by other importers in 1975/76. He found very little difference in prices at all and especially differences which might be attributed to whipsawing.

If Soviet market power appears limited with regard to importing, it appears even more so on the export side. This is particularly true of manufactured products. In the words of one analyst, "As a rule, Soviet prices of manufactured goods are set below prices of competing goods in the West; in some cases discounts are quite substantial..." (Ericson, 1976, p. 723). The potentiality for market power does exist in the case of some half-dozen or so raw materials with a total value of a few billion dollars. For example, in 1975, non-western exports including those from the USSR, amounted to more than 30 percent of Western imports in distillate fuels; sawlogs, etc.; platinum, etc.; sunflower seed oil; and ores and chromium. However, with the exception of distillate fuels which were 12.3% of Soviet exports to the West, the rest constituted tiny fractions of Soviet hard currency exports (Wolf, 1977). Further, while the potential for exercise of monopoly power exists in these and perhaps a few other cases, the author points out that the Soviet

Union is not a very "price sensitive" trader always on the lookout to maximize profits.

To sum up: in commodity trade, the USSR and especially the smaller nations of Eastern Europe, would seem to have little market power with which to reap excessive gains in their dealings with the private enterprises of the advanced western nations.

Conclusions

The US and USSR both stand to gain from East-West trade/although the gains to the USSR would appear to be somewhat greater. Their gains from trade with each other are considerably less, particularly for the United States, although a potential for larger US gains does exist in energy imports. While the USSR undoubtedly gains more from trade with the US and the industrialized West than vice versa, it cannot be viewed as significantly dependent upon this trade. That is to say, Soviet dependence on trade with the West cannot be viewed as an exploitable weakness. It is certainly much less so than, for example, US dependence on imported petroleum.
### Appendix Table 4.1

**Factor Endowments - US and USSR, 1960**

<table>
<thead>
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<th></th>
<th>USSR</th>
<th>US</th>
<th>USSR/US</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population (mns.)</strong></td>
<td>215</td>
<td>180</td>
<td>--</td>
</tr>
<tr>
<td><strong>Employment (mns.)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>39.3</td>
<td>4.4</td>
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<tr>
<td>Non-Farm</td>
<td>47.3</td>
<td>48.2</td>
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<tr>
<td>Selected services</td>
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<td>13.2</td>
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</tr>
<tr>
<td>Total</td>
<td>102.1</td>
<td>65 8</td>
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</tr>
<tr>
<td><strong>Male Employment-8th grade equivalents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm + non-Farm</td>
<td>66.4</td>
<td>54.3</td>
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</tr>
<tr>
<td>Non-Farm</td>
<td>40.6</td>
<td>49.9</td>
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**Net Fixed Reproducible Capital (1955 bns.)**

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<th>rubles</th>
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<th>rubles</th>
<th>dollars</th>
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<tr>
<td>All sectors</td>
<td>3,030</td>
<td>475</td>
<td>7923</td>
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<tr>
<td>farm</td>
<td>397</td>
<td>51</td>
<td>496</td>
<td>50</td>
<td>.800</td>
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<tr>
<td>non-farm</td>
<td>1,659</td>
<td>278</td>
<td>3927</td>
<td>519</td>
<td>.422</td>
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<tr>
<td>selected svces</td>
<td>974</td>
<td>145</td>
<td>3500</td>
<td>530</td>
<td>.278</td>
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**Land (mns. acres)**

<table>
<thead>
<tr>
<th></th>
<th>rubles</th>
<th>dollars</th>
<th>rubles</th>
<th>dollars</th>
<th>$$$$</th>
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</thead>
<tbody>
<tr>
<td>cultivated area</td>
<td>549</td>
<td>359</td>
<td>1.53</td>
<td></td>
<td></td>
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<tr>
<td>cultivated area in quality equivalents</td>
<td>275</td>
<td>359</td>
<td>.17</td>
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**Total Factor Inputs**

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<tr>
<th></th>
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<th>dollars</th>
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<tbody>
<tr>
<td>all sectors</td>
<td></td>
<td>.96</td>
<td>.118</td>
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<tr>
<td>non-farm</td>
<td></td>
<td>.65</td>
<td>.81</td>
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**Total Outputs**

<table>
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<tr>
<td>all sectors</td>
<td>.315</td>
<td>.497</td>
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<tr>
<td>non-farm</td>
<td>.268</td>
<td>.474</td>
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</tr>
</tbody>
</table>

**Source:** Bergson-Eckstein, pp 180-181, 197, 203-205.

**Notes:**
1. The ruble figures cited above are in pre-1961 reform prices. For comparability with post-1961 ruble values, they should be divided by ten.
2. Value figures (capital, inputs, outputs) have to be compared by putting both in either rubles or dollars. For well-known reasons, ruble estimates favor the US and dollar estimates, the USSR.
Appendix Table 4.2

Factor Ratios - USSR and US, 1960

<table>
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<tr>
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<th>USSR/US</th>
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<tr>
<td>labor force/population</td>
<td>.474</td>
<td>$</td>
<td>.366</td>
<td>$</td>
<td>1.295</td>
</tr>
<tr>
<td>cultivated land (acres)</td>
<td>14</td>
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<td>82</td>
<td></td>
<td>.17</td>
</tr>
<tr>
<td>per farm worker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital per employee</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29676</td>
<td>4652</td>
<td>120410</td>
<td>16716</td>
<td>.246</td>
</tr>
<tr>
<td>Farm</td>
<td>10101</td>
<td>1298</td>
<td>112272</td>
<td>11364</td>
<td>.090</td>
</tr>
<tr>
<td>nonfarm</td>
<td>35073</td>
<td>5877</td>
<td>81473</td>
<td>10768</td>
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</tr>
<tr>
<td>services</td>
<td>62838</td>
<td>9355</td>
<td>265151</td>
<td>40151</td>
<td>.237</td>
</tr>
<tr>
<td>Capital per acre (rubles or $'s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>per acre</td>
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Derived from Appendix Table 4.1
References - Chapter 4


CIA, USSR: Long-Term Outlook For Grain Imports, January 1979.

CIA, USSR: The Impact of Recent Climate Change on Grain Production, Oct. 1976.


# Chapter 2

## Creditworthiness of Centrally Planned Economies

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Creditworthiness of Centrally Planned Economies

The objective of the next two chapters is to evaluate possible US credit policies toward the Soviet Union. Perhaps the single most important economic criterion to be considered is "creditworthiness"—whether or not the USSR can repay loans which may be extended to it. This criterion occupies a much more important place in our calculations now than ever before because of the recent rapid buildup of Soviet hard currency debts to the industrialized West. Unfortunately, how creditworthiness is measured has long been a moot question. The issue is further clouded by the fact that in developing criteria of creditworthiness, bankers have considered only capitalist economies and it is not immediately obvious that these criteria are applicable to centrally planned economies as well. For these reasons, this chapter will be devoted to the debt of the USSR and to the rest of Eastern Europe and to how the creditworthiness of these countries might be measured. We deal with Eastern Europe as well as the USSR because (1) we are searching for principles applicable to communist nations and having a sample of more than 1 may give us a broader and more general perspective and (2) to some extent, western creditors view the CMEA nations as a group and it therefore behooves us to give some attention to the debts of the rest of Eastern Europe. Some ways of approaching creditworthiness are suggested and possible future debt trends are discussed. In chapter 6, alternative credit policies facing the United States are presented and evaluated.

Brief History of Soviet Credit Relations

The USSR, not to mention Russia under the Czars, has had a long history
of borrowing funds and resources from other nations. As indicated in Chapter 2, Imperial Russia was the largest debtor nation in the world in the early twentieth century—probably in history until that time. These debts were canceled unilaterally by the Soviet Government shortly after the November 1917 Revolution and, in addition, all foreign investments in Russia were nationalized. This treatment was not particularly discriminatory against foreigners since Russian capitalists were treated similarly.

The spirit of capitalism is indomitable and it wasn’t long before loans to and investments in the land of bolshevism commenced again—in the so-called “concessions” of the NEP in the early 20’s and then during the first two Five Year Plans. While neither of these phases lasted very long, they were each concluded in a more satisfactory fashion from the point of view of the creditors than had been true earlier. Investors were bought out and creditors repaid and the USSR actually achieved a reputation for always paying its commercial debts at a time (during the Great Depression) when defaulting on debts, internal as well as international, was becoming the rule rather than the exception in the capitalist world.

The Soviets borrowed again during World War II in the form, primarily, of U.S. Lend-Lease. Negotiations over the final repayment settlement on this wartime aid have been described above. Many Americans have been less than satisfied with the Soviet reluctance to repay the amount asked by the United States. However, as indicated earlier, a case can be made in support of the Soviet position. Soviet borrowing from the West ceased after World War II as a result of cold war political situation. Soviet requests for large credits from the U.S. were cold-shouldered and, for reasons which can be guessed at but are still not entirely unambiguous, the USSR did not get included in the
Marshall Plan. Unable to borrow from the richer half of the world, the Soviets, as they recovered from the war, became a lender to the poorer half—to the communist nations and to the non-communist LDC’s. These activities began in the mid-fifties. In fact, before that, the USSR received net assistance in reparations from the former enemy nations. Over the whole postwar period, its loans to other communist nations have amounted to about $15 billion (until 1976); offsetting this, over the past 10 years some of the Eastern European nations have contributed to the financing of large joint projects built on Soviet soil to be repaid in the products of those investments. By 1978, the Soviets had extended close to $17 billion in economic aid to the noncommunist LDCs; however, less than half of that amount had been drawn upon.

The terms of Soviet economic assistance have been quite different from those of capitalist nations in their credit relations with poorer nations. On the one hand, unlike much official western aid, the USSR has given very few pure grants; on the other hand, interest rates have been low ranging from 2-1/2 to 4 percent. Most loans are short or medium term and very few, if any, exceed 8 years. Loans are almost always 100 percent tied; however, repayment is also usually tied—that is, the debtors repay in the form of export of goods. Western assistance to the LDCs, on the whole, is hard to categorize since it encompasses not only aid by nation states, but by international organizations with interest rates which may or may not be concessionary (low) and loans and investments by private banks and investors much of which are at higher market rates of interest and profit.

1 CIA, Handbook, 1979, p. 116. Military contracts totalled almost $30 billion in the same period but it is not clear that these were viewed as "aid."

2 Before turning to the Soviet Union’s recent debtor experience vis à vis the advanced western nations, it is important to note that these debts to the West cannot be offset by repayments to the USSR of credits which she has extended to other Eastern nations and to Western LDCs. This is because almost all of the credits outstanding are scheduled to be repaid either in convertible currencies or in products probably not easily exportable to the West.
Economic relations between Eastern and Western Europe began to change substantially in the early sixties (chapter 2). East-West trade increased steadily and, not unnaturally, credit relations improved simultaneously. The direction of the credit was mostly from West to East for two reasons. First, the East wanted to buy more from the West than vice versa thereby implicitly generating deficits. Second, the East was buying a lot of machinery and equipment from the West, and it is common trade practice to sell such products on medium to long term credit terms. While long term credits were not at this time extended to Eastern Europe, medium term credits were. At first, the United States lagged behind, not participating in the expansion of trade and credit. With détente, US trade and credit policies began to catch up in the early 1970s but these changes were largely aborted by Congressional actions in 1974-75 and then by President Carter's reactions to the invasion of Afghanistan.

Recent Hard Currency Debt Buildup - Some Estimates

The history of credit relations between East and West is not hard to quantify in a rough sort of way but it is difficult indeed to do so with precision. Fairly precise estimates might be made from balance of payments data -- but unfortunately most of the eastern nations do not provide much information beyond commodity trade figures. These figures are deficient in three respects: they do not include the remainder of the current account transactions--the so-called invisible items like freight and insurance, interest and profits remissions, tourism, etc.; further, no official breakdown between hard and soft currency transactions is ever presented although some educated guesses are possible; finally, sales of arms for hard currency are also never made public.
Another approach is to try to assess the amount of credit extended by surveying the various possible sources of credit: official loans by governments, loans by banks, and by other investors, suppliers credits, etc. To the extent that the communist nations hold offsetting financial assets in the West—for example, deposits in Eurodollar banks—it would be essential to make a distinction between their gross and net debtor positions. One also has to make a distinction between the amount of credit extended as opposed to the amount drawn down and to use the figure which is relevant to the particular point at issue.

While both of these approaches have been used and while no two persons have ever come up with identical figures, it is nevertheless a fact that a fair degree of consistency among estimates has been achieved and there is rough agreement on the orders of magnitude involved. The orders of magnitude are roughly as follows. During the 1960s, the USSR ran trade deficits with the West amounting to about $2-1/2 billion, the rest of Eastern Europe, about $3-1/2 billion (Portes, p. 757). The trade imbalances from 1970 through 1978 are presented in Table 5.1.\(^1\) At the end of 1977, the net hard currency debts of all of the East European nations were estimated to have broken down as follow (Table 5.2):

---

\(^1\)Since these are just trade and not current account balances, they cannot be expected to add up to the debt figures presented just below. Further, in the case of the U.S.S.R., part of the deficits were financed by gold sales rather than credit. Finally, some trade with developed west is not in hard currency and some hard currency trade is with other than developed west nations.
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<td>11.1</td>
<td>16.5</td>
<td>17.8</td>
<td>19.2</td>
<td>19.3</td>
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<td>-0.8</td>
<td>-1.3</td>
<td>-2.6</td>
<td>-5.2</td>
<td>-6.5</td>
<td>-6.4</td>
<td>-6.0</td>
<td>-6.4</td>
</tr>
<tr>
<td><strong>USSR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports</td>
<td>2.4</td>
<td>2.8</td>
<td>3.0</td>
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<tr>
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<td>4.2</td>
<td>6.2</td>
<td>8.1</td>
<td>13.5</td>
<td>14.4</td>
<td>16.4</td>
<td>16.2</td>
</tr>
<tr>
<td>Balance</td>
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<td>-0.1</td>
<td>-1.2</td>
<td>-1.1</td>
<td>-0.1</td>
<td>-5.1</td>
<td>-4.1</td>
<td>-1.2</td>
<td>-3.2</td>
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Table 5.2


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<tr>
<th>Country</th>
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<td>Bulgaria</td>
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</tr>
<tr>
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</tr>
<tr>
<td>GDR</td>
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</tr>
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<td>Hungary</td>
<td>3.4</td>
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<td>Poland</td>
<td>12.8</td>
</tr>
<tr>
<td>Romania</td>
<td>3.8</td>
</tr>
<tr>
<td>USSR</td>
<td>16.0</td>
</tr>
<tr>
<td>CMEA banks</td>
<td>3.5</td>
</tr>
<tr>
<td>Total</td>
<td>$50.9</td>
</tr>
</tbody>
</table>

Source: Kolarik, p. 199.

Offsetting these debts are Eastern deposits in western banks which were estimated to have amounted to some $6 billion in 1976, half of which were owned by the USSR. These are fairly large debts even after subtracting deposits in western banks and that is one (but not the only) reason why credit policy toward the communist nations is an important public issue today. Not only are these debts large but their rise has been meteoric since 1970: from $8.3 bn. to $50.9 bn. for the total debt; from $2.5 to $16.0 bn. in the case of the USSR. Of course, the communist nations are not the only ones with rapidly growing external debts today. The non-Opec LDCs and several of the Western European nations have even larger and more worrisome debts.

What were the sources of these loans, particularly those to the USSR?1 As of the end-1977, the USSR had utilized almost $10 billion in credits from other governments out of approximately $14 billion in loans extended. Private western bank credits to the USSR amounted to $4.4 billion of which about $1 billion were Eurocurrency loans. Finally, some $2.2 billion in loans were

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1 My source on the figures which follow is Kolarik, p. 198.
in the form of supplier credits. Eastern Europe credit sources were approximately the same as the U.S.S.R. with regard to official credits and supplier credits. However they received loans amounting to more than $16 billion from private banks—four times as much as the U.S.S.R.—of which almost half came from the Eurocurrency market. As far as official credits are concerned, the major lenders have been the UK, France and West Germany. The United States has extended almost no loans to Eastern Europe and was responsible at the end of 1977 for only 3 percent of those to the USSR in contrast with roughly 24% by France, 23% by West Germany, and 22% by Italy. This is not surprising in light of the Stevenson amendment to the Trade Reform Act of 1974 which limited Export-Import Bank credits to the USSR to $75 million a year for four years (specific Congressional approval being required for loans in excess of this amount). The Jackson-Vanik amendment which tied MFN to emigration policy for all Eastern nations must also have contributed to the creation of an atmosphere unconducive to official credits to other eastern nations.

Reasons for Debt Buildup

Why is the USSR (Eastern Europe) borrowing so heavily from the West at present? Some of the responsible factors were discussed in Chapter 3 and may be briefly repeated here. These factors were mostly systemic in nature and may be expected to cause balance of payments pressures over the long run. Among the most important were the relative (to the West) difficulties the communist nations were having in producing quality manufactured products and in developing and diffusing new technologies. This is responsible for both reducing exports and increasing the demand for imports. Since manufactured products and products embodying advanced technologies are the major source of exports of the more developed nations, this is a very serious
deficiency. Unlike the rest of the Bloc, the Soviets can earn hard currency by exporting raw materials, particularly oil and gas, not to mention gold.

As we saw above (chapter 4), however, the long-run prospects of earnings from these sources, especially oil, are problematical. As far as imports are concerned, problems with advanced manufactured products and products embodying new technologies just referred to above, provide the major impetus to trade with the West. In 1976, four-fifths of Soviet imports from the industrialized west were comprised of machinery and manufactured products, another 9 percent were chemicals (U.S. Dept. of Commerce). The imports of all Eastern European nations were dominated by the same categories of products. Especially in the case of the USSR, it seems clear that a large proportion of these imports are designed to remedy declining growth rates—to substitute "intensive" for "extensive" sources of growth (see Chap. 3). Soviet (as well as western) data show seriously declining growth rates, as the figures in Table 7.1 below (p. ) demonstrate. The last two Five Year Plans have emphasized that imports of technology from the West are important to the fulfillment of planned tasks (cf. chapter 7). Our own skepticism regarding the probable impact of such imports was presented in Chap. 4.

A related factor in the rising deficits has been the gradual erosion since the early 1960s in Bloc self-sufficiency in grains. This self-sufficiency, as is well-known, depended on Soviet grain surpluses to meet Eastern European deficits. The failure of Soviet grain output to increase rapidly along with an unusually large number of years with bad weather conditions over the 1st decade and a half have forced the USSR to import huge quantities of grain costing billions of dollars from western suppliers. Three other systemic factors which create secular hard currency problems (two are noted
in chapter 3) are the overfull employment planning pressures, the inability of communist nations to devalue their currencies in order to rectify balance of payments disequilibria, and the need to use credits as a substitute for equity capital flows which are largely proscribed on ideological grounds.

Two new developments appeared on the horizon in 1974, one of which has had serious balance of payments consequences for all of the Bloc nations, the other mixed effects. It used to be an article of faith held by eastern and western observers alike that the communist nations, with their central planning and large arsenal of instruments to control both domestic and foreign trade, were relatively immune from the kinds of disruptions of economic life which capitalist nations tend to transmit to each other through international economic and financial transactions. This has not proved to be the case. The major blow to this theory and to the balances of payments of the communist nations has been the recent western recession. When western nations go into a slump, total spending declines including spending on imports from other nations. It was this effect which caused world trade to collapse during the years of the Great Depression of the 1930s. World trade was also seriously affected by the western recessions which began in 1974. In nominal prices, world trade increased by 39 percent in 1973 and by 45 percent in 1974 but fell off to 5 percent in 1975 and 13 percent in 1976 (World Bank, p. 106). The very high rates of increase for 1973 and 1974 are partly the result of inflation, of course; moreover, taking inflation into account, it is highly possible that, in real terms, world trade declined in 1975 and perhaps in 1976. The decline in world trade is one of two major factors behind the current rise in the US balance of payments deficit--other nations are simply not increasing their imports from us as much as they used to. (The other major factor in the US deficit, of course, is the rising cost
of oil imports.) The hard currency exports of the communist nations suffered a similar fate.

Table 5.3

<table>
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<th>Year</th>
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<tr>
<td>1974</td>
<td>+35</td>
<td>+61</td>
</tr>
<tr>
<td>1975</td>
<td>-3</td>
<td>+1</td>
</tr>
<tr>
<td>1976</td>
<td>+13</td>
<td>+25</td>
</tr>
<tr>
<td>1977</td>
<td>+7</td>
<td>+16</td>
</tr>
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</table>


The drop in growth after 1974 is obvious. While in nominal terms, exports increased each year except for Eastern Europe in 1975, in real terms Eastern Europe may have almost no increase in exports over the three year period. In real terms, Soviet exports also declined in 1975 and the real increases in 1976 and 1977 must have been very modest since the prices of Soviet energy exports rose substantially. Clearly, centrally planned economies are very vulnerable to western business cycles.

The second development referred to above has been the world inflation, and particularly the rise in petroleum and other raw material prices. First, a word about inflation. Inflation, per se, is not the serious problem for the communist countries that it is for capitalist nations. As is well known, capitalist nations tend to import inflation from each other through a number of different channels. One of these is the higher price at which foreign products must be purchased, which higher prices tend to become incorporated into the domestic price level. This need not happen in a communist country because of the absence of organic connections between foreign
and domestic prices. If a communist country has to pay twice as much foreign exchange for a foreign commodity, it can still (and does) price that product in domestic markets as before simply by giving the Foreign Trade Organization a subsidy. Further, even though it is paying twice as much foreign exchange for a foreign commodity, if there is general inflation, it will be able to sell its own products in western markets for double the old price thereby ending up no worse off in real terms. Moreover, as with imports, the internal prices of exportables need not be changed just because they are now being sold in the west at higher prices—the Foreign Trade Organization simply hands its excess profits over to the Government.

The communist nations are affected, however, by increases in prices which are not uniform. The recent world inflation has been a case in point—petroleum and raw material prices have risen more rapidly than other prices. For the Soviet Union, this has been a windfall and has substantially increased its hard currency earnings as it has those of the OPEC nations. This partly explains the enormous 61 percent increase in Soviet hard currency earnings in 1974. For most of the other Eastern European nations, however, it has been a disaster since it has significantly increased their expenditures on petroleum imports both from the USSR and from OPEC. This reduction in what economists call the "terms of trade"—an index of export prices over import prices—means a real reduction in the gains from trade since these nations must export more at the new price levels in order to buy the same amount of imports.

To sum up on these two recent developments: the rise in raw material prices, especially of petroleum, has substantially increased Soviet hard-currency earnings. In fact, as of 1977, exports of petroleum and natural

1The rise in petroleum prices, by enormously increasing the hard currency earnings of Middle East OPEC nations, made it possible for the USSR to export arms to these nations for hard currency thereby indirectly increasing Soviet hard currency earnings.
gas accounted for somewhere near one-half of these earnings. On the other hand, the western recession made a tremendous dent in these earnings and led to unprecedented deficits as western imports shriveled.

Two final factors, both related to detente, should be mentioned as contributing to the recent debt buildup. These are: on the part of the West, an increased willingness to lend to the eastern nations; and on the part of the East, an increased willingness to go into debt to the West. The increased willingness to lend was enhanced during the recession of the mid-seventies, by the decline in western demand for and, therefore, greater availability of funds. The increased willingness to borrow was enhanced by the low real rate of interest as a result of inflation.

Alternatives to Western Loans

A few pages back we asked the question: why is the USSR borrowing so heavily from the West at present? The answer suggests that to a considerable extent the borrowing may be involuntary in the sense that (1) systemic difficulties prevent balance and/or (2) the western recession so rapidly reduced exports that it was either impossible or highly undesirable immediately to reduce imports commensurately. (For all eastern nations but Poland and the USSR, adverse shifts in terms of trade created similar problems.) One might legitimately ask why there is such concern over the rise in debt? Several factors would appear to be responsible. First, as the debt rises, eventually interest and amortization repayments—the so-called debt service—begin to absorb a larger and larger percentage of receipts from exports. Similar considerations limit the amount of debt that private individuals or businesses care to have outstanding. Most of the East European nations have hard currency debt service/export ratios that amount to 25 or more percent of hard currency
earnings. (Debt service/export ratios will be discussed in greater detail later in this chapter.) A second factor, inhibiting continual increases in the external debt, especially if the debt is increasing faster than export earnings and GNP, is the doubts that this may cast on the creditworthiness of the borrowing country. There are two aspects to this. First, a nation of the nature of the USSR may feel that it is inappropriate for it to be so much in debt to other, especially capitalist, nations. Second, creditor nations and private lenders may fear for the safety of their capital and interest should the borrowers get very heavily in debt; such fears are reflected in reluctance to extend additional credits and/or the charging of higher rates of interest. These would seem to be the main political and economic factors constraining unlimited growth of debt.

Gold Sales

Other techniques have been used to continue running deficits but without incurring rising debts and debt-services. The Soviet Union, in particular, as the second largest gold producer in the world after the Union of South Africa, has the option of substituting gold sales for increases in debt. No one in the West knows exactly how much gold the Soviet Union produces but US government sources put annual output as having risen from 3-1/2 million Troy ounces in 1960 to 6-1/2 million in 1970 to 8.8 million in 1978.¹

The 1978 output would be worth $880 million at $100 an ounce and $1.76 billion at $200 an ounce. Generally, over the past 10 years, price has ranged from $800 to more than $240 an ounce depending largely on the state of mind of speculators in world money markets (whose state of mind is largely determined by

the degree of stability or instability in these markets). At end-1976, one western observer estimated Soviet gold reserves at 3,250 tons and valued at $13 billion\(^1\); another source put reserves at 44-1/2 million troy ounces in 1978.\(^2\) Basically reserves are estimated from "guesstimates" of output from which are subtracted sales on western markets. The latter figures can, of course, be calculated from western sources. The Soviets sold gold to help finance hard currency imports from the late 1950s and to the mid-1960s. At this point sales dropped off sharply and in many years there were no gold sales.

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\(^1\) Portes, p. 768. This estimate implies that a price of $125 an ounce was assumed.

\(^2\) CIA, 1979, p. 69.
sales at all (below). Heavy sales were resumed in 1972 and from 1973 to 1976 are estimated to have averaged about $1 billion a year. The interesting question at this point is why the USSR did not finance more of its very large 1975-1976 deficits by still greater sales of gold to prevent its debt from increasing so rapidly, and to prevent possible threats to its "creditworthiness" position with the possible consequences just noted above. Several possible answers come to mind. First, as one of the largest sellers of gold, USSR sales can definitely influence the gold price, and the lower prices which might result from larger sales might affect Soviet sales policies. If, for example, demand is price inelastic in some years when more than $1 billion worth of Soviet gold is put on the market, it would be self-defeating to sell more than that amount. Second, a nation of the size of the USSR and with its volume of trade may well feel that it is extremely expedient to have substantial reserves of gold or hard currency which have a very high degree of convertibility and spendability as well as stability of value. A large reserve is the more essential when one considers that it is undoubtedly a reserve not only to meet Soviet emergencies but to meet emergencies which may develop in other CMEA nations. It is well-known, for example, that on various critical occasions the USSR has made large hard-currency loans to other nations in the Bloc, for example, to Hungary after the 1956 uprising and to Poland after the December, 1970 riots. Abstracting from the monopolistic effect on price of Soviet sales of gold, it is fair to say that the USSR is putting an implicit value on the importance of having a gold reserve which is available to meet emergency needs; that value is the difference between the zero return

on holding gold stocks and the 7,8,10 or whatever percent interest that has to be paid on credits which are negotiated to protect the gold stocks. This assumes that the Soviet leaders are completely rational in their decision to maintain a large gold stock at the cost of a larger debt. Such an assumption is not entirely warranted, of course, for the Soviet Union or, for that matter, for officials of other nations. Gold has its mystique and this seems to be worth quite a few interest percentage points to many people. Charles De Gaulle was a case in point. The current high price of gold has, in part, justified its mystique. The persistence with which the Soviets have thrown resources into gold mining all of these years—even when the price of gold was maintained fixed at $35 an ounce and gold mining may have been unprofitable to the USSR—suggests that to the Soviets gold may have some mystique. Despite some possible irrationality, it is our belief that it is mainly for its emergency value that the Soviets hold such a large gold stock.

**Convertibility of Transferable Rubles**

In order to reduce the need to borrow at high interest rates from western nations, the CMEA nations have introduced what might be called another "ploy." I use the term "ploy" to describe their action because its probability of success seems so remote to me. What they have done, in effect, is to make it legal for foreigners to hold "transferable rubles" (TRs) and to encourage them to accept TRs in payment for products purchased by CMEA importers. TRs were described in Chapter 3. They are a currency created by the CMEA International Bank for Economic Cooperation (IBEC) in an effort to multilateralize intra-CMEA trade. Trade was bilaterally balanced in CMEA because all national currencies were inconvertible. The TR did nothing to solve the bilateralism problem because it turned out, as some predicted, that it was
and is as inconvertible as any of the domestic currencies of the CMEA nations. Inconvertibility, as noted earlier, stems from the irrationality of domestic prices and from the central planning with direct controls, the latter creating so-called commodity inconvertibility.

For years, it has been a CMEA goal to gradually make the TR convertible, not only for use in intraCMEA trade but for use in the West. The famous Comprehensive Program of 1971 which set forth CMEAs long-run course for the future envisaged that the TR would eventually be used like other currencies for settlements with third countries (Section 7, articles 5 and 12). How this was to be achieved was never spelled out. In recent years, Eastern European international financial experts have floated the idea of creating an "externally convertible TR" for trade with the West—a TR which would be backed by and convertible into hard currencies and gold. How this was to be done was not spelled out nor was the interest that might be paid on such holdings mentioned.

The general impression that these proposals created was that CMEA was attempting to make the TR an international "vehicle" currency like the dollar (and a few others like pound sterling, French franc and German mark) which foreigners would be willing to hold for their convenience in use in international trade and at low or negligible interest rates. The low interest which is paid on vehicle currency holdings is a tribute to their wide use, acceptability, and great convenience. The willingness of foreigners to hold these currencies at low interest rates means in effect that the issuing nation is getting cheap credit. This, apparently, is CMEA's major motive in attempting to make the TR externally convertible. A secondary motive may be the prestige connected with having such a currency and not having to rely on capitalist currencies. What the CMEA financial authorities apparently do not
realize is that several conditions are necessary for a currency like the dollar to become widely accepted for international financial use. The nation that issues the currency must be a large trader and have a reasonably large financial market; the currency must have had a relatively stable value for a period of time; and, as a last resort, foreigners must have a wide choice of goods on which to spend the currency in the issuing country. CMEA hardly meets these conditions. It has not been a large trader in the West, it has almost no financial markets, and it is plagued by commodity inconvertibility. Under these circumstances, foreigners have no more incentive to hold large amounts of TRs than they have to hold any of the 100 or more national currencies which are virtually not used multilaterally in international trade. Under these circumstances, the only way to induce foreigners to hold TRs is to pay a high rate of interest on deposits. But this is no better than borrowing money at a high interest rate and therefore not worth the trouble (Holzman, 1978).

Viewed in this light, it came as a great surprise when, in the fall of 1976, IBEC announced that foreigners would be allowed to hold TRs and were encouraged to do so in payment for exports to CMEA importers. The encouragement was almost entirely verbal—in Soviet terminology, "material incentives" were almost entirely lacking. First, interest paid on TR deposits is only one percent, far below western market rates. Second, the TR was not made "externally convertible"—that is to say, a foreigner holding TR deposits could not convert these into western currencies or into gold. Of what use were these deposits? Presumably they could be used for purchases in the CMEA nation from whom the depositor had originally received them. But, and this is the third drawback: the depositor would be faced with "commodity inconvertibility" and would have no guarantee that he would be able to spend
his TRs in a profitable transaction. In effect, the acceptance of TRs for exports is the equivalent of a barter transaction between a western seller and the buyer CMEA nation in which the seller receives a certificate which pays a low rate of interest and which entitles him to purchase a given value of unspecified products at unspecified prices and at an unspecified time in the future. If he is lucky, the holder of the TRs will eventually find something he wants to buy at a reasonable price or will find some other western purchaser who has a use for the TRs and has permission to transfer the TRs to him, no doubt at a discount.

Obviously, western exporters who understand fully the terms on which the TRs are paid would be unlikely to accept them voluntarily as payment. According to reports, some western exporters have nevertheless accepted TRs in part payment, with convertible currency making up the rest. This may have happened, in part, from ignorance. In other instances, part payment in TRs has been a condition of sale, a condition which some CMEA importers have been able to insist on when faced by a number of competing sellers, a not uncommon phenomenon in the soft state of the world market in the late 1970s. Skepticism regarding the value of TRs is widespread in US banking and business circles and it is unlikely that western holdings of TRs will amount to much, under present terms.

What are the prospects for a convertible TR? Not very good in this writer's opinion. As I see it, there are two possible ways of achieving convertibility. One way is to make the TR "externally convertible" by agreeing to convert it, upon demand, into gold or convertible currencies. In addition, deposits would have to pay a reasonable rate of interest. Given the existence of "commodity inconvertibility," it seems likely that pretty close to a 100 percent gold hard currency reserve would be required as backing. Under these
circumstances, more flexibility of operation is probably realized by borrowing in western markets, as the USSR has done, and having its gold reserve free for use in emergencies. The second way of achieving convertibility is to undo the conditions which cause inconvertibility--both currency and commodity inconvertibility. As we saw in chapter 3, inconvertibility stems from irrational prices which are not related to world prices and from the direct controls which ration a large percentage of domestic transactions. The only way, as I see it, to eliminate these conditions is to decentralize (or eliminate) planning, and allow relatively free markets and prices both domestically and in foreign trade. Under these circumstances, an organic connection will develop between the domestic and world markets, and the domestic currency will become exchangeable (convertible) again into other currencies--it will have a real ascertainable value and it will be usable by foreign holders in the purchase of a wide range of products within its borders. Once the domestic currencies of the CMEA nations become convertible, of course, there is no need for the TR--since it was introduced to overcome the problems created by inconvertible domestic currencies.

To sum up: the efforts of the CMEA nations to expand the use of the TR in East-West trade appears to be an attempt to cope with their credit problems--an attempt which seems doomed to failure.¹

Switch Trading

Several other techniques have been developed over the past decade either in whole or in part to cope with hard currency deficit problems.² One


²Discussed in Marer's article in McMillan, pp. 141-142; and in Matheson, McCarthy and Flanders article in Post-Helsinki, pp. 1277-1311.
of these is a financial arrangement called "switch trading." "Switch trading" is made possible by the fact that CMEA nations often have bilateral surpluses with specific LDCs for which they receive payment not in convertible currency but in so-called "clearing credits." As with the TRs, these credits are inconvertible and must be spent in the country of origin. An eastern nation with such credits attempts to use them to finance imports from the west. Naturally, such credits can only be used at a discount relative to their official value, the discounts varying according to Marer (1974, p. 141) from seven to thirty five percent. The discounts vary with the value of the products which are available from the different LDCs--their resale value and marketability elsewhere. The CMEA nation doesn't have to sell its clearing currency directly to a potential importer; there are brokers who deal in switch currencies. Of course, while convenient, selling to these brokers means receiving still less for the currency since the broker's fee must be included.

Barter, Counterpurchase and Compensation Agreements

There are three other techniques, non-financial in nature, which have been designed to avoid hard currency payments. These are called, respectively: barter, counterpurchase, and product payback (or compensation) agreements. These three techniques are not entirely distinct but are related in the sense that each involves payment or part payment by the eastern nation in kind rather than in currency in exchange for an import. Barter refers to a purely barter transaction in which one product is directly exchanged for another. No money or credit is involved and the transaction is concluded over a very short time period.

Counterpurchase refers to the case in which an eastern organization buys technology or plant and equipment from a western exporter who in turn agrees
to buy commodities from the CMEA organization equal to a certain percentage of the value of his sale. The western exporter extends credit to the eastern importer, which credit is repaid in part or in whole when the western exporter makes his counterpurchase. As in the case of pure barter, the products bought by the western partner can be anything at all and need not be related to the technology or plant and equipment in the original transaction. The counterpurchase of vodka in return for the technology and plant and equipment to produce pepsicola which was bought by the USSR is a case in point. Unlike barter, counterpurchase agreements often take place over a several year period. Finally, as with switch transactions, the western purchasing commitment can be transferred to a third party, often a trading house which specializes in this type of transaction.

Product payback or compensation agreements are more like counterpurchases than barter. However, in the product payback agreement, the product is usually the output which results from the imported technology or equipment. An example would be the petroleum imported by Japan from Eastern Siberia from Soviet wells developed by the Japanese; another--the shipment of Fiat automobiles to Italy in part payment for the plant built in the USSR with Italian help. Transactions like these also differ from counterpurchase in two other major respects: they are, by their nature, likely to take place over much longer periods of time and to have a much larger total value. Sometimes the product payback exceeds the value of the original investment.

One basic motive behind all of these three types of transactions is to avoid payment in hard currency—an--to pay in commodities instead. Another side

1There are other Soviet Bloc motives, of course. A most important one is that compensation arrangements facilitate transfer and updating of technology.
of the same problem is that, in effect, the eastern partner shifts its marketing problems onto the shoulders of the western partner. However, to the extent that the western partner feels that he is disadvantaged by these agreements relative to just receiving payment in convertible currency, other terms of the agreement are undoubtedly adjusted in compensation. It is also worth noting that to the extent that the eastern product is a "hard" commodity like petroleum and easily saleable for convertible currency, then no balance of payments advantage is gained by engaging in the above-described practices.

There is one other credit aspect to the compensation agreements that is very favorable to the CMEA countries. I refer to the fact that they often constitute, in effect, the extension of a very long-term credit. The western partner advances technology and equipment to the eastern nation and because of the long gestation period often involved in such projects, repayment in products does not begin for many years, and, once begun, continues for many more years. This means that the eastern country receives credit which does not burden its hard currency balance of payments position—either in currency or exportable goods—for many years. In terms of the discussion below, the debt service/export ratio is not raised in the short- or even medium-run even though the debt/export ratio may have risen. Eventually, of course, the chickens come home to roost—but the borrower does get a breather in the meantime.

How important quantitatively have these various agreements been? Their impact on trade flows is difficult to estimate and data are not too reliable or plentiful. It has been estimated for 1975 that of the total western exports of machinery and equipment to the USSR, about 15 percent or roughly $615 million worth resulted from compensation agreements. The comparable estimate for US sales to the USSR was 17 percent or roughly $100 million in
sales. A Soviet deputy minister, referring to the giant multi-faceted $1 billion Occidental agreement with the USSR estimated that more than one-third of US-USSR trade over the 1976-1980 plan might be attributable to compensation agreements.\(^1\) Another source (Barclay, p. 468) estimates Soviet compensation exports at $1.45 billion in 1978, or slightly over 10 percent of total hard currency exports. The former are expected to rise to approximately $4 billion by 1985. These are rather substantial though certainly not earth-shaking amounts. Further, one must assume that had there been no compensation agreements, some of the trade which has resulted would have been substituted for by ordinary commodity trade. Nevertheless, these special agreements do appear to be an important trade and credit catalyst.\(^2\)

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\(^1\) All above figures in this paragraph taken from Maureen Smith's article in New Perspective, p. 782.

\(^2\) In January, 1980, President Carter set a quota on imports of ammonia from the USSR under its agreement with Occidental Petroleum. Authority for the quota resides in the Trade Reform Act of 1974, Section 406. Section 406 deals with market disruption caused by exports from the communist nations (cf. Chapter 8). This action by the President, while politically inspired, nevertheless follows a similar determination by the International Trade Commission that ammonia imports were disruptive and should be restricted. These actions are certainly very threatening to the future role of compensation agreements in helping the USSR in its financing problems.
There are a few other minor institutional sources of western funds which should be mentioned. We refer here to the operation of eastern banks in western markets and to the Bretton Woods institution, the IMF and IBRD. First, the two CMEA banks, IBEC and the International Investment Bank (IIB) have both borrowed money in private western money markets, which money has been devoted to financing projects in their client nations. Secondly, most of the eastern nations have (or had) established banks mostly in Western Europe which banks also raise funds through borrowing. They also accumulate additional funds simply through deposits of citizens in the countries in which they are established. The best known of these banks is the Moscow-Narodny Bank in London.

The CMEA nations are also acquiring convertible funds by virtue of having joined the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD). At present, Romania and Hungary are members of these organizations and Romania has drawn upon them for $400 million. In my opinion, CMEA nations are interested in joining those institutions primarily in order to have recourse to their convertible currency.
credits. As argued later (chapter 9), they certainly cannot aspire to the goals of these organizations.

**Miscellaneous Arrangements**

Before turning to examine the creditworthiness of the USSR—a basic consideration in any decision regarding future lending policies toward that nation—it is worth mentioning that several other possible courses of action are open to that nation to correct its adverse hard currency balance of payments position.

First, if exports cannot be increased, then it could simply reduce imports drastically to the levels dictated by exports and credit repayments. The returns for 1977 (Table 5.1) suggest that this may already be happening.

Second, the Soviet leaders could indeed opt for a full scale internal reform, one which might over the long-run reduce or eliminate the various systemic tendencies toward hard-currency deficits which were outlined in Chapter 3. In my opinion, this option is unlikely to be adopted just for the purpose of eliminating the hard currency deficit although it might for other related economic reasons such as a continuation of the slump in the growth rate of Soviet GNP. The reasons why substantive internal reforms have been shunned by the USSR are largely political and were spelled out in the last few pages of chapter 3. To these may be added a pair of further arguments. First, the relative smallness of the Soviet foreign trade sector certainly inhibits the planners from making economy-wide reforms in order to ameliorate foreign trade problems. Second, the connection between economic reforms and the balance of payments is sufficiently long-run and indirect as to encourage the planners to try other policies first—as they are doing.

Third, the various members of CMEA sell each other commodities which could be sold for hard currency in the West. Until the early 1970s, the
practice was, in bilaterally balancing trade, to have at least two bilater-
ally balanced sub-categories: "hard" goods and "soft" goods. This was
probably done at the instigation of the particular Bloc nations which sold
the most hard goods to increase their export potentialities to the west. In
recent years, this arrangement has been changed and the eastern nations now
pay each other in hard currency for hard goods. This allows some multilater-
alization of intrabloc trade in hard goods. Now, the USSR is the major sup-
plier of hard goods in CMEA. Since the inflation in raw material prices
which began in 1973, the USSR has not charged other CMEA nations the full
world price and, furthermore, has extended them credits to enable them to
purchase as much as before. On both counts, the Soviet Union has deprived
itself of the possibility of earning additional hard currency in western mar-
kets. Further sacrifice of hard currency has been entailed by the Soviet
role as supplier of grain to the other CMEA nations. At one time, the USSR
was able to play this role as a result of surpluses generated on its own
grain fields. Demand has caught up with supply and, in years with unfavor-
able weather conditions, the USSR has had to import grain from the West in
order to fulfill its export obligations (see chapter 4). Expectations are
that, more and more, imports of grain from the West will be necessary for
reexport to the East.

Oil, Grain and Politics

These latter facts suggest two obvious sources of additional hard cur-
rency for the USSR: divert petroleum exports from Eastern Europe to the West
and stop guaranteeing grain supplies to Eastern Europe. A move in the direc-
tion of supplying less petroleum to Eastern Europe has already been taken. In
1975 and 1976, the increment to Soviet petroleum exports went primarily to
the West: the share of the West in Soviet exports rose from about 27 to 33
percent over 1974-76 whereas the share to Eastern Europe declined from about 50-1/2 to 46 percent. However, the absolute volume of exports to Eastern Europe did still increase. Why don't the Soviets go further in reducing Eastern Europe's share of their petroleum exports and also stop guaranteeing grain to Eastern Europe? Primarily, it would appear, because one of the most important links that the USSR has with its Eastern Europe cohorts is foreign trade. Many decades were spent building up trade relations between nations in CMEA, which nations had very little natural complementarity to begin with as evidenced by the very low level of trade between them, and especially between them and the Soviet Union, before World War II. For most of the postwar period, especially after 1956, the Eastern European nations appear to have gained more from mutual trade than the USSR. Undoubtedly, the Soviet Union agreed to such an arrangement because it viewed intrabloc trade in a framework which Henry Kissinger would have designated as "linkage politics." That is, they traded part of the profits from intrabloc trade for goodwill and for the fact that such trade tended to make the Eastern European nations economically, and therefore politically, dependent upon them. Should the Soviet Union substantially reduce its exports of petroleum and grain to Eastern Europe, it runs the risk of impairing this very important integrating force in CMEA at a time when other long-run plans (such as the "Comprehensive Program") envisage and attempt to implement economic integration by other means. How the USSR views this "tradeoff" between hard currency earnings and CMEA integration is a very important matter but one on which, unfortunately, we have almost no direct information.

1 For details on the politics and economics of intrabloc trade, see my International Trade Under Communism: Politics and Economics, Basic Books, New York, chapter 3.
Creditworthiness

We turn now to investigate the present and potential future creditworthiness of the USSR. This is a most important variable in a determination of US policies toward the extension of credit to that (or any other) nation. It is not the only variable, of course. Nations which the US wishes to support for political reasons may receive loans even if they are not creditworthy—or perhaps even receive gifts. On the other hand, in the case of an adversary nation like the USSR, lack of creditworthiness could prove an absolute barrier to further extension of credit.

The Debt Service/Export Ratio

Unfortunately, creditworthiness is not easy to measure unambiguously. The measure which is typically used is the debt service/export ratio (hereafter ds/x)—or related to this, the total debt/export ratio. These measures were apparently invented by bankers looking for a simple criterion by which to evaluate the creditworthiness of nations, or individual enterprises in foreign countries, applying for loans. Given the use to which the ds/x is to be put and the profession of its inventors, it is not surprising to find that the ds/x is essentially the same kind of measure which is used by bankers and others to evaluate the creditworthiness of enterprises and other economic units (financial institutions, households) within a nation. As one economist recently put it (Minsky, 1975):

A financial system is robust when debt servicing can be readily satisfied by income cash flows and when portfolios contain sufficient cash and marketable financial assets not required by operations to absorb temporary shortfalls in cash receipts. A financial system evolves toward fragility as the cash flows on liabilities increase relative to the cash receipts available for validating debt and as units are stripped of liquid assets.

The ds/x is likewise a cash flow concept in which the cash expenditures on liabilities are the interest and amortization on debts held by foreigners
and the cash receipts are, largely, current account earnings. Since data on invisibles are often unavailable for CMEA, we are often forced to substitute commodity exports for total current account earnings.

How is the \( \text{ds/x} \) used and how good a measure is it of national creditworthiness? The usual rule of thumb which was applied to western nations before, say, 1975 was that a nation is deemed creditworthy if its \( \text{ds/x} \) is below .25 and not creditworthy if it exceeds .25. Unfortunately, this rule of thumb has not always proven consistent with the opinions of informed observers or with events and therefore has to be used with a lot of caution. To give a few examples: Australia and Canada with ratios between .35 and .45 during the 1930's did not default on their obligations whereas various Latin American nations with ratios between .16 and .28 did default (Portes). In recent years, Brazil and Mexico with ratios of .25 and .30 respectively were deemed creditworthy whereas Italy with only .10 was not because its currency was so overvalued. Similarly, Gambia and Mali have ratios below .10 because they are so incapable of servicing debts that no one will extend them credits.

Analytically speaking, the \( \text{ds/x} \) suffers the following weaknesses as a measure of creditworthiness:

(1) First, it is a short-run concept. A nation might have a .25 ratio which, depending on maturities and amortization rates, could represent a 5 year or alternatively a (say) 20 year annual burden. In the latter case, the debt/export ratio would be roughly 4 times higher than in the former case. Obviously the same ratio is less ominous over 5 than over 20 years.

(2) As a short-run concept, the \( \text{ds/x} \) tells us nothing about the ability of a nation to transform its economy over the medium and long run to produce more exportables and import-competing products, thereby improving its
balance of payments and repaying its debt. This "ability" is a function of several factors including resource potential and the proper choice and effective implementation of government policies.

(3) Also because it is a short-run concept, the ds/x takes no account whatsoever of the relative profitability of the debt from the standpoint of either the lenders or the borrowers. Given high rates of interest relative to other investments either at home or in third nations, and lenders may be perfectly content to see the ratio rise still further. Similarly, given very high rates of return on investments financed by funds borrowed from abroad, a borrower may feel justified in further expansion even with a high ds/x. However, no matter how large the profits, eventually exports must be increased and imports decreased. Along these same lines it is worth noting that corporate investors don’t look at cash flows but rather at potential growth, net earnings over time, etc. (Avramovicz, p. 43).

(4) Another important consideration is whether the deficit results because a nation has to finance crucial consumption requirements and has large unexploited and profitable investments or is simply overimporting because of an overvalued exchange rate. This is not as serious a problem as it was in the era of pegged exchange rates but it is still important. While one can make a case for continuing to grant credits where the costs to lender and borrower are accurately reflected in relative prices under properly valued exchange rates, one cannot if exchange rates are out of equilibrium and buyers and sellers suffer from what amounts to a money illusion. Those who lend to nations with overvalued exchange rates in fact suffer greater exchange rate risks.

Despite these weaknesses, we will not discard the ds/x completely. Rather, it may be used with caution taking other factors into account.
An Alternative Approach: The Transfer Problem

Conceptually, the creditworthiness problem can be approached from another standpoint by using an old kit of tools with which economists have traditionally analyzed the so-called transfer problem. One of earliest examples of this type of analysis was the lengthy debate in 1929-30 in the Economic Journal between Lord Keynes and the famous Swedish Nobel Laureate, Bertil Ohlin. The question they debated was whether or not Germany could pay the reparations (R) that were demanded of her by the World War I Treaty of Versailles. The analysis is in two stages or, in current terminology, there is a 2 gap problem.

First, in order to pay its debts, the German nation as a whole must save a sufficient amount to make the payment possible. In technical economic terms, one could say either (1) that in order to pay the debt, current savings must exceed current investment by the proper amount S-I=R (unless the nation has foreign exchange reserves saved from the past) or (2) that the nation must produce more output (Y) than it uses or absorbs, (A) Y-A=R.¹

The second gap is that between international receipts and payments, X-M for short. That is to say, it is not sufficient to save enough output to pay the reparations; in the absence of foreign exchange reserves those savings have to be transformed into more exports and/or fewer imports so that X-M=R. In the absence of foreign exchange reserves or other past savings or stocks that could be used to earn foreign exchange, the two gaps are obviously equated:

\[ Y-A (= S-I) = X-M \]

To repeat, at the macro level, foreign exchange can be earned to pay R only by saving more than is invested or what amounts to the same thing, producing more than is consumed (absorbed).

¹Y is GNP, A is absorption or total spending and = C+I+G where C are consumption expenditures, I are investment expenditures and G are government expenditures.
The Keynes-Ohlin debate carried the analysis still further. It was pointed out that increasing \( Y \) or reducing \( A \) by an amount equal to \( R \) does not automatically result in an increase in \( X-M=R \) particularly in foreign exchange. The problem is that in order to improve its balance of payments, \( X-M \), a nation may have to devalue its currency. Devaluations usually cause some loss in terms of trade. That is to say, the foreign prices of the devaluing nation's exports usually fall more than the prices of its imports so that an \( X-M=R \) in domestic currency will be equivalent to \( X-M < R \) in foreign exchange. This loss was called the secondary burden of the transfer. If a nation faces very inelastic demands for its exports and has very inelastic demand for its imports, it may be almost impossible to make the reparation payment in foreign exchange; at least, the payment will be much more expensive in terms of domestic savings than it would appear from estimates which fail to take account of changes in terms of trade. An analogy would be a situation in which a person had to sell his house and belongings on short notice in order to repay a debt. Clearly, he would not be able to sell at full value under the circumstances. Recall also that declining terms of trade during the great depression forced the USSR to export more grain than they had planned in order to import the targeted amount of machinery.

It is probably obvious to the reader at this point, that the debt repayment problem can be analyzed in the same fashion as the reparations problem. A major difference, however, is the fact that in incurring a debt, most nations (enterprises in nations) receive technology and equipment which may lead to an improvement in \( X-M \) whereas in the case of reparations, the nation starts off on square one.

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1 In fact, the transfer problem apparatus can be and is used today to analyze many problems having to do with improving \( X-M \). The usual procedure is to start with the \( X-M \) target and ask what its \( Y-A \) implications are.
The Savings Gap

We turn now to examine Soviet and East European creditworthiness in terms of their ds/x ratios and the two gaps of the transfer problem.

The Y-A gap can, in theory, be increased to provide more scope for an increased X-M either by increasing the rate of increase or absolute size of Y or by reducing the rate of increase or absolute size of A. In the short run, the communist nations including the USSR would seem to be less capable than capitalist nations of benefiting from increasing Y above its present trend. This is because the goals of maximizing growth rates (within existing constraints) and overfull employment planning are pursued with such intensity under normal conditions that little if any scope is left for improvement. Along these lines, the peacetime USSR has often been likened to wartime capitalist economies. Over the longer run, conceivably reforms in the might be undertaken which would reverse the decline/ rate of growth, encourage domestic innovation and introduction of new technology, and improve the economy in other respects. At the moment, however, the prospects for a fundamental reform appear dim for reasons noted earlier.

Can A be reduced? Twenty five years ago it was commonplace to argue that the power of the Eastern nations to reduce A, particularly by reducing the increase in C--or even reducing C absolutely--was fairly absolute and certainly much greater than in capitalist nations. In the 1930s, after all, the USSR was able to compress the Soviet standard of living, exporting grain and other foods while the people went hungry. Under stress, in the early 1950s, some of the Eastern nations followed the Soviet pattern. Such measures are probably no longer politically possible. The uprisings and riots in Poland in 1956 and 1970 and in Hungary in 1956 as well as the general rise in expectations of steadily rising standards of living in Eastern Europe--
the so-called consumerism movement—evidence of the loss in flexibility with regard to manipulations of C. Additional evidence: the large and expensive grain imports since 1960 to meet periodic shortfalls in domestic output stand in striking contrast to Stalin’s exports of grain in the 1930s. The USSR faces other serious constraints on reducing A. Between the arms race with the United States and hostile relations with China, it appears unlikely that the percentage of military expenditures in GNP can be reduced in the near future. Further, the Soviet rate of investment has been rising steadily—from 21 percent of GNP in 1960 to 31 percent in 1978. This slow upward creep is undoubtedly a response to the decline in the rate of growth of GNP and the secular rise in the capital-output ratio.

Despite the fact that the Y-A gap cannot be easily augmented, Eastern “savings” requirements to finance overseas hard currency debt requirements might be much more easily met than in the West. This is true for at least two reasons. First, as noted in chapter 3, the trade participation ratios (TPRs) of the Soviet bloc nations (X/Y) are generally smaller than those of comparable western nations. What this means is that a given ds/x in the west requires a larger increase in domestic savings to finance it than in the east. Second, and quantitatively more important, the relevant debt service in the case of Eastern Europe is that on trade and investment with advanced western nations only—which amounts to, say, one-third of its total trade. Soviet hard-currency exports amounted to one-fourth of the total,

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2 For example, assume two nations each with a ds/x of .20 but with TPRs of .10 and .30 respectively. The ds/Y will amount to 2 percent in the former case and 6 percent in the latter.
Imports one-third of the total, in 1975. Putting these two factors together suggests that financing a given hard currency ds/x requires a saving effort in Eastern nations that is probably no more than 25-30 percent of that in a comparable western nation.

Some indication of the magnitudes involved in the East are presented in Table 5.4. In col. 3, we present X/GNP ratios for 1973 where X represents not total eastern exports but just hard currency exports. Compare the hard-currency ratio for the USSR of 1.4 percent with that of the US of 7-8 percent. Hungary has the highest ratio--11.2 percent. The ratio of a comparable small western nation would be upwards of 25 percent. These small TPRs in hard currency translate into comparably small ds/GNP ratios, presented in column 5. These range from an insignificant 0.28 percent in the case of the USSR to 3.92 percent in the case of Hungary. The comparable figure for hypothetical small western nations with TPRs of .25 to .50 and ds/x's of .20 to .30 would be 5-15 percent. Five to fifteen percent of GNP would be a substantial drain on current output; 0.3 percent to 3.9 percent much less so. Further, as we note below, these low ds/GNP ratios were generated by fairly large ds/x ratios, mostly in excess of .20.

Another perspective on the primary burden of the ds/GNP is to compare it with the growth in GNP. In column 6 we present the average growth rates

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1 In a recent article on the creditworthiness of LDCs, Robert Solomon concerns himself exclusively with what we have called the Y-A gaps and assumes implicitly that if Y-A gaps problems are resolved, the X-M gap problems will take care of themselves. This may well be due to the much larger Y-A problems experienced by the LDCs as noted in the text. On the other hand, for reasons which are explored here, the X-M gap problems can certainly not be taken for granted when dealing with Communist nations (Cf. Robert Solomon, "A Perspective on the Debt of Developing Countries," Brookings Papers, 1977, No. 2).

2 This is not meant to imply necessarily that the gains from the imports financed by borrowing are not large enough to carry the debt service.
<table>
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<tr>
<th>Country</th>
<th>Total X GNP (7)</th>
<th>% X to Dev'd West (2)</th>
<th>% X/GNP (3)</th>
<th>$X (4)</th>
<th>$X/DP (5)</th>
<th>Average Annual Δ GNP, 1971-75 (6)</th>
<th>Δ GNP % (7)</th>
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<td>66.0</td>
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</table>

Sources and footnotes on next page.
Sources and footnotes to Table 1


Col. (2): Calculated from CIA, Handbook, 1975 p. 158. No allowance was made for the fact that the price level in intra-CMEA trade is higher than in East-West trade.


1 Caveat: The data used and methodologies employed in constructing this Table leave much to be desired. The Table is presented for illustrative purposes only, with the hope and conviction that the resulting errors are of lesser magnitude than the effects to be described in the text. Some of the problems are as follows.

In col. (1), the Soviet figure was constructed by converting Soviet exports to domestic prices and dividing by official Soviet figures of Net Material Product also in domestic prices. The IBRD figures for Eastern Europe, however, use NMP in domestic prices in the denominator but incorrectly, perhaps for lack of better alternative, use for numerators exports in Western prices converted to local currencies at official exchange rates. These exchange rates, in many instances, may be pretty far off from correct purchasing power parities. This may account for the very low Romanian (and perhaps Polish) X/GNP. Col. (2) is calculated in dollars and is subject to the qualification noted above in the source but, additionally, should be calculated in domestic prices to be consistent with Col. (1). Col. (3), then, as product of (1) and (2), is also a hybrid of inconsistent units, even for the USSR with its consistent col. (1) figure. Col. (4) is calculated in dollars and, for what it signifies, is satisfactory. Col. (5), however, as a product of (3) and (4), is also a hybrid of inconsistent units. Similarly with col. (7).
of GNP in the 1971-75 period, and in column 7 the ratio of ds/GNP in 1975 to these growth rates. The percentage of an annual growth rate taken by the debt service ranges from 9.7 percent for the USSR to 103.2 percent for Hungary. While the drain for nations like Hungary and the GDR look large—and are from some points of view—it should be recognized that in terms of the growth of GNP, the resources devoted to a given amount of debt service take a once-and-for-all chunk. Assume a nation with a GNP of 100, annual growth of GNP of 6 percent and annual debt service of 2. In the first year, while GNP would rise to 106, only 104 would be available domestically. In the subsequent year, domestically available GNP would rise by approximately 6 percent from 104 to 110.

In terms of GNP growth rates, rising ds/GNP ratios are perforce gradual and appear to be a small drain. Suppose in the preceding example, the debt service had risen from 2 to 2.5, an increase of 25 percent. Domestically available resources would rise from 104 to 109.5 instead of to 110, an incremental loss of only 8-1/3 percent of the increase in GNP.

The conclusion one reaches from these calculations is that the Y-A gap (uncomplicated by possible terms of trade losses) is not of large magnitude with the possible exceptions of Hungary and the GDR.

The Trade Gap

We have just demonstrated that the Y-A gap should not present serious problems to the eastern nations, representing as it does a very small percentage of either current output or of the annual increment to output. The smallness of the Y-A gap is in fairly sharp contrast with the hard currency X-M gap required to finance the debt service. This is indicated in column 5 of Table 2. Ratios range from .20 to .22 for the USSR and Czechoslovakia.
respectively, to ratios in excess of .40 in the cases of Romania, Poland, and Bulgaria (which has a high of .66).¹ By ordinary standards, the Romanian, Polish and Bulgarian debt service problems would appear to be serious—but as we indicated earlier, the ds/x is not necessarily a good measure of debt service problems. Let us first compare the means by which capitalist and communist nations can attempt to meet the X-M gap problem by improving their current account position.

Capitalist nations with deficits can improve their current accounts by devaluation, by introducing quotas and exchange controls, and occasionally by putting dampers on domestic economic activity. Private enterprise reacts to changes in market signals which result from devaluation and economic slowdown, and in the cases of quotas and exchange controls, are restrained by government order. Devaluation presumably (1) increases the output of exportables and of import substitutes; (2) increases the sale of exports at the expense of domestic users; and (3) decreases the purchase of imports at the expense of domestic users.

The exchange rates of the CPEs are not real prices and therefore devaluation has no effect whatsoever on export or import prices. Devaluation can be simulated on the export side, of course, by simply lowering prices. This may or may not increase foreign exchange receipts (see below); however, because of the separation between domestic and foreign trade prices, simulation of devaluation and resulting increased sales abroad have no automatic impact on output of exportables. While the CPEs get no mileage from market instruments like devaluation, given state ownership and control of the means of

¹Still higher ratios were recorded for all countries in 1976 (same source).
production and central planning, direct controls can be used to achieve each of the three objectives mentioned above achieved by devaluation as well as the reduction in imports which is implemented in the West by quotas, exchange controls, and economic slowdown. In addition, the Eastern nations have two potential sources of improving their hard currency accounts which are not available to Western nations and which, in theory, should improve the effectiveness (in technical terms, the implicit "elasticities") of their efforts: (1) diversion of exports from eastern to western markets and (2) substitution of imports from other eastern partners (or other non-$ sources) for imports from the west. Since intra-CMEA trade amounts to from one-half to two-thirds of each CMEA nation's total, in theory substantial "elasticity" should result.

The question is: how successfully can these various policies be implemented? There are two aspects to this answer. First, it is necessary to consider domestic political and economic constraints to implementation, in effect, of the Y-A gap problem; second, even if domestic constraints are overcome at least in part, there are foreign constraints as well, embodied in the X-M gap.

**Domestic Possibilities and Constraints**

What are the possibilities that the Eastern nations, especially the USSR, can: increase and/or divert the output of exportables to Western markets; divert exports from eastern to Western markets; reduce imports from the West; and substitute imports from the East (or from other non-$ markets) for imports from the West. There are barriers to the easy achievement of each of these goals. The pervasiveness of taut planning provides several roadblocks. One consequence is that any attempt to increase the output of exportables or to divert exportables from the domestic economy to the west runs into the
problem that either the absolute or relative use of those and other products must be reduced elsewhere in the economy. This is difficult to do in the industrial sector because of the bottlenecks which are created and in the household sector because of growing "consumerism." Capitalist nations often have an easier time on these matters because their economies are not so taut and an increase in exports doesn't necessarily imply a decline in domestic use; and because devaluation is relatively impersonal in its impact and the government is not as likely to be held directly accountable for undesirable consequences.

Diversion of exportables from Eastern to Western markets faces similar constraints--such diversions are difficult because of the dependence of other communist nations on these exportables (imports to them) and because of "tautness" which aggravates the consequences. Nevertheless, it is clear that the USSR is shifting the weight of its petroleum exports from East to West though the former still gets the lion's share.

Reduction of imports from the West runs into the same problems as increasing exports to the West--bottlenecks in the industrial sector and consumerism in the household sector. Substituting imports from the East for imports from the West is a possible but not a happy solution to the hard currency problem. Such substitution undoubtedly involves a substantial reduction in gains from trade because of the superiority of western manufactured products and this must create strong resistance to change. Efforts along these lines would have their best chance of success in periods of western recession during which eastern hard currency balance of payments problems are widespread and due to recession-induced declining exports to the West. Under these circumstances, both Eastern exporters and importers might be motivated to adopt the second best solution of trading with each other.
Much of the above discussion has been about short-run adjustments, neglecting the possible long run strategies for increasing exports and reducing imports. In particular, to what extent has investment—especially that investment made possible by imports from the West—been designed to improve the balance of payments over the longer run by developing exportables and import-competing goods. There is no question about the fact that a substantial portion of CMEA imports are capital goods and designed to increase productivity. However, according to one authority, these imports are more often designed to increase productivity in industries which service domestic markets and exports to intra-CMEA markets than hard currency markets (Snell, pp. 688-689). The long-run picture with regard to importables is similar. To quote: "...[CMEA] import of western technology has not led to an effective program of import substitution" (Crawford and Haberstroh, p. 38). According to the same source, not only have imports not been used to develop import-competing industries, but in fact many of the industries established on the basis of western machinery imports require continual additional hard currency imports of high quality inputs for their operation. Further, it turns out that the faster growing industries in Eastern Europe typically require a faster growth in supporting imports from the West... in effect what economists call a high output elasticity of demand for hard currency imports (Ibid). If these observations are generally true, then the long-run creditworthiness of the communist nations to be achieved by expansionary means would appear to be somewhat handicapped.

To sum up: considerable domestic rigidities due to taut central planning and consumerism impede short-run efforts to reduce hard currency

1 Nevertheless, on balance, the percentage does not appear greater for the CMEA nations than it is for many Latin-American and Asian middle-level developing nations (Cf. L. Brainard).
deficits. Over the longer-run, until 1975 at least, most of the Eastern nations did not strongly push investment and import policies which would develop hard currency exportables and import-competing products. Conversations with Eastern economists suggests that, as a result of the rising deficits, much more serious efforts are now being made to gear investment and imports into balance of payments corrective projects. How successful these efforts will be, only time can tell.

**Foreign Constraints**

Before turning to so-called foreign constraints, it is worth recalling first that the potential X-M gap is quite directly affected by long-run factors mentioned just above, namely, the alleged failure in the past of the Eastern nations to invest as much as they might in exportables and import-competing industries.

Hard currency export-augmenting policies are constrained not only by domestic economic and political factors and the policies of other eastern partners; implementation is also constrained by Western policies and by the economic parameters of world markets. It is one thing to increase the supply of products to be marketed for hard currencies, and another to actually sell them. There are several problems.

First, while some exports can undoubtedly be expanded without lowering prices—e.g., oil, gas, and other raw materials—others cannot. (Fortunately for the USSR, raw materials are major exportables.) Lowering prices in order to compete, if successful, may lead to western anti-dumping or anti-market disruption actions. Because of the irrationality of domestic prices, inability of the CPEs to prove that they are not selling below cost or below domestic market price makes it impossible for them to successfully refute anti-dumping charges—even when they are, in fact, dumping. So far, these
potential hazards have not caused CPE exporters too much trouble (chap. 7), however.

Second, the anti-dumping problem is exacerbated by the fact that CPE prices cannot be lowered on world markets by currency devaluation. Bloc exchange rates are not real prices (as noted earlier) because domestic prices are irrational and currencies totally inconvertible.

Third, a significant percentage of Eastern exportables are manufactured products. For reasons discussed in chapter 3, these products have not found easy markets in the West. It might therefore be difficult to expand sales at all or at prices which do not involve a prohibitive decline in terms of trade.¹

Fourth, part of the responsibility for the recent rise in the ds/x has been the western recession of the mid-1970s. Western imports fall below trend partly because the rise in GNP is slowed or actually falls reducing imports along with other expenditures, and partly because under these conditions, nations have tended to increase protectionist curbs on imports.² In periods like this, it may become almost impossible to increase export earnings significantly. There is also some evidence that western imports from the east decline more than western imports from the west during recessions. That is to say, the east is viewed as the marginal supplier of imports.

To sum up: The major constraints, then, on increasing exports to the West appear to be the difficulties in entering and successfully competing in western markets for manufactured products. The amount of domestic resources

¹ This means in terms of the transfer problem, a very large "secondary burden of transfer."

required to finance an increase in exports necessary to prevent an increase in external debt and debt service is certainly not prohibitive. In the case of the USSR, in particular, it appears trivial (Table 5.4), although in a sense no diversion of resources is ever totally trivial in tautly planned economies. (The USSR has the further special advantage of potentially expandable supplies of easily exportable raw materials.) For all nations but the USSR (but eventually also for the USSR) however, the secondary burden of the transfer looms large. Exports either cannot be expanded rapidly enough at acceptable prices—or sometimes cannot be expanded at all. The problem facing the Eastern European nations is probably more severe than that facing similarly placed western nations with identical debt/export ratios because much of the Eastern European debt is shorter-run implying larger ds/x ratios. Reducing and servicing their debts, then, through export expansion (or import contraction) must be done over a shorter time span in which demand elasticities are apt to be smaller and the secondary burden of transfer therefore larger.

With the possible exception of the USSR in the short-run, this leaves current account adjustments to be accomplished largely by reducing (not increasing proportionately) imports. There are two reasons why it is economically less desirable to reduce imports than increase exports. First, a dollar’s worth of imports is more valuable to the importing nation than a dollar’s worth of exports. That is what gains from trade are all about. Second, in the short run at least, exports are less necessary to the economy than imports. That is, exports are not included in the plans for domestic use whereas imports are. Hence reductions of imports may be more disruptive than equivalent increases in exports. This is probably more true of intermediate than of final products, especially consumers’ goods.
The impact of these factors is mitigated by the choices which would be available to the importing nations. First, while it is true that imports are worth more than exports, in reducing imports the nation would concentrate on those products which were least valuable to them. At the same time, any increment in exports could be expected to come out of products on which the profits are less than the average. That is to say, the forgone imports would represent a low segment on the downward sloping demand curve and the additional exports a high segment on the upward sloping supply curve. Second, since imports will not be cut back all at once but in stages, a nation can avoid stopping purchases of those intermediate products which would constitute absolute bottlenecks to production—such as the loss of oil imports in the West were in 1973-74. Third, in most instances curtailment of imports involves a reduction in the growth of GNP and of standard of living—but not an absolute reduction. While the latter might verge on intolerable, the former does not—however undesirable. Looking at column (3) of Table 5.4, it seems clear that while East-West trade is important to the East, its impact is inevitably small. Even though the ratio of dollar imports to GNP is somewhat larger than the figures for dollar exports/GNP in column (3) (since imports exceed exports), still a fractional reduction in these imports, concentrating on the least important, could not be catastrophic. It would, of course, be least important to the USSR, perhaps most important to Hungary. To sum up, abstracting from increases in exports which might result from western economic recovery, reduction of imports below desired levels would appear to be the major instrument for rectifying the present (short-run) hard currency imbalance.
Some Recent Evidence on Ability to Adjust, 1970-1977

Before turning to the recent evidence referred to in the sub-heading, it is worth calling attention to an excellent study of the Soviet balance of payments crisis of 1963-1965. That study, by Oleg Hoeffding (1968), attempted to demonstrate how the USSR adjusted its balance of payments in order to finance the large emergency food imports of 1963-1965 following a disastrous crop year. Of course, the magnitude of the problem was much less than that with which we are concerned, approximately a half-billion dollars of extra expenditures at a time when hard-currency exports totalled a billion dollars. At that time, however, credit lines to the USSR were short and it is not clear but that they would have preferred borrowing to paying their way had that option been (cheaply) available. It is interesting to see the speed with which the USSR reacted to its problem and the various adjustments which were made. Among other things, Hoeffding found that the USSR within a year or two: increased food imports from other communist nations; reduced food exports to Eastern Europe; reduced hard currency imports of many non-food items (e.g., of rubber and copper); increased non-food exports to the West of a whole range of products; and increased their sale of precious metals and stones to hard currency nations. In many instances, trade with Eastern Europe or Cuba substituted for forgone trade with the west.

As already noted, present problems are of a much greater order of magnitude. So, for example, the fact that East-West trade is so much larger today than in the mid-sixties, has major implications for the values of the various trade elasticities which face the CPEs in attempting to adjust to their disequilibrium. How well have they done? No conclusive answers are presented here, partly because of data problems.

Table 5.5 contains annual rates of change of CPE hard currency exports
and imports over the past 7 years. These figures provide some evidence of
the actual short-run ability of the communist nations to adjust their current
accounts (actually just their trade balances) to their rising hard currency
indebtedness.

The picture presented in Table 5.5 is one in which, with minor excep-
tions, exports and imports rose after 1970 at increasing rates peaking in 1973
and/or 1974 at very very high rates of increase due, to a considerable extent,
to inflation. The impact of western recession on exports is seen in the last
three columns, particularly in the 1975 column--in this year, despite contin-
uing rising prices, all countries but Poland and the USSR experienced a de-
cline in hard currency exports; in real terms, Polish and Soviet exports
probably also declined. The partial recovery in 1976-1977 is reflected in
the small positive rates of increase shown--small when one considers that part
of these increases are due to inflation. The importance of CPE export drives
in the face of soft western markets is revealed by these data.

With the major exception of the USSR in 1975, which was forced to make
emergency grain imports, hard currency imports were either almost leveled off
or reduced in 1975-1977 in both nominal and especially in real terms. The
sharpness of the change in trend clearly indicates that the eastern nations
took strong actions to curb imports. These measures were not strong enough,
however, as is evidenced by the fact that the hard currency/deficits experi-
enced in 1975 and 1976 generally exceeded or were roughly equal to the pre-
vious prerecession peak deficits. Summary figures on deficits for Eastern
Europe and for the USSR were presented earlier in Table 5.1. In 1977, the

1Minor exceptions were East Germany in 1976 and Hungary in 1977.
# Table 5.5

<table>
<thead>
<tr>
<th></th>
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Eastern European deficit remained almost as high as it had been but the Soviet deficit was more than halved. The Soviet performance was undoubtedly enhanced by the reduced need to import grain in 1977, by the rise in prices of petroleum and natural gas, and by Soviet ability to increase petroleum exports to the west. Despite these special factors, the Soviet reduction in imports is fairly impressive.

In sum, the CMEA nations, faced with large unplanned deficits, proved unable to adjust quickly and to prevent their external debts from increasing. After two years, the U.S.S.R. has brought its deficit down, but Eastern Europe as a whole has not. However, the two nations with the largest ds/x ratios, Bulgaria and Poland, did achieve substantial reductions in their deficits also (Kolarik, p. 197). Before leaving this issue, it is only fair to point out two extenuating circumstances which explain, in part at least, the failure to achieve trade balance.

First, the crisis was triggered by the western recession and by the end of 1977, that recession was still with us. It is difficult indeed to put on an export drive in the face of soft world markets—conditions which have led to a proliferation of western trade controls even against each other. The toll on world trade taken by the western recession is partly indicated by the decline in world exports in 1975 and 1976 as shown in the next to last row of exports in Table 5.5. When and if recovery comes, eastern exports can be expected to rise somewhat more rapidly again and the deficits and debt service problems to become more manageable.

Second, another possible explanation is the fact that credit was, and still is, available to the USSR and Eastern Europe in the Euromarket at quite reasonable interest rates, below those for many of the LDCs (Theriot, 1979,
Under these circumstances, it makes sense not to abruptly cut off imports in instances where to do so would be very costly to the economy. The continuing availability of credit on reasonable terms may well explain the failure of the eastern nations to achieve better balances than they had by 1977. This matter will be discussed again briefly in Chapter 6.

Before leaving this section, a few comments are in order regarding the hypothesis that CMEA nations might substitute trade with each other for for-gone East-West trade. Since the available data are based on changes in the value of trade including price increases, evaluation is very tentative.¹ There were big increases in intra-CMEA trade in 1975 but these were undoubtedly largely the result of the sudden rise in intrabloc trade prices under a new pricing formula designed to take account annually of world inflation. The new pricing formula must also have been responsible for price increases in 1976. Despite price increases, Hungary's trade with CMEA declined by one-third, Romania had a decrease in the value of exports and small increase in value of imports, and the USSR and GDR had such small increases in value of trade that most certainly the real volume of their trade with CMEA also declined in 1976.² In 1977, all nations had larger increases in intra-CMEA trade but, with the exception of Romania, not significantly larger than trade as a whole grew.

To sum up: intra-CMEA trade apparently failed to increase very rapidly in real terms over the period 1975-77. This might have been due in part to


²Official Soviet data on volume of trade show Soviet trade with CMEA increasing in 1976 by about 3 percent whereas trade with Developed Capitalist nations increased by about 20 percent over the same period.
the relatively low growth in GNPs especially in 1976-77. On the evidence, however, we are forced to conclude that intrabloc trade has not, so far, represented a significant substitute for East-West trade and, therefore, a way of reducing hard currency deficits.  

Capital Flows

So far we have been concerned only with the current account in the balance of payments. What are the possibilities of gaining time in the short-run through additional capital flows? Do the potentialities for capital inflow change the significance to be attributed to a given ds/x?

The CPEs have only the most rudimentary capital markets—if they can even be called that. There is no such thing as a stock market. With the exception of a limited number of joint ventures in some of the eastern nations, foreign ownership of shares of an enterprise is forbidden. Explicit interest rates on funds are very low by western standards. These factors reduce the flow of private funds into the CPEs.  

Another factor reducing the flow of funds is the total inconvertibility of bloc currencies. Problems relating to inconvertibility were discussed earlier and need not be discussed further here.

On the other hand, there are factors which encourage further investment, private and governmental. Private capital is encouraged by the fact that the capital is guaranteed regardless of the success of the enterprise in which it is invested. That is to say, there is no project risk—eastern governments

1Calculated from data presented in U.S. Dept. of Commerce, Selected Trade..., p. 2.

2In contrast, witness the vast flow of OPEC surplus funds into western banks and other financial as well as non-financial assets.
assume responsibility of repayment under all circumstances. Another factor: while CPEs pay very low rates of interest on funds held by them, they are willing to pay competitive rates of interest on loans to them by banks and by nations. (On the other hand, they have shown themselves unwilling to pay rates which they deem unfairly high.) Third, as noted earlier, many private and government investors accept repayment in kind over time. There is substantial anecdotal evidence from American investors that the implicit rates of profit and interest on these investments are very high and that the CPEs know it. That is, the CPEs cannot officially countenance very high explicit rates of interest on credits and investment but will knowingly pay such rates when they are hidden in the costs of and returns on a project.

Fourth, officially speaking there is no devaluation risk. All loans and investments are serviced in the lenders' rather than the borrowers' currencies--since the borrowers' currencies are all inconvertible. This leaves the lenders with an inflation risk, of course, but this is no different from the risk on domestic loans. Fifth, there is, of course, still the risk of default if the CPE turns out to be truly "non-creditworthy." However, it is unlikely that a CPE would out-and-out default on a loan. More than likely there would be a stretch-out on repayment. What does a stretch-out involve? For the lender, the stretch-out usually means that he gets his interest as before but amortization is extended over a longer period. If the lender has more profitable opportunities for investment, he loses the difference between the rate of return he is getting from the CPE and that currently available to him. The difference could be trivial or zero and the loss insignificant.

Sixth, recent events suggest that debt problems may loom largest for the CPEs during western recessions. These are the times, of course, when western businessmen are most anxious to export to the CPEs in order to cushion
themselves from the effects of recession. So, to the extent that financing can be arranged, exporters will be strongly motivated to exploit the possibilities to the limit. Seventh, while the CPEs have built up what usually would have been considered fairly high ds/x’s in the past few years, standards on these matters have been changing rapidly. The external debts of many LDCs have shot up even more rapidly as have the debts of a few advanced industrial nations. By rapidly evolving newer standards, the CPEs don’t look so bad. Finally, in the case of the USSR, there is reason to believe that a substantial amount of gold is available in a pinch to service external debt. Certainly, with its gold, oil, and gas (not to mention saleable weapons) the USSR does not present a short-run risk.

Some Long-Run Factors - Oil, Grain, and the Western Business Cycle

Before leaving the question of Soviet creditworthiness, it is worth looking into future prospects. It is, of course, almost impossible to make future balance of payments estimates. Balance of payments projections which this writer has seen have always proved among the least reliable that the profession has produced. Nevertheless, the importance of oil, grain, and the western business cycle to the hard currency balance of payments is sufficient to warrant some discussion regarding future prospects.

First, a few words on the Western business cycle. Earlier, it was evident that the major cause of the recent doubling of CMEA debt to the West was the recession in business activity, particularly in 1974-75. As a result of the recession, western demand for eastern exports fell catastrophically. Business activity picked up again in 1976, but preliminary estimates for 1977 (by OECD)\(^1\) suggest that growth rates in Western Europe halved—to about 2

percent—and fell in the USA, Canada, and Japan as well. Not much improvement, if any, is expected in 1978. Longer run prospects are, of course, obscure. The persistence of stagflation, uncertainty regarding the international monetary mechanism, and uncertainty regarding the energy outlook all contribute a pessimistic hue to the future outlook. This suggests a scenario in which it will be difficult for the Eastern nations to expand exports. The result will be, possibly, larger deficits, and greater difficulties servicing and repaying debts. A further consequence will be a reduction in the expansion of East-West trade as the Eastern nations adjust by retrenching on hard currency imports. It is worth noting that the cyclical nature of Western economic activity will probably contribute to the balance of payments problems of the Eastern nations. If western growth rates remained permanently low, the CMEA nations would adjust their import levels to a permanently low level of hard currency exports. On the other hand, rising western growth rates lead to rising CMEA exports, then to rising imports. When western growth then declines and CMEA exports fall, it is difficult to cut back imports without a few year lag. In the process a large amount of new debt is likely to be generated.

The future of the Soviet petroleum industry may be as important to the Soviet hard currency balance of payments as the western business cycle. Oil has always been an important Soviet export, and for the past 15 years has been an important hard currency earner. However, with the increase in price of petroleum, this single product became by far the most important export to the west and by 1977 was responsible for more than $5 billion in sales or for about half of the Soviet Union’s hard currency earnings. As noted earlier, the Soviets are currently selling a larger percentage of their incremental
exportable surplus to the West than has been true in the past and, no doubt, will continue to do so as long as it is feasible. The term "feasible" is used for several reasons. As noted earlier, the USSR attaches considerable importance to its role as supplier of petroleum to Eastern Europe. It also has growing internal needs for more of its petroleum output. Finally, as explained in Chapter 4, there is considerable question today regarding the future of the Soviet petroleum industry. Some experts believe that in the near future both output and exports of petroleum will stop increasing and in fact begin to decline. Of many serious consequences of such a development, not the least important will be the impact on the hard currency balance of payments.

It is impossible for this writer to forecast hard currency earnings from petroleum. However, utilizing a 300 equation econometric model of the Soviet economy (called Sovmod III), Levine and Bond (1978) made estimates based on the three different oil output projections presented above in Table 4.9 (p. 37). These estimates, it should be stressed, do not just look at the demand for and supply of petroleum in estimating the exportable surplus but in theory take account of all the repercussions on the economy as represented in the hundreds of equations. One must certainly have reservations regarding this exercise in light of the fact that the predictive ability of the much more tried and tested models of US economic behavior have left much to be desired. For what they are worth, the model (Sovmod III) predicted the following:

(1) If official Soviet plans are fulfilled, hard currency earnings from sales of oil to the West will rise high enough to meet Soviet needs for imports of machinery and grain and to reduce the debt service ratio. This assumes that reasonable attempts are made to substitute other fuels for
petroleum in domestic use and to not meet all of the rising requirements for petroleum by East Europe.

(2) If the CIA prediction is accurate, fuel exports will fall in the 1980s and, in fact, the USSR will be a net importer by 1985. Imports of machinery and grain will fall with detectable consequences on the Soviet domestic economy. By 1985 the ds/x would approach 1.00—an unsustainable level. Even the sale of all of their gold would hardly make a dent in the hard currency problem.

(3) If the Western specialist projections are realized, exports of fuels decline after 1980. It is assumed that the Soviets will continue to import machinery on a large scale with the result that the external debt rises and the ds/x approaches .40 by 1985. At this point, if not earlier, the USSR will face serious credit problems and will have to begin sharply curtailing imports, particularly of grain.

Let us turn to grain. Imports of grain and other food products from the west have constituted a substantial hard currency drain on the USSR since the poor harvest of 1963. From 1972-1975, the USSR spent roughly $6 billion in convertible currency on imports of grains and another $2.8 to $4 billion were expected to be spent in 1976. About one-third of these amounts were spent in the United States.¹ What does the future hold in store?

A recent study by climatologists published by the CIA (1976) takes a relatively pessimistic view. It is well-known, of course, that crop output is sensitive to climatic conditions; the importance of climate is quantified in this study. Generally speaking, it found that the large grain imports in the mid-sixties were associated with low precipitation, that the relatively

¹Posthelsinski, pp. 736, 820, 821.
good crops which were harvested in the late sixties and early seventies (with
the exception of 1972) were associated with high levels of precipitation and
that the disastrous crop of 1975 was directly related to very adverse weather
conditions. In the view of this study, the year 1975 represents another turn
in the cycle—the beginning of a relatively long period of below-average pre-
cipitation.

If below-average precipitation is experienced and output falls below
trend, imports from the West will have to be high or the following consequences
may follow: reduced consumption of grains by the Soviet population; reduced
exports of grain to Eastern Europe; and reduction in livestock herds and in
future meat consumption. The implications of these consequences are obvious
from earlier discussions above. If output falls as expected and grain is im-
ported to make up the shortfall, Sovmod III predicts the following hard cur-
rency grain imports ($ millions):

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated Import ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>3,000 (actual)</td>
</tr>
<tr>
<td>1977</td>
<td>1,200 (actual)</td>
</tr>
<tr>
<td>1978</td>
<td>1,512</td>
</tr>
<tr>
<td>1979</td>
<td>1,543</td>
</tr>
<tr>
<td>1980</td>
<td>1,967</td>
</tr>
<tr>
<td>1981</td>
<td>3,009</td>
</tr>
<tr>
<td>1982</td>
<td>3,069</td>
</tr>
<tr>
<td>1983</td>
<td>2,087</td>
</tr>
<tr>
<td>1984</td>
<td>1,703</td>
</tr>
<tr>
<td>1985</td>
<td>1,737</td>
</tr>
</tbody>
</table>

Source: Levine and Bond, 1977, p. 18. Actually, these calculations assumed
that the weather patterns from 1978-85 were identical to those ex-
perienced over 1961-68 in terms of temperature and precipitation.

Hard currency expenditures of these magnitudes would be a burden, no
doubt, especially in consideration of the petroleum scenarios presented
earlier. As with the petroleum projection, we cannot vouch for the
reliability of these figures. Nor can one predict just how much of the shortfall the USSR would be willing and able to finance should the pessimistic grain projection be realized.

The upshot of this analysis of outlooks for petroleum and grain is that if the Soviets have "bad luck"--and some western specialists are, in fact, predicting "bad luck"--then hard currency problems are going to get worse fast. So, for example, if we take 1977 as a starting point, the USSR had $11.3 bn. of exports, 13.7 bn. of imports for a trade deficit of $2.4 bn. (Table 5.1). Over the same year, the debt increased by $2 bn. (Kolarik, p. 198). 1 All other things equal, the pessimistic scenario would imply, that by 1985, imports of grain would be, say, $.5 to $1 bn. higher and hard currency exports would be down by approximately $5-1/2 to $6 billion since petroleum exports were about half of total hard currency exports in 1977. (This leaves out the possibility that the USSR might have to import petroleum.) This implies an increase in debt of close to $10 billion annually. Should this come about, the USSR would rapidly become "non-creditworthy," of course and would have to retrench seriously. Putting the pessimistic assumptions into their econometric model, Levine and Bond (1978, Wharton, p. 43) estimate that the hard currency debt service ratio which is estimated by the model to be .26 in 1980 would rise to .53 by 1984 and to .99 by 1985 (as noted above). However, neither the oil and grain predictions nor the model can be taken as completely trustworthy (we all know that weathermen, for example, never bat 1000) and it seems unlikely that the most

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1 It is a little difficult to reconcile a $2 bn. increase in debt with a $2.4 bn. trade deficit since the USSR is usually estimated to earn a few $billion in sales of gold and arms not to mention receipts from shipping and tourism.
pessimistic scenarios quantified above will be fully realized. Furthermore, it seems high/likely that if such scenarios do begin to develop, policies will be adopted to offset their effects to keep the external debt within reasonable bounds. That this would be the case is suggested by the big improvement in trade deficit experienced in 1977 (Table 5.1). Finally, of course, much will depend on the western business cycle: full employment and vigorous growth will help to bail the USSR out of its deficit and credit problems; on the other hand, continued or deeper recessions and lethargic growth in the West would make the Soviet Union's adjustment problems more difficult--and could sink the ship for some of the weaker Eastern European nations which depend more heavily on sales of manufactured products for their hard currency earnings.

Given less than the most pessimistic assumptions with regard to grain, petroleum, and the western business cycle, then it is difficult to believe that the USSR's debt would be likely to increase to the point at which it was deemed uncreditworthy. If its earnings from petroleum sales to the West don't evaporate completely and its imports of grain remain modest, then all other things equal, its debt will rise slowly. Under these circumstances, the adjustment required on the import side to achieve balance can be implemented at a much more leisurely pace than has been true in the past few years. A policy designed to reduce imports over a longer period would concentrate on the non-essentials—and a brief look at the enormous variety of products imported by the USSR from the West makes it obvious that its imports are not all essentials. The cost to the USSR of reducing imports of products which are non-essential is not inconsequential, but to a nation whose hard currency imports represent no more than 5 percent of its GDP, it cannot
represent a large loss. Viewed in this light, and in terms of the authoritarians power wielded by Soviet leaders and, finally, in terms of the enormous resources available on the Soviet land mass, it would seem very unlikely that the Soviet debt would rise to an extent that the nation were deemed uncreditworthy.
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