TITLE: The Soviet Economy to the Year 2000:
   Paper 4 of 12
   "The Foreign Sector in the Soviet Economy: Developments Since 1960, and Possibilities to the Year 2000"

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The performance of the Soviet foreign sector over the last two decades has been rather good overall. The share of national income devoted to foreign trade has risen considerably, and simultaneously the balances of trade and payments have been quite satisfactory. At the end of the 1970's Soviet net hard currency debt had stabilized at approximately $10 billion, a modest amount for an economy of that size.

A good part of the favorable performance in the 1970's was due to luck as price increases for fuels, primary products, and gold meant large windfall gains for the Soviet economy primarily through improved terms of trade. For the 1971-77 period the terms of trade and gold price improvements allowed the Soviet Union to import an additional $28 billion in goods and services. In the absence of those improvements the Soviets could only have imported these additional goods and services by increasing their net hard currency debt from its actual $10 billion to approximately $38 billion.

It is very unlikely the Soviet economy will be that lucky in the 1980's. Oil production is faltering, thus so is the major source of hard currency earnings, and the major source of windfall gains. Without economic reforms there is little possibility that manufactured goods exports can fill the gap left by falling energy
exports. Consequently, Soviet balance of payments and debt figures will deteriorate in the 1980's, and this will exert pressures for economic reforms. Because of the reserves built up in the 1970's and the inertia surrounding the succession to a new leadership, serious reform measures are not likely to be introduced until the early 1990's.
I. An Overview

This paper ventures an assessment of how the institutions which operate in the Soviet foreign sector will evolve over the next two decades; and how that evolution, combined with other important factors, will affect performance in that sector. The uncertainties attendant on such an undertaking are enormous, and quite humbling. There are vast areas in which educated guessing is the only possible way to proceed. In such circumstances all one can do is state his assumptions alongside his predictions.

Any assessment of the future must be based primarily on the past, and section II of this paper discusses the past of the Soviet foreign sector in some detail. The most important fact which emerges is that the performance of the Soviet foreign sector over the last two decades has been rather good overall. The share of national income devoted to foreign trade had risen considerably, and simultaneously the balances of trade and payments have been quite satisfactory. Consequently, while it is no doubt accurate for many western economists (including myself) to characterize the institutions which manage Soviet foreign transactions as cumbersome, antiquated, and prone to discourage trade, it is equally true that while the Soviet Union relied on those institutions over the last several decades, its foreign sector turned in a quite credible performance. Any conclusion that the 1980's might differ from the 1970's will have to show either that the institutions will prove to be more dysfunctional in the 1980's than ever before, or that other factors will serve to create less favorable circumstances for Soviet foreign trade in the 1980's.

The latter part of Section II addresses part of this issue by showing how
a portion of the good performance of the Soviet foreign sector was a result of sheer luck as the world economic crises in the 1970's brought windfall gains for the Soviet economy. Relative prices increased for fuels and primary products, the traditional mainstays of Soviet convertible currency exports. Gold price increases revalued the Soviet gold stock. The enormous dollar flows into OPEC treasuries provided the Soviet Union with convertible currency markets for military goods. Had the 1970's been like the 1960's, what then would have been the performance in the Soviet foreign sector? More important, if the 1980's are more like the 1960's than the 1970's, what will that mean for the Soviet economy, and its foreign sector?

If indeed the windfall gains to the Soviet economy in the 1970's do not repeat themselves in the 1980's, then the most feasible path towards sustaining high levels of export, hence import, growth will be through manufactured goods. And here the institutions which link the foreign and domestic sectors in the Soviet Union do play a crucial role. The institutions seem to be quite capable of handling the production and export of primary products, but they work very poorly for sophisticated manufactures. Section III discusses why this is the case, outlining what is known, or can be guessed, about how institutions operate in the Soviet foreign sector. While there have been no major changes of substance in these institutions in a very long time, there have been minor changes of form; and, more importantly, the pressures for rather fundamental changes seem to be growing. This section discusses those pressures, and how they relate to Soviet leaders' concerns about Soviet foreign economic performance.

The prospects for the Soviet foreign sector's economic performance over the next two decades are inextricably intertwined with the institutions there and in the domestic economy, and in the performance of the economy. Section IV explores these interconnections, and develops a scenario for the interaction
of economic performance and the evolution of institutions in the Soviet foreign sector to the year 2000.
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This section discusses the record of economic performance in the Soviet foreign sector since 1960. It begins with an overall view of trends in the quantities and prices of total trade, trade by major groups of trade partners, and trade by commodity group. Soviet foreign trade statistics are the basic source here, those being generally recognized as the most comprehensive and reliable indicators of Soviet trade in civilian commodities (Gullo [1979]).

A second subsection discusses convertible currency trade, balance of payments, and debt, focusing in particular on the major sources of convertible currency earnings: primary products, military goods, services, and gold. Much of the data in this part comes from western sources since the USSR does not publish information on total convertible currency trade and debt.

A third subsection discusses the windfall gains which have accrued to the USSR in the 1970's as a result of substantial increases in gold prices, and improvements in its terms of trade.

Soviet Foreign Trade, and Terms of Trade, 1960-78

Real Trade Flows, Total, and by Country Groups

The price changes in the world economy in the 1970's have had different effects on the valuation of Soviet trade flows with western countries and trade flows with CMEA and other socialist countries. It is therefore important to work with quantity indices and price indices separately in order to ascertain which of the apparent changes in the geographic and commodity composition of trade are a consequence of price changes, and which represent changes in real trade flows.
Table 1 summarizes changes in the volume of Soviet exports to, and imports from, the world, all socialist countries, the subset of those which are members of CMEA, and the remaining countries which are all called "capitalist" in Soviet terminology. Soviet data on the value of exports and imports distinguish between developed and developing capitalist countries, but unfortunately there is only one quantity index published for all capitalist countries.

The "A" index for total trade, and the indices for trade with various country groups, are based on quantity indices published in the foreign trade statistical yearbook, Vneshniaia torgovlia: statisticheskii sbornik (hereafter: VTSS, to distinguish it from the journal Vneshniaia torgovlia). The indices have different weights for different years; they have been linked together so that they approximate what would be obtained from pure Laspeyres quantity indices. Details are given in the Data Appendix.

In the 1970's the indices for total quantities appear to be inconsistent with the two underlying indices for trade with socialist and capitalist countries. This is most evident in 1971 where the "A" quantity index for total exports lies above the component indices for trade with socialist and capitalist countries, and the "A" index for total imports lies above the component indices. Neither of these can be a true average of the component index. For other years in the 1970's, no plausible socialist/capitalist weights would produce the index of total trade shown. As an alternative to the officially reported indices of total exports and imports, the "B" indices were computed which represent a weighted average of the socialist and capitalist indices, using 1970 trade values as the weights. These are almost identical to the "A" index in the 1960's, and the differences in the 1970's are relatively minor. There are a number of possible explanations for this apparent
### Table 1

Quantity Indices for Soviet Foreign Trade, National Income and Gross National Product: 1960-78

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Soc.</th>
<th>CMEA</th>
<th>Cap.</th>
<th>Total</th>
<th>Soc.</th>
<th>CMEA</th>
<th>DCC's</th>
<th>Marxian National Income</th>
<th>GNP</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>Ct.</td>
<td>A</td>
<td>B</td>
<td>Ct.</td>
<td>A</td>
<td>B</td>
<td>Ct.</td>
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<tr>
<td>1960</td>
<td>41</td>
<td>nd</td>
<td>nd</td>
<td>51</td>
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<td>nd</td>
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<td>61</td>
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<tr>
<td>1961</td>
<td>44</td>
<td>nd</td>
<td>nd</td>
<td>52</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>54</td>
<td>64</td>
</tr>
<tr>
<td>1962</td>
<td>52</td>
<td>nd</td>
<td>nd</td>
<td>58</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>57</td>
<td>67</td>
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<td>64</td>
<td>71</td>
<td>67</td>
<td>52</td>
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<td>1964</td>
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<td>69</td>
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<td>71</td>
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<td>76</td>
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<td>81</td>
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<td>89</td>
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<td>1969</td>
<td>94</td>
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<td>92</td>
<td>94</td>
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<tr>
<td>1970</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<td>100</td>
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<tr>
<td>1971</td>
<td>106</td>
<td>103</td>
<td>104</td>
<td>104</td>
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<td>1973</td>
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<td>121</td>
<td>112</td>
<td>114</td>
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<td>143</td>
<td>130</td>
<td>127</td>
<td>126</td>
<td>118</td>
</tr>
<tr>
<td>1974</td>
<td>153</td>
<td>148</td>
<td>137</td>
<td>136</td>
<td>157</td>
<td>160</td>
<td>145</td>
<td>139</td>
<td>120</td>
<td>114</td>
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<tr>
<td>1975</td>
<td>157</td>
<td>154</td>
<td>139</td>
<td>151</td>
<td>168</td>
<td>159</td>
<td>163</td>
<td>246</td>
<td>132</td>
<td>120</td>
</tr>
<tr>
<td>1976</td>
<td>169</td>
<td>167</td>
<td>144</td>
<td>155</td>
<td>197</td>
<td>202</td>
<td>164</td>
<td>166</td>
<td>271</td>
<td>140</td>
</tr>
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<td>185</td>
<td>183</td>
<td>156</td>
<td>167</td>
<td>201</td>
<td>206</td>
<td>179</td>
<td>182</td>
<td>254</td>
<td>146</td>
</tr>
<tr>
<td>1978</td>
<td>194</td>
<td>190</td>
<td>163</td>
<td>175</td>
<td>230</td>
<td>236</td>
<td>205</td>
<td>209</td>
<td>293</td>
<td>153</td>
</tr>
</tbody>
</table>

Sources: The quantity indices are close to Laspeyres, and discussed in the Data Appendix. The "A" variant of the indices for total imports and exports is taken directly from Vneshniaia torgovlia, as discussed in the appendix. As I discuss in the text, this index does not appear to be a true average of the socialist and capitalist indices. I have constructed the "B" variant as an alternative index. It is a weighted average of the socialist and capitalist indices, where the weights are the value of trade in 1970. The Marxian National Income series is from Narkhoz (1978, p. 38), and the GNP series is from Block (1979, p. 135).
Definition of terms: "CMEA," or Council for Mutual Economic Assistance, includes Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, Mongolia (since 1962), Cuba (since 1972), and Vietnam (since 1978). "Soc. Ct." includes the CMEA countries, and China, North Korea, North Vietnam (then Vietnam), and Laos (since 1978). "Cap. Ct." includes the remaining countries with which the USSR trades. "Nd" means no data are available.
inconsistency among the quantity indices reported for Soviet trade, but these inconsistencies are minor enough that no attempt at reconciliation will be made here. Rather, the quantitative and unit value trends will be discussed in terms of the "A" indices, and the "B" indices will only be mentioned when the results are significantly different.\(^2\)

Table 1 also presents two measures of the growth rate of real national income, one the official Soviet index of real Marxian National Income (MNI), and the other the C.I.A. index of real GNP. The real GNP index grows more slowly due to different price weights and different coverage.

Table 2 summarizes these data in terms of growth rates obtained by regressing the log of the quantity indices on time. The growth rates are computed for the entire 1960 (or 1963)-1978 period, and for 1960 (or 1963) to 1970, and 1970 to 1978. Over the last two decades both exports and imports have grown much faster than either MNI or GNP. The per annum growth rate of exports is almost twice the per annum growth rate of GNP, and half again as large as the growth rate of MNI; the story is the same for imports.

Throughout the 1960-78 period the growth rate of real trade with capitalist countries exceeded that of socialist countries, and even trade with CMEA. Unfortunately the Soviets only publish indices for trade with all capitalist countries, developed and developing, which intermingles different trends. For example, part of the rapid growth of exports to all capitalist countries comes from the dramatic increase in military goods exports to LDC's in the 1970's; exports to developed capitalist countries have therefore surely grown somewhat slower than this total figure would suggest. Other potential data sources which treat developed countries, or convertible currency trade separately, present too many difficulties to be used here.
Table 2

Per Annum Growth Rates of Real Soviet Exports, Total, and by Area, 1960-1978\(^a\)

(In Percents)

<table>
<thead>
<tr>
<th></th>
<th>1960-78(^b)</th>
<th>1960-70(^b)</th>
<th>1970-78</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exports</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;A&quot; Variant</td>
<td>8.5</td>
<td>9.0</td>
<td>8.0</td>
</tr>
<tr>
<td>&quot;B&quot; Variant</td>
<td>8.3(^d)</td>
<td>9.5(^d)</td>
<td>8.0</td>
</tr>
<tr>
<td>Exports to Socialist Countries(^c)</td>
<td>7.3</td>
<td>9.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Exports to CMEA</td>
<td>7.7</td>
<td>8.9</td>
<td>6.9</td>
</tr>
<tr>
<td>Exports to Capitalist Countries(^c)</td>
<td>9.9</td>
<td>10.5</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>Imports</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;A&quot; Variant</td>
<td>8.3</td>
<td>6.4</td>
<td>9.6</td>
</tr>
<tr>
<td>&quot;B&quot; Variant</td>
<td>9.0(^d)</td>
<td>6.3(^d)</td>
<td>9.7</td>
</tr>
<tr>
<td>Imports from Socialist Countries(^c)</td>
<td>7.0</td>
<td>4.9</td>
<td>7.7</td>
</tr>
<tr>
<td>Imports from CMEA</td>
<td>7.4</td>
<td>6.2</td>
<td>8.1</td>
</tr>
<tr>
<td>Imports from Capitalist Countries(^c)</td>
<td>12.4</td>
<td>9.3</td>
<td>12.7</td>
</tr>
<tr>
<td>Marxian National Income</td>
<td>6.2</td>
<td>7.0</td>
<td>4.7</td>
</tr>
<tr>
<td>Gross National Product</td>
<td>4.4</td>
<td>5.0</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Notes:

\(^a\)These are growth rates given by the coefficient "b" in the regression
\[ \log(X) = a + b \times \text{TIME} \]
where:
- \(X\) = quantity indices of exports and imports (see Table 1)
- \(\text{TIME} = 1 \ldots 19\) for 1960-1978, and so on.

It is possible that the 1960 (or 1963)-1978 growth rates will lie outside
the intervals for the two sub-periods. For example the 1963-78 growth rate
for exports to capitalist countries is lower than either of the two sub-periods.
This will occur if the growth rates at the boundary between the intervals
differ markedly from the growth rates in each sub-period. For example in the
case of exports to capitalist countries, the growth rates of exports are
negative in 1970 and low in 1971, but high in the years before 1970 and after
The growth rates for the two sub-periods show the dramatic differences lying behind the 1960 (1963) - 1978 averages. During the 1960's the growth rate of imports was similar to the two national income growth rates, although imports from capitalist countries were growing more rapidly at 9.3 percent. Exports during this period were growing at a respectable 9 percent per annum, while exports to capitalist countries was growing at an even more rapid pace of 10.5 percent.

During the 1970's the results of the Soviet leaders' decision to dramatically increase imports are easy to see. Import growth rates rise from all areas, while national income growth rates fall. Imports from capitalist countries grew 12.7 percent, faster than the 11.1 percent growth rate of exports to those countries, reflecting a partial reliance on credits during the 1970's.

The resulting shift in the geographic composition of Soviet foreign trade is presented in Table 3 for selected years of the 1960-78 period. In current prices, the share of socialist countries in Soviet exports dropped about ten percentage points on the import side, and about fifteen percentage on the export side. The constant price ratios are not dramatically different, since Soviet trade prices with CMEA have roughly followed world price movements with a lag. Either way one looks at it, the Soviet Union has realized a dramatic shift in the geographic direction of its trade away from socialist countries and toward capitalist countries.
The data on total trade confirm the observations of Treml (1980) and Dohan (1979) about the rapid increase in the role of foreign trade in the Soviet economy. Treml estimates that in 1974-76 exports accounted for about 6.5 percent of MNI, up from 3.7 percent in 1960, and that imports were about 13 percent of MNI in 1974-76, up from 7 percent in 1960.
Table 3

The Geographic Composition of Soviet Foreign Trade Measured in 1970 Prices and in Current Prices: 1960-78

<table>
<thead>
<tr>
<th>Year</th>
<th>All Countries</th>
<th>All Socialist Countries</th>
<th>CMEA-7a</th>
<th>Capitalist Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>.71 nd</td>
<td>.51 nd</td>
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<tr>
<td>1965</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>.76 nd</td>
<td>.58 nd</td>
</tr>
<tr>
<td>1970</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>.64 .65</td>
<td>.57 .57</td>
</tr>
<tr>
<td>1975</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>.52 .56</td>
<td>.43 .50</td>
</tr>
<tr>
<td>1978</td>
<td>1.00 1.00</td>
<td>1.00 1.00</td>
<td>.60 .58</td>
<td>.55 .52</td>
</tr>
</tbody>
</table>

Note:

aFor purposes of comparison, this includes only Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania and Mongolia. Cuba and Vietnam, both of whom became members of CMEA in the 1970's, have been left out of CMEA, but are included in the "socialist" column.

Source: Data on the geographic composition of trade in current prices is from VTSS, various years. Data in 1970 prices were obtained by multiplying the 1970 values of trade with each area by the quantity index for exports to or imports from that area over the 1960-78 period. Those values, which represent trade in 1970 prices, were used to derive the constant-price proportions in the second, fourth, sixth, and eighth columns.
Commodity Composition of Trade

The Soviet foreign trade yearbooks only report data on the current ruble value of trade in selected commodity groups, and then only for all countries and socialist countries. These data, which are presented in Table 4, are of only limited utility in attempting to assess how the commodity composition of Soviet trade has evolved over time; yet without major recomputations, which could not be done for this paper, this is the best available. There are two basic problems with the data as they are presented. First, and most obvious, is that the relative price of fuels has risen over time, and consequently the current price data will overstate the change in the relative importance of those goods in Soviet exports.

Secondly, the prices at which the Soviets trade with CMEA differ substantially from those at which they trade with the rest of the world. Fuels, for example, are relatively cheaper in Soviet exports to CMEA than they are in Soviet exports to the rest of the world; and if, therefore, one were to recompute the share of fuels in Soviet exports to socialist countries using the prices the Soviets charge the rest of the world, the share would come out higher than the published number. Consequently one cannot directly compare the product shares in current rubles for Soviet trade with all countries, and Soviet trade with socialist countries. Thus one must be careful in interpreting these numbers but nevertheless they do convey some useful information about the commodity composition of Soviet trade.

Throughout the 1960's and 1970's, the mainstay of Soviet exports to the world has been fuels, primary products, and some semi-fabricates. Those groups together (the second through the fifth rows of Table 4) accounted for 53 percent of the value of Soviet exports to the world in 1960, 57 percent of those exports in 1978, and 58 percent of the value of its exports to socialist countries in 1978. This dependence on primary products for export proceeds is strongest in exports to developed capitalist countries. In 1976 a little over 70 percent of all Soviet
One must be very careful in utilizing the levels of these Soviet trade participation ratios for comparisons with western countries. Even after adjusting for the difference between MNI and GNP, two major problems remain. First, the fact that the ruble/dollar ratio on imports (about 2/1) exceeds that on exports (about 1/1) (Treml [1980, Tables 1 and 27]), may simply mean that the Soviet planners are using the exchange rate to collect a rather sizable tariff on all imports. This soaks up purchasing power and protects the domestic economy from foreign competition. The consequently high import/MNI ratio does not imply a high level of trade participation, but rather a high tax on imports.

The second problem is far more important, and involves MNI itself. In western countries a trade/GNP ratio reflects the relative magnitudes of trade flows and value added, both valued in prices prevailing on international markets. In the Soviet case, because tradables sell domestically at relative prices substantially different from their international prices, domestic value-added (MNI) is potentially much different than value added computed in international prices. Therefore the only way to obtain a trade participation ratio for the Soviet Union comparable to a similar ratio for a western country is to recompute Soviet value-added at international prices, and use that in the denominator. The numerator should be trade flows (possibly also recomputed for CMEA trade) converted at a proper exchange rate. The resulting numbers could differ substantially from those obtained by Treml.

Whatever results one might obtain from recomputations along the lines discussed above, the fact remains that a growing proportion of Soviet national income is involved in international trade, and that there has been a substantial shift in the geographic composition of that trade towards capitalist countries.
Export proceeds to developed capitalist countries came from nine products: coal, petroleum and petroleum products, natural gas, iron ore, non-ferrous metals, rolled ferrous metals, cotton, timber, and lumber (Hewett [1979, pp. 8-10]).
Table 4

Commodity Structure of Soviet Foreign Trade in Current Prices: 1960-1978

(Percent of Trade)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
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<tbody>
<tr>
<td>Machinery and Equipment</td>
<td>.21</td>
<td>nd</td>
<td>.22</td>
<td>nd</td>
<td>.19</td>
<td>.23</td>
<td>.20</td>
<td>.26</td>
</tr>
<tr>
<td>Fuels and Electrical Energy</td>
<td>.16</td>
<td>nd</td>
<td>.16</td>
<td>nd</td>
<td>.31</td>
<td>.26</td>
<td>.36</td>
<td>.32</td>
</tr>
<tr>
<td>Ores, Concentrates, Metal Fabrics</td>
<td>.20</td>
<td>nd</td>
<td>.20</td>
<td>nd</td>
<td>.14</td>
<td>.20</td>
<td>.10</td>
<td>.15</td>
</tr>
<tr>
<td>Chemicals, Fertilizer, Rubber</td>
<td>.04</td>
<td>nd</td>
<td>.04</td>
<td>nd</td>
<td>.04</td>
<td>.04</td>
<td>.03</td>
<td>.04</td>
</tr>
<tr>
<td>Forestry, Cellulose, and Paper Products</td>
<td>.06</td>
<td>nd</td>
<td>.07</td>
<td>nd</td>
<td>.06</td>
<td>.05</td>
<td>.05</td>
<td>.04</td>
</tr>
<tr>
<td>Textile Raw Mats. and Semi-Fabrics</td>
<td>.07</td>
<td>nd</td>
<td>.03</td>
<td>nd</td>
<td>.03</td>
<td>.03</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>Food and Materials for its Production</td>
<td>.14</td>
<td>nd</td>
<td>.09</td>
<td>nd</td>
<td>.05</td>
<td>.06</td>
<td>.02</td>
<td>.03</td>
</tr>
<tr>
<td>Manufactured Consumer Goods</td>
<td>.03</td>
<td>nd</td>
<td>.03</td>
<td>nd</td>
<td>.03</td>
<td>.03</td>
<td>.03</td>
<td>.03</td>
</tr>
</tbody>
</table>

Notes:

a"Tot." means total trade
b"S.C." means trade with socialist countries.
cData do not sum to 1.00 in the original source.

Sources: VTSS, various years.
The share of machinery and equipment in Soviet imports has risen steadily over the last two decades, comprising in recent years 40 percent of the value of total imports, and almost one-half of the value of imports from socialist countries. Food accounts for approximately another 20 percent in total and socialist country imports; and the remainder of imports are dispersed among various groups. Constant-price data would probably tell about the same story on the import side.

On both the export and import side, the major distinguishing feature of socialist trade in comparison to total trade is the relatively larger role for machinery and equipment. This is not by design. Soviet planners have consistently sought to increase the share of machinery and equipment in total trade, and especially in trade with capitalist countries, but to little effect. This will be an important point in the discussion of the planning and management of Soviet foreign trade.

Unit Values and the Terms of Trade

Table 5 presents estimates of unit value indices and the net barter terms of trade (hereafter simply "terms of trade") for Soviet foreign trade. These are derived by dividing the quantity indices of Table 1 into indices of changes in the total value of exports or imports. Because the quantity indices were close approximations of Laspeyres indices, these are close approximations of Paasche price indices. It is in this table that the problems
Table 5

Unit Value Indices for Soviet Foreign Trade: 1960-78

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Soc.</th>
<th>CMEA</th>
<th>Cap.</th>
<th>Total</th>
<th>Soc.</th>
<th>CMEA</th>
<th>Cap.</th>
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<tr>
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<td>A</td>
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<td>nd</td>
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<tr>
<td>1960</td>
<td>106</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>94</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
</tr>
<tr>
<td>1961</td>
<td>106</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>96</td>
<td>nd</td>
<td>nd</td>
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</tr>
<tr>
<td>1962</td>
<td>106</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>95</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
</tr>
<tr>
<td>1963</td>
<td>105</td>
<td>106</td>
<td>114</td>
<td>93</td>
<td>94</td>
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<td>92</td>
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<tr>
<td>1964</td>
<td>105</td>
<td>107</td>
<td>113</td>
<td>115</td>
<td>95</td>
<td>96</td>
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<td>1965</td>
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<td>109</td>
<td>108</td>
<td>92</td>
<td>98</td>
<td>97</td>
<td>95</td>
<td>101</td>
</tr>
<tr>
<td>1966</td>
<td>97</td>
<td>98</td>
<td>103</td>
<td>88</td>
<td>96</td>
<td>97</td>
<td>94</td>
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<tr>
<td>1967</td>
<td>98</td>
<td>103</td>
<td>98</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>92</td>
<td>98</td>
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<tr>
<td>1968</td>
<td>98</td>
<td>103</td>
<td>100</td>
<td>90</td>
<td>96</td>
<td>95</td>
<td>91</td>
<td>94</td>
</tr>
<tr>
<td>1969</td>
<td>98</td>
<td>103</td>
<td>102</td>
<td>86</td>
<td>98</td>
<td>97</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>1970</td>
<td>100</td>
<td>100</td>
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<td>100</td>
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<td>1971</td>
<td>102</td>
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<td>102</td>
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<td>1972</td>
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<td>1973</td>
<td>111</td>
<td>113</td>
<td>108</td>
<td>121</td>
<td>105</td>
<td>103</td>
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<td>1974</td>
<td>118</td>
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<td>142</td>
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<td>105</td>
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<tr>
<td>1975</td>
<td>133</td>
<td>136</td>
<td>129</td>
<td>131</td>
<td>136</td>
<td>129</td>
<td>128</td>
<td>122</td>
</tr>
<tr>
<td>1976</td>
<td>144</td>
<td>146</td>
<td>154</td>
<td>141</td>
<td>138</td>
<td>135</td>
<td>123</td>
<td>138</td>
</tr>
<tr>
<td>1977</td>
<td>156</td>
<td>158</td>
<td>163</td>
<td>153</td>
<td>142</td>
<td>139</td>
<td>134</td>
<td>138</td>
</tr>
<tr>
<td>1978</td>
<td>160</td>
<td>163</td>
<td>173</td>
<td>161</td>
<td>142</td>
<td>139</td>
<td>147</td>
<td>128</td>
</tr>
</tbody>
</table>

Terms of Trade (1970 = 100)

Source: All indices were obtained by dividing indices of total value (using total values reported in various years of VTSS) by the quantity indices in Table 1.

Definition of Terms: see Table 1.
with the "A" quantity indices of total exports and imports are most apparent, especially on the import side. Note, for example, that in 1971-73 and 1976-77, the total import unit value index lies above both the capitalist and socialist indices, and therefore could not be an average of those two indices. The "B" unit value indices are weighted averages because the "B" quantity indices are.

In 1978, Soviet terms of trade with the world were about where they had been in 1960. They had dropped in the mid-1960's mainly due to price changes in CMEA which favored manufactured goods exporters over primary product exporters. In the 1970's, total terms of trade increased, first because of a major increase in terms of trade with capitalist countries, followed by changes in terms of trade with socialist countries, and to a lesser extent, CMEA. Up to 1976, Soviet terms of trade with CMEA had increased at a very moderate pace compared to what the Soviets would have been allowed to do under CMEA pricing rules in light of changes in world market prices (Hewett [1980a]). It would appear that Soviet restraint continued through 1978.

Trade and Payments in Convertible Currencies

Published Soviet foreign trade statistics do not report any balance of payments data, nor do they report separately on trade in convertible currencies. Nevertheless the convertible currency balances of trade and payments of the USSR are of considerable interest in the west. Those balances measure the ability of that system to manage trade and payments in very tough competitive markets. Furthermore, now that the USSR has significant net convertible currency debts on western markets, the interest of bankers and governments in Soviet convertible currency trade and payments has grown. This section
Table 5


(Million U.S. Dollars)

<table>
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<tbody>
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<td>I. Current Acct. Bal.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>A. Balance on Goods and Services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Trade</td>
<td>-250</td>
<td>-275</td>
<td>-238</td>
<td>-311</td>
<td>-500</td>
<td>-313</td>
<td>-1356</td>
<td>-1757</td>
<td>-978</td>
<td>-6422</td>
<td>-5985</td>
<td>-3300</td>
<td>-3794</td>
<td>-2069</td>
</tr>
<tr>
<td>a. Exports, f.o.b.</td>
<td>768</td>
<td>1012</td>
<td>1517</td>
<td>2125</td>
<td>2201</td>
<td>2630</td>
<td>2801</td>
<td>4790</td>
<td>7470</td>
<td>7835</td>
<td>9721</td>
<td>11345</td>
<td>13157</td>
<td>19524</td>
</tr>
<tr>
<td>2. Sales of Non-Monetary Gold</td>
<td>200</td>
<td>550</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>79</td>
<td>390</td>
<td>900</td>
<td>1178</td>
<td>725</td>
<td>1369</td>
<td>1597</td>
<td>2673</td>
<td>2200</td>
</tr>
<tr>
<td>3. Military Sales</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>100</td>
<td>87</td>
<td>122</td>
<td>1345</td>
<td>1000</td>
<td>793</td>
<td>1108</td>
<td>1500</td>
<td>1644</td>
<td>nd</td>
</tr>
<tr>
<td>a. Tourism, net</td>
<td>25</td>
<td>31</td>
<td>38</td>
<td>56</td>
<td>43</td>
<td>45</td>
<td>53</td>
<td>116</td>
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<td>136</td>
<td>150</td>
<td>175</td>
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<td>nd</td>
</tr>
<tr>
<td>b. Transport, net</td>
<td>-65</td>
<td>-60</td>
<td>-50</td>
<td>10</td>
<td>517</td>
<td>367</td>
<td>340</td>
<td>710</td>
<td>900</td>
<td>720</td>
<td>860</td>
<td>980</td>
<td>970</td>
<td>nd</td>
</tr>
<tr>
<td>I. Capital Account</td>
<td>88</td>
<td>10</td>
<td>126</td>
<td>369</td>
<td>266</td>
<td>227</td>
<td>-77</td>
<td>522</td>
<td>386</td>
<td>5694</td>
<td>2952</td>
<td>1917</td>
<td>173</td>
<td>-1127</td>
</tr>
<tr>
<td>A. Borrowing from Abroad</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>291</td>
<td>288</td>
<td>602</td>
<td>1340</td>
<td>1426</td>
<td>5402</td>
<td>4694</td>
<td>1777</td>
<td>1785</td>
<td>nd</td>
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<tr>
<td>B. Lending to Other Countries</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>-25</td>
<td>-55</td>
<td>-679</td>
<td>-309</td>
<td>-1029</td>
<td>295</td>
<td>-1711</td>
<td>140</td>
<td>-1612</td>
<td>-1100</td>
</tr>
<tr>
<td>I. Net Errors and Omissions</td>
<td>30</td>
<td>208</td>
<td>185</td>
<td>-9</td>
<td>-288</td>
<td>387</td>
<td>664</td>
<td>-1673</td>
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<td>-930</td>
<td>21</td>
<td>-2668</td>
<td>-1439</td>
<td>-2668</td>
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</tbody>
</table>


Notes:

b. These are the Ericson and Miller figures, which may have been revised in making the estimates reported in U.S. C.I.A. (1980b); that source does not say, and does not report these numbers.
c. Negative of the sum of the Capital Account and Current Account Balance rows, those two having been estimated separately.
discusses what is known about Soviet convertible currency trade. Virtually all of the data here have been developed in recent years by the C.I.A.

Table 6 presents C.I.A. estimates of the Soviet convertible currency balance of payments. This includes (in recent years) Soviet trade with all developed capitalist countries except Finland, the developing countries of Europe, and a considerable number of developing countries with which the Soviet Union settles its accounts in convertible currencies.

Virtually all the items in this table are estimates, many of them based on guesses about such things as interest rates, the prices at which gold was sold, the proportion of dollar earnings in total transport earnings, and convertible currency earnings from military sales. Therefore these estimates should be viewed as the middle of a rather broad range of possible balances, a point which the discussions of these estimates are careful to make (see Ericson and Miller [1979]). Nevertheless, these estimates are very carefully done, and they are probably the best we shall have unless the Soviets decide to publish their own figures.

In the 1970's, with the exception of the years where major grain purchases were made, the Soviet current account balance has been in surplus; and recently the surplus has become quite substantial, reaching $4.1 billion in 1979. The balance on merchandise trade has traditionally been negative, running somewhere between -$2.0 and -$6.5 billion in the later half of the 1970's. Table 7 contains estimates of the increase in the volume of convertible currency exports and imports, the changes in unit values, and the net barter terms of trade, all for the 1971-77 period. The terms of trade increased 50 percent over these years, primarily because of rapid increases in the price of Soviet hydrocarbon exports. Yet even with those improved terms of trade, the quantity of imports increased so much more rapidly than the quantity of exports that the merchandise trade balance remained negative.
Table 7

Soviet Convertible Currency Trade: Quantity Indices, Unit Value Indices, and Net Barter Terms of Trade, 1971-77

<table>
<thead>
<tr>
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</tr>
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<tr>
<td>Quantity Indices</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Exports</td>
<td>100</td>
<td>103</td>
<td>122</td>
<td>106</td>
<td>116</td>
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<td>141</td>
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<td>Imports</td>
<td>100</td>
<td>151</td>
<td>193</td>
<td>182</td>
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<td>Unit Value Indices</td>
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<td>Exports</td>
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<td>149</td>
<td>268</td>
<td>257</td>
<td>268</td>
<td>306</td>
</tr>
<tr>
<td>Imports</td>
<td>100</td>
<td>94</td>
<td>115</td>
<td>158</td>
<td>178</td>
<td>175</td>
<td>199</td>
</tr>
<tr>
<td>Net Barter Terms of Trade</td>
<td>100</td>
<td>111</td>
<td>130</td>
<td>170</td>
<td>145</td>
<td>153</td>
<td>154</td>
</tr>
</tbody>
</table>

Source: The quantity indices are from Ericson and Miller (1979, 228). They do not discuss the weights in these indices. The unit value indices are derived by dividing the quantity indices into indices of the total value of convertible currency merchandise exports and imports from Ibid. (p. 212). The net barter terms of trade are the export unit value index divided by the import unit value index.
Three current account items have counterbalanced that deficit: gold sales, sales of military equipment, and net services. In recent years the latter surplus has dwindled as interest payments on the debt have increased dramatically.

The capital account shows the large debt accumulations which occurred in the mid-1970's, and abated by 1977-78. These were driven in part by large grain purchases, but also there was obviously an underlying flow of over $1 billion per year in borrowing, presumably to finance new machinery and equipment. Soviet commercial assets were increasing simultaneously, and Table 8 shows, as a consequence, how net debt changed over time. Soviet net debt stagnated in 1976-79 at $10-$11 billion. In part this may have been a result of improved financial management achieved by moving (in 1976) V. Alkhimov, a specialist on financial matters, from his position as Deputy Minister of Foreign Trade to the Directorship of Gosbank (Ericson and Miller [1979, 231]). Even without that change, the dramatic increases in gold prices and the terms of trade would have allowed Soviet financial authorities to cease net borrowing.

In international financial terms the Soviet Union was in very good shape by the end of 1979. Total net debt equalled about half of 1979 convertible currency exports; the 1979 debt service ratio was 18 percent (U.S. C.I.A. [1980a, 8]). This, combined with the Soviet Union's very substantial gold reserves, provide a very considerable financial buffer against whatever shocks may hit the Soviet Union in the early 1980's (for example, oil production problems or problems in Eastern Europe).

I turn now to a brief discussion of the four key sources of convertible currency earnings for the USSR: primary products, gold, military sales, and services.
Table 8

Convertible Currency Debt of the USSR: 1970-1979

(Millions of Dollars)

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Gross Debt</td>
<td>1807</td>
<td>2409</td>
<td>3749</td>
<td>5176</td>
<td>10578</td>
<td>14853</td>
<td>15728</td>
<td>17227</td>
<td>17200</td>
</tr>
<tr>
<td>Commercial Debt</td>
<td>407</td>
<td>858</td>
<td>2041</td>
<td>2787</td>
<td>6947</td>
<td>9667</td>
<td>9858</td>
<td>10316</td>
<td>9500</td>
</tr>
<tr>
<td>Officially Guaranteed Export Credits</td>
<td>1400</td>
<td>1551</td>
<td>1708</td>
<td>2389</td>
<td>3531</td>
<td>5185</td>
<td>5870</td>
<td>6911</td>
<td>7700</td>
</tr>
<tr>
<td>Commercial Assets</td>
<td>1225</td>
<td>1854</td>
<td>2583</td>
<td>3522</td>
<td>3127</td>
<td>4730</td>
<td>4498</td>
<td>5010</td>
<td>7000</td>
</tr>
<tr>
<td>Net Debt</td>
<td>582</td>
<td>555</td>
<td>1166</td>
<td>1654</td>
<td>7451</td>
<td>10115</td>
<td>11230</td>
<td>11217</td>
<td>10200</td>
</tr>
</tbody>
</table>

Primary Products

In 1913, the five top foreign currency earners in Soviet exports (most of which went to West European countries) were grain, sawn timber, eggs and egg products, cotton fibers, and logs (VTSS 1916-1966, p. 235). Three of those product groups remain among the top earners of convertible currency for the Soviet Union today—sawn timber, logs, and cotton—and the other top export groups are also primary products: petroleum and petroleum products, natural gas, coal, iron ore, rolled ferrous metals, and non-ferrous metals. These products account for about three-fourths of Soviet merchandise exports to the West, which is not the same as exports for convertible currency, since in these data the "West" includes Finland (not a convertible currency trade partner), and excludes all developing countries (many of which do settle their accounts with the USSR in convertible currency) (Hewett [1973]).

Petroleum and petroleum products exports are by far the most important source of convertible currency; in 1978 that product alone accounted for about $5.3 billion of all Soviet convertible currency merchandise exports of $13.2, 40 percent of the total. 7

This heavy reliance on a few primary products for the bulk of convertible currency proceeds is not totally by design. Analyses by Soviet economists who work on foreign trade, and the statements of Soviet leaders, are replete with references to the desirability of increasing the share of manufactures in total exports, particularly in exports to developed western countries. 8 But these efforts have in the main failed for well-known reasons best elucidated in Franklyn Holzman's writings on Soviet foreign trade (Holzman [1974, 1979]). The fundamental problems in Soviet manufactured goods exports are exactly those which plague the domestic economy: producers working in sellers' markets simply have no incentive to produce and service the manufactured goods which customers want, whether they be foreign or
domestic customers. The tremendous pressure from above for continuous increases in the quantity of output encourages producers to emphasize quantity over quality, and to favor known technology over new technology. While these factors discourage manufactured goods exports, they favor the production and export of primary products. There is very little manufacturing, and no after-sale service, involved in primary product extraction and sales; technological advances in production processes are possibly not as important as in manufacturing processes, and when they are, central planners can more easily introduce them from above; and the emphasis on quantity tends to generate large quantities of primary products, including an exportable surplus. This is why, even though Gosplan may not have planned it this way, the primary products industry has become a major export industry in the USSR.

Now for petroleum, far and away the most important of the primary products used to earn convertible currencies, there are very serious problems ahead. The facts are well known, and are discussed in Professor Campbell's and Dienes' contributions to this volume. The predicted problems in petroleum production are a direct outcome of years of emphasis on high quantities now, hence the drop in output which should come soon could be precipitous. This will have very serious consequences either for Soviet merchandise exports for convertible currency, or for Soviet exports of energy to Eastern Europe, probably the former. It is very unlikely that primary products, particularly fuels, can play the role in the 1980's they played in the 1970's as a major source of convertible currency. Something else will have to replace them, and no one, including Soviet planners, can say now what that might be.
Gold

Gold represents a potentially important source of convertible currency earnings in the near future, which could replace some, but hardly all, of the revenues lost due to a decline in petroleum production. As Table 6 shows, gold sales have been substantial for many years in comparison to the value of merchandise exports for convertible currency. Over the entire 1960-1979 period gold sales have averaged 14 percent of the value of convertible currency exports; in 1978, gold sales were valued at $2.673 billion, which was almost exactly half the value of petroleum and petroleum products sales that year.

The Soviet Union publishes no information on gold sales, production, or stocks; all such information must be estimated using data available in the West. All that is known with acceptable accuracy is sales tonnes; those are reported by western gold traders. The prices at which the sales are made are not reported, and must be estimated, which is difficult for the very important period of the 1970's where gold prices are fluctuating so rapidly and by such large amounts. Soviet gold production and gold stocks have been estimated by the C.I.A., Michael Kaser (for Consolidated Gold Fields of London), and Siedfried Schoppe. Table 9 summarizes all of these data.

Soviet gold sales have been substantial throughout the 1970's, reaching a peak of 430 tons in 1978. In 1978-79 gold sales on world markets averaged 1750 tons per annum, making the Soviet Union the second largest gold seller behind South Africa (which supplied 700 tons in each of those years) (Frey [1980, 43]). Apparently the Soviet traders play an important stabilizing role on world gold markets. In recent years, they have tended to sell when prices are rising, and hold back supplies when prices are falling (Ericson
Table 9
Western Estimates of Soviet Golds Sales, Production, and Stocks: 1970-79

<table>
<thead>
<tr>
<th>Year</th>
<th>Gold Sales (metric tons)</th>
<th>Value (Mln. Dol.)</th>
<th>Dollars per Ton (Mln. Dol.)</th>
<th>Gold Production(^a) (metric tons) C.I.A.</th>
<th>Kaser</th>
<th>Schoppe</th>
<th>Gold Reserves (metric tons) C.I.A.</th>
<th>Schoppe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>0</td>
<td>0</td>
<td>--</td>
<td>200(^{+})</td>
<td>347</td>
<td>193</td>
<td>1610</td>
<td>1730</td>
</tr>
<tr>
<td>1971</td>
<td>60</td>
<td>79</td>
<td>1.317</td>
<td>204</td>
<td>360</td>
<td>201</td>
<td>1717</td>
<td>1895</td>
</tr>
<tr>
<td>1972</td>
<td>200</td>
<td>380</td>
<td>1.900</td>
<td>213</td>
<td>379</td>
<td>254</td>
<td>1700</td>
<td>1950</td>
</tr>
<tr>
<td>1973</td>
<td>280</td>
<td>900</td>
<td>3.214</td>
<td>236</td>
<td>398</td>
<td>302</td>
<td>1620</td>
<td>1935</td>
</tr>
<tr>
<td>1974</td>
<td>230</td>
<td>1178</td>
<td>5.122</td>
<td>246</td>
<td>421</td>
<td>355</td>
<td>1675</td>
<td>2025</td>
</tr>
<tr>
<td>1975</td>
<td>140</td>
<td>725</td>
<td>5.179</td>
<td>251</td>
<td>408</td>
<td>404</td>
<td>1746</td>
<td>2230</td>
</tr>
<tr>
<td>1976</td>
<td>340</td>
<td>1369</td>
<td>4.026</td>
<td>257</td>
<td>444</td>
<td>451</td>
<td>1614</td>
<td>2330</td>
</tr>
<tr>
<td>1977</td>
<td>340</td>
<td>1597</td>
<td>4.697</td>
<td>265</td>
<td>444</td>
<td>500</td>
<td>1510</td>
<td>2465</td>
</tr>
<tr>
<td>1978</td>
<td>430</td>
<td>2673</td>
<td>6.216</td>
<td>270</td>
<td>453</td>
<td>nd</td>
<td>1366</td>
<td>nd</td>
</tr>
<tr>
<td>1979</td>
<td>225</td>
<td>2200</td>
<td>3.778</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
<td>nd</td>
</tr>
</tbody>
</table>

Sources:
2. Value of gold sales: Table 6.
3. Dollars per Ton: second column divided by first.
5. The Kaser estimates are from Kaser (1979, 228).
6. The Schoppe estimates are from Schoppe (1979, 64-65).

Note:
\(^a\)Kaser's data include production of gold as a main product, and as a by-product. The other two sources do not say whether by-products are included. Kaser shows by-products in recent years to be about 50 tons.


and Miller [1979, 230]). In 1976 when the IMF began its substantial gold auctions, the predicted fall in gold prices did not transpire in part because the Soviet Union withdrew from the market as soon as the price began to fall (Schoppe [1979, 80]).

It is not at all clear how this has affected Soviet gold reserves because there is no agreement among available sources on either the level of Soviet gold production, or reserves. The C.I.A. estimates production of 270 tons in recent years, which would imply that stocks have fallen somewhat, given sales of larger amounts. Both Schoppe and Kaser estimate much higher production figures which, if they are correct, mean that gold reserves are rising. Other than much higher production estimates, one other possible explanation for Schoppe's high gold reserve figures and the lower figures of the C.I.A. is that Schoppe includes "Spanish Gold" held by the Soviet Union, and the C.I.A. may leave that out. None of these sources are clear enough in how they arrived at their estimates to choose among them. In fact only Kaser notes the discrepancy, but makes no attempt to explore it (Kaser [1979, 228]). At the very least Soviet gold stocks in 1979 were at about 1375 tons (assuming the C.I.A. data will show a slight increase over 1978), which at 1979 prices was worth $16.4 billion. The stocks could be as high as 2500 tons, worth $24.5 billion in 1979 prices. 1980 prices are, of course, much higher. A conservative value for 1980 would be $500 a troy ounce, or $16.35 million per ton, which puts the value of Soviet gold reserves at somewhere between $27.4 billion to $40.9 billion. It would obviously be beneficial for the authors of these estimates to somehow identify the reasons for the discrepancies in their figures. Whatever the true figures may be, it is clear that the Soviet Union possesses substantial gold stocks. In the future it can, as it has in the recent past, use those stocks to partially insulate the
economy from the foreign exchange consequences of problems in petroleum production, or further difficulties in grain production. For example, at a conservative sales level of 200 tons of gold a year, and at a conservative $500 an ounce, the Soviets could earn $3.27 billion a year, about 60 percent of their 1978 earnings from oil.

On the other hand, it is difficult to predict how the price of gold will change in the future. Soviet planners are given to conservatism in many things, and in this matter it seems likely that they will not plan for gold to replace export proceeds from commodities with more predictable prices. They will probably plan for their future convertible currency proceeds to come from elsewhere, while quite naturally hoping that the gold boom will continue (and probably helping it to do so where possible).

**Military Goods**

Sales of military goods have, since 1973, become an important source of convertible currency for the USSR. The Soviet Union has become part of the petrodollar recycling process through its sales of modern military equipment for convertible currency. The magnitudes involved are difficult to estimate. The C.I.A. estimates, given in Table 6, suggest that convertible currency earnings from military sales were about $1.5 billion per year in 1976-78, which constituted about 11 percent of convertible currency earnings from merchandise trade in those years.

The actual figures could be substantially different. The C.I.A data, which are the sole data available, are the result of a careful estimate for one year only (1977) of the proportion of military sales which were in convertible currencies, and then that proportion has been applied to total military sales in other years (U.S. C.I.A. [1978], and Ericson and Miller [1979, 214]). There is no doubt, however, that Soviet sales of military equipment for convertible currency are large,
and the prospects of their continuing those sales are surely good, at least on the demand side. These represent one class of sophisticated manufactures in which the Soviet Union is competitive on convertible currency markets.

There is still much more one needs to know about the production and sales of these commodities in order to say with any degree of certainty what role they might play in future convertible currency sales. One wonders, for example, whether the supplies involved are putting significant pressure on Soviet arms manufacturers, hence on the domestic economy. Arms sold for convertible currency are presumably high quality products in a high priority industry, and significant increases in production there must have a telling effect on the remainder of the system. While the Soviets are earning valuable hard currency for the sale of these products, they are using some very scarce inputs to produce them, in particular presumably scarce inputs of strategic metals and highly skilled labor. It is entirely possible that special export industries producing civilian goods, to be discussed below, would be a cheaper way to earn additional hard currency.

These are important issues about which nothing very substantive has been written, and hopefully more work will be done on them. Whatever the answers to these questions, it is important to note that military weapons are not simply sold by the USSR because they need more convertible currency; there are obviously foreign policy considerations involved. Nevertheless these weapons sales are a potentially important source of convertible currency. Combined with gold sales they represent a major counterweight to the deficits on merchandise trade. In the period 1973-1979 gold and military sales covered all, or virtually all, of the merchandise trade deficit in five of those seven years (excluding the big grain purchase years of 1974-75).
Shipping and other transportation services are becoming another important source of net convertible currency earnings, with net receipts approaching $1 billion in the late 1970's. The growth of the merchant marine, and the increasing role of the Soviet Union in world shipping has been discussed elsewhere (Hardt [1979], Carr [1979]). There seems to be every prospect that the Soviets will continue to successfully develop this as a major source of convertible currency.

In addition to shipping, the receipts from transport reflect the rapid growth of convertible currency receipts from container shipments over land on the Siberian land bridge (Miller [1978]). The Soviets are pushing very hard to capture a significant portion of the traffic between Japan and Asia on the one end, and Europe on the other. They are offering shipments in both twenty- and forty-foot containers at significant discounts relative to sea routes, and they are apparently very successful.

Windfall Gains to the Soviet Economy Through Convertible Currency Trade

In the 1970's several factors exogenous to the Soviet economy have provided it with large windfall gains through its convertible currency trade. The tremendous increase in gold prices has provided the Soviet Union, as a major producer and seller of gold, with enormous increases in dollar revenues. These in turn have presented Soviet planners with the pleasant options of retiring debt without changing exports or imports, or reducing exports without reducing imports, or increasing imports without increasing exports. Similar windfalls have accrued through the improved terms of trade in convertible currencies. The 50 percent increase in the terms of trade between 1971
and 1977 provides to Soviet planners, again, the three choices above. Finally, the substantial redistribution of wealth towards OPEC countries has provided the Soviet Union with improved prospects for selling weapons to the "right" trade partners for convertible currency.

The additional import possibilities from increased gold prices and improved terms of trade are windfall gains whose importance to the Soviet economy can be quantified. Table 10 does that by estimating, in current U.S. dollars, the additional import capacity available to the Soviet Union as a result of these two factors.

The first column estimates the additional dollars available for imports due to improved terms of trade in convertible currency trade alone. The data only go through 1977 because the C.I.A. estimates of terms of trade in convertible currencies end there. This column is the difference between the nominal value of exports each year and that value deflated by the terms of trade that year. That difference represents export proceeds in current dollars, net of the amount of additional proceeds needed to buy imports at their new, higher, prices. The second column of Table 10 quantifies additional imports possible because gold prices have risen. It is the product of the quantity of gold actually sold each year and the difference between the price obtained that year, and the price obtained in 1971. The (admittedly simplifying) assumption here is that the Soviet Union is a price taker on this market, and that it would have marketed the quantities of gold it marketed in any event; the price differences therefore generate pure windfall gains.

The remaining two columns are placed in the table for reference, the third column giving total merchandise exports for convertible currency, and the fourth column giving the net increase or decrease in the convertible currency debt over this period. All columns are summed for 1971-77, for which
Table 10


(Millions of U.S. Dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Additional Imports Possible Due to Improved Terms of Trade</th>
<th>Additional Imports Possible Due to Higher Gold Prices</th>
<th>Merchandise Exports for Convertible Currency</th>
<th>Increase (+) or Decrease (-) in Net Convertible Currency Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>0</td>
<td>0</td>
<td>2630</td>
<td>nd</td>
</tr>
<tr>
<td>1972</td>
<td>278</td>
<td>116</td>
<td>2801</td>
<td>-27</td>
</tr>
<tr>
<td>1973</td>
<td>1105</td>
<td>531</td>
<td>4790</td>
<td>611</td>
</tr>
<tr>
<td>1974</td>
<td>3076</td>
<td>875</td>
<td>7470</td>
<td>488</td>
</tr>
<tr>
<td>1975</td>
<td>2432</td>
<td>541</td>
<td>7835</td>
<td>579?</td>
</tr>
<tr>
<td>1976</td>
<td>3367</td>
<td>921</td>
<td>9721</td>
<td>2664</td>
</tr>
<tr>
<td>1977</td>
<td>3978</td>
<td>1140</td>
<td>11345</td>
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<td>1978</td>
<td>nd</td>
<td>2107</td>
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<td>-13</td>
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<td>1979</td>
<td>nd</td>
<td>1904</td>
<td>19524</td>
<td>-1017</td>
</tr>
<tr>
<td>1971-1977</td>
<td>14236</td>
<td>4124</td>
<td>46592</td>
<td>9619</td>
</tr>
<tr>
<td>1971-1979</td>
<td>nd</td>
<td>8135</td>
<td>79723</td>
<td>10684</td>
</tr>
</tbody>
</table>

Sources: First two columns, see Data Appendix. Merchandise exports are from Table 6. The debt figures are from Table 8.
complete data are available, and for 1971-1979, for which data are available for all save the gains from improved terms of trade.

The windfall gains to the Soviet Union were quite substantial by any measure. Of the increased import capacity available to the USSR in the 1970-77 period because of increased borrowing, improved terms of trade, and increased gold prices, combined, 50 percent of that amount was due to the terms of trade improvement, and 34 percent was due to increased borrowing. Put another way, had the terms of trade and gold prices not improved, the Soviet Union would have had to borrow almost $28 billion to finance the additional imports it financed over and above what could be financed through exports at the 1971 terms of trade. If terms of trade data were available for the 1978-79 period, these figures would be even higher. Over that period the gains from higher gold prices alone comprise 80 percent of the value of net convertible currency debt outstanding.

These windfall gains have made it possible for the Soviet Union to postpone changes in its planning and management of foreign trade (and for that matter, the economy) for some time. This system is best at producing and marketing primary products, fuels and semi-manufactures, and the relative values of those products rose on the world economy in the 1970's, hence so did the Soviet terms of trade. The Soviets happen to have large gold reserves, and the world valuation of gold drastically changed in the 1970's. Without these changes the pressures for much greater economies in imports, or much increased exports, would have been felt throughout the 1970's, which surely would have hastened system change. The question now is whether pressures for change will grow in the 1980's. I suspect they will and that as a consequence the system will begin to change. The next section discusses these issues, beginning with a discussion of the planning and management system in foreign trade, and then a discussion of the pressures for change.
The Planning and Management of Foreign Economic Relations in the Soviet Union

In studying any system it is difficult to separate out the fundamental features which are the true source of the important performance characteristics of that system, from the surface appearance of the system, which may change quite frequently. It is nevertheless imperative that such a separation be made, since only the fundamental features matter; changes in form are irrelevant, and sometimes meant as camouflage.

The fundamental features of the institutions which control Soviet foreign economic relations have not changed in half a century. The state's monopoly control over foreign trade, payments, and the resource allocation decisions which influence those, remains quite secure. The Soviet foreign sector today is, as it was in the 1930's, a highly centralized information and decision-making system.

This section is confined primarily to discussing those fundamental features, and the pressures to change them. The particular form which the monopoly of foreign trade takes today will be discussed only in a general way in order to elucidate what is fundamental about the system. Recent changes in the organization of foreign trade organizations (FTO's) will be discussed only to illustrate that the changes have no effect on the basic structure of the system.

Pressures to change this system are intertwined with pressures to reform the entire economy; poor performance in the foreign sector is in fact a manifestation of problems in the entire domestic economy. Such pressures for change have always existed. In the 1970's they did not grow worse in part because of the windfall gains discussed above. As the windfall gains
disappear and the pressures begin to grow, then true reforms will grow more likely. The later portion of this section discusses the two major sources of pressure for change, and the last section ventures a guess at how this will affect institutions and economic performance in the next two decades.

The Institutions Which Control Soviet Foreign Economic Relations

The term "foreign economic relations" is, in Soviet (and in fact western) terminology a broader concept than "foreign trade." It includes trade, but also matters concerning currency, aid, and all foreign economic contacts, for example cooperation agreements between Soviet and foreign firms in the Soviet Union, or abroad.

As in all other matters in the Soviet Economy, the ultimate authority over major policy issues concerning foreign economic relations resides in the Party, effectively in the Party Central Committee, its Secretariate, and the Politbureau. But for other than the issues of paramount importance, presumably it is the various governmental institutions which effectively control the conduct of Soviet foreign economic relations. The USSR Council of Ministers has a complete monopoly over all aspects of foreign economic relations, and it uses various institutions to administer particular aspects of the monopoly. Gosplan plays a crucial role through its authority over all major resource allocation decisions. It is Gosplan which has final authority over all decisions concerning foreign trade, in particular the level of trade, and its commodity composition.

Economic ministries and some enterprises are playing an increasingly important role in foreign economic relations as the government seeks to increase the role of cooperation agreements in foreign trade flows with all countries. The domestic ministries, and not the Ministry of Foreign Trade, have full authority here to conclude cooperation agreements, and the responsibility to carry them out.
The Ministry of Foreign Trade is only involved as a facilitator for the resulting trade flows. The increasing importance of cooperation agreements is a reflection on an attempt by Soviet planners to more directly connect decisions on production and investment to foreign
economic considerations, a natural and inevitable development in an economy which wishes to increase its gains from specialization and trade. In effect the Ministry of Foreign Trade is sharing control over many trade flows with ministries and large enterprises. And in fact, the portion of Soviet foreign economic relations exclusively controlled by the Ministry of Foreign Trade is openly regarded by Soviet planners as the least dynamic and promising part of their relations with other countries.

The Ministry of Foreign Trade regulates all pure commodity trade transactions. Although the Planning-Economic Administration of the Ministry participates in the planning process, it is apparently primarily as a source of information to aid Gosplan in constructing the foreign trade plans; the Ministry itself is decidedly the junior participant here, its primary concern being the state of foreign trade relations. The Ministry of Foreign Trade has in its central аппарат administrations or directorates (управления) regulating trade with various geographic areas (Asian Socialist Countries, European Socialist Countries, Western Europe, North and South America, Southeast Asia and the Middle East, and Africa); regulating major functional areas of foreign trade (for example, Planning and Economic Matters, Treaties and Legal Matters, and Currency); and regulating trade by major product group and geographical areas (Export of Primary Products; Export of Industrial Equipment; Export of Transport, Road Construction, and Agricultural Machinery; Export of Ready Made Products and Consumer Goods; Import of Industrial Raw Materials, Food, and Ready-Made Products; Import of Machinery and Equipment from Capitalist Countries; and Import of Machinery and Equipment from Socialist Countries) (Hewett [1978, 30]).

The administrations control approximately fifty foreign trade organizations (ФТО's), each of which controls trade in a carefully specified set of
products, usually involving both export and import trade. It is the FTO's which conduct the bulk of Soviet merchandise trade on behalf of Soviet enterprises, and at the command of the Ministry of Foreign Trade, itself operating according to the annual plans set by Gosplan. Domestic enterprises ship goods for exports and obtain imported goods according to that same annual plan, receiving the domestic wholesale price (and possibly some special bonuses) for export production, and paying the domestic retail price for imports.

Trade in services is in part outside the control of the Ministry of Foreign Trade. For example, the State Committee for Foreign Economic Relations, which acts as general contractor on turn-key and other projects abroad involving Soviet equipment, Soviet construction agencies, and so on, has twelve of its own FTO's to manage those projects. The Ministry of the Maritime Fleet has three FTO's under its jurisdiction to handle all shipping. And, finally, the State Committee for Science and Technology has its own FTO to handle trade in disembodied technology (Bozek [1979, 514-516]).

Matters relating to finance, for example management of Soviet convertible currency reserves, management of the debt, sales of precious metals, and so on, are handled by Gosbank and the Ministry of Finance. Gosbank is directly subordinated to the USSR Council of Ministers.

As a group these institutions are the practical realization of what it meant by the state monopoly of foreign trade in the USSR. Their main function is to centralize in the hands of the Council of Ministers the control of all foreign economic relations. As a necessary by-product, the domestic economy is virtually cut off from the world economy. In a market economy, world economic conditions exert their influence on the domestic economy automatically unless the state intervenes to alter those influences; in the Soviet economy it is only through state intervention that the enterprises and final users of their products feel any influences from the world economy.
Consequently the determinants of the structure of trade, and its level, lie in the planning process itself, in the information it gathers about opportunity costs and world economic demand and supply, and in the way that information is used. Our information on how foreign trade planning operates in the Soviet Union is quite uneven, most of it relating to descriptions of how the bureaucracy is supposed to operate, and very little of it relating to how the system actually generates decisions. Formally, the entire process is integrated with the system of national balances, and is closely tied to an increasingly complex set of efficiency calculations which insure that trade, new investments, and cooperation agreements will only be undertaken when they represent net benefits to the economy.\textsuperscript{13}

It is not at all clear in fact what role efficiency calculations play in this process. They are cumbersome and require a great deal of data at a very disaggregated level. That very complexity means that, not unlike cost-benefit ratios in project decisions in the U.S., they can be distorted to support decisions already reached for other reasons. Finally, they are necessary because the domestic price system is insulated from world prices, consequently they are at best a poor substitute for real opportunity cost information. They may, as Gardner (1980) contends, be having some influence on Soviet decisions concerning foreign economic relations. But one doubts whether that impact is either systematic or major.

The most important consequence of this system for Soviet economic performance comes because it deprives enterprises of sufficient information to intelligently specialize and trade with the world economy, and, even more important, it fails to give enterprises any significant incentives to participate in the world economy. The enterprise, which best knows its production possibilities, does not know what would sell in the world economy. Furthermore
it has little reason to care. Its main concern is what its ministry expects of it, and that means gross output (or now, maybe, normative net output), and not exports. In fact most Soviet enterprises are in such a frantic seller's market, with a virtual monopoly in their product, so that to be interested in exports practically amounts to an act of selfless sacrifice on the part of the manager and his staff. Export production is more expensive, more trouble, and less certain to be sold; and in the Soviet system very few managers would voluntarily choose to increase production of products with those characteristics. Likewise on the import side there is almost no incentive to economize on imports. They cost the same as comparable domestic products, where those can be found, and otherwise are priced to reflect the cost of an imaginary Soviet counterpart. It would only be by accident, or bureaucratic communication from above, that the Soviet user of imports might get the notion that he is using an item with a very high opportunity cost to the Soviet economy.

This is why on the export side manufactured goods exports are such a problem, and why (one supposes) Gosplan is most likely constantly faced with import demands from the ministries far in excess of what can be met. But is also because Soviet central planning is so oriented towards quantity instead of quality that the USSR has managed to turn in a very satisfactory balance of payments performance in convertible currencies. This system is very good at finding large deposits of primary products and fuels, and supplying them to industry, or exporting them. As long as the primary product deposits hold out, along with good luck on prices, economic indicators in the Soviet foreign sector will be satisfactory. Planners can suppress import demands, possibly at some cost, but not at such an enormous cost so as to cripple the economy. In a large, well-endowed economy such as the USSR, suppression of imports is probably of only moderate importance unless it is done without any concern for costs, and the Soviet case does not seem to fit that description.
Fundamental change in this system means giving enterprises the information and incentive to participate profitably in the international division of labor. The state could still keep control over trade flows through tariff and exchange rate policy, but enterprises would have to be exposed to world economic competition. Obviously this goes far beyond changing institutions in the foreign sector; it means a change in the entire planning process, and redistribution of power from Gosplan to the market. That sort of change would not be voluntarily introduced by the current Soviet leadership, or by any conceivable successor group. If, and when, such change comes to the USSR it will only be because it is unavoidable, because economic performance is so bad, and the sources of its problems are so obviously linked to the separation of the system from the world economy, that the bureaucratic inertia against change is shattered. The next section is a discussion of the pressures for change now evident in the Soviet economy, the actual changes have transpired to date, and what is being discussed for the near future.
Pressures for Change in the Foreign Sector,  
And Changes Introduced to Date

The Soviet leadership has exhibited a dissatisfaction with performance in the foreign sector in two interrelated areas. The first area—a matter of common knowledge—is machinery and equipment exports for convertible currency. Soviet planners have for several decades aspired to raise the share of machinery and equipment in their hard currency exports, but to no avail. Attempts at special bonuses for export production (Tremll [1979], 195-196) have—not surprisingly—had no perceptible effect on machinery and equipment exports for convertible currency. The source of this problem is correctly perceived to lie in the lack of effective incentives towards the production and marketing of high-quality manufactured goods exportables, and the underdeveloped nature of the links between industry and the FTO's. In the last few years the problem of manufactured goods exports seems to have taken on somewhat more urgency as the increasingly severe constraints and high costs associated with expanding exports of primary products and fuels become more generally known and discussed, but the general problem has received attention for some years now.

The second source of pressure for change in the organization and management of the Soviet foreign sector is, interestingly enough, trade and cooperation with CMEA. Unlike the USSR, most East European countries have, in varying degrees, streamlined their foreign trade management system, decentralizing many decisions to enterprises more or less directly attached to international markets. While these measures were primarily taken in an attempt to improve performance on convertible currency markets, they have also been having their effect on trade with USSR; many East European enterprises are prepared to enter into complex, and potentially quite profitable, cooperation agreements with
Soviet enterprises, but the inflexible Soviet system presents numerous impediments. It is, of course, official Soviet policy to push cooperation with CMEA; and that would appear to reflect an increasingly strong conviction among Soviet leaders that there are substantial benefits to be gained from cooperation with leading East European industrial sectors. Thus there is an increasing realization that the Soviet economic system is one contributor to problems in the further development of CMEA cooperation (Popov [1976], Baibakov [1979]).

Medvedkov (1979) provides an excellent illustration of the difficulties here. He is reporting on experiences in Soviet-GDR cooperation agreements. Domestic ministries have the authority to negotiate and sign these agreements in the USSR, but all trade matters are to be handled through the Ministry of Foreign Trade. The difficulty here is that complicated cooperation agreements will involve numerous small transactions for which prices and quantities must be determined by the respective FTO's. Unfortunately the FTO's are not interested in working quickly on the price and quantity negotiations for such small deals since the fixed costs of such negotiations are high; yet the enterprises can hardly sign final agreements until they know what the prices will be. This is particularly difficult in cooperation agreements involving advanced technology where many of the trade flows involve new, high technology parts for which world market prices are difficult to find. A further source of opposition from the FTO's is that trade flows under cooperation agreements can involve temporary deficits, making contemporary bilateral balancing impractical.

At present, problems such as these are being handled partly outside the system at high levels on a case-by-case basis. For example in the case of GDR-USSR trade, individual ministries are authorized to conduct trade up to
a certain amount (presumably in preliminary prices) using a swing credit, and then the FTO's later negotiate the actual prices (Medvedkov [1979, 36]). The basic problem here is closely connected to problems concerning manufactured goods exports. The Ministry of Foreign Trade, designed to centralize control over all trade flows in the hands of planners, is itself a formidable institutional impediment to the complex cooperation, specialization and trade characteristic of foreign economic relations in the post-war period. And now, because the Soviet Union has not matched the modest advances Eastern European countries have made in redefining the monopoly of foreign trade to allow somewhat more advanced forms of foreign economic relations to develop in their systems, genuine accomplishments in USSR-East European industrial cooperation are few in comparison to the possibilities. And that should continue to be the case until Soviet leaders are willing to go beyond minor changes and ad hoc solutions to changes in the fundamental structure of the system.

Actual changes to date have been extremely modest in scope and should have no appreciable effect on the problems discussed above. In 1978 and 1979 the Ministry of Foreign Trade's FTO's were reorganized and two changes were introduced in their operations. First, a new governing body (pravlenie) was introduced for each FTO consisting of one-half representation from the domestic ministries producing goods which the FTO manages in trade, and one-half from the Ministry of Foreign Trade (presumably the product administrations). The pravlenie has limited authority, its main purposes being to figure out how the enterprises and FTO's together can better act to meet existing plans, and increase the production and sale of exportables. This measure is accompanied by new bonuses for export, differentiated by FTO; and the FTO's are authorized to set up new funds for material incentives which will evidently be formed as a function of their performance. None of these changes alter the
authority of the Ministry of Foreign Trade over the FTO's, or over foreign trade relations. The Ministry still appoints the leading personnel in the FTO, and it still issues an obligatory plan to the FTO. The pravlenie in each FTO is an export promotion committee which, it is hoped, will bridge the gap between FTO's and domestic enterprises. This is hardly a new idea. For some time the domestic ministries in the USSR have had several committees with the responsibility to improve export performance and coordinate the relations between their enterprises and the FTO's (Berman and Bustin [1975, 1007-1009]). All that is new is that these committees have been set up directly in the administrative apparatus of the FTO's.

The second major set of changes relate to the operation of the FTO's themselves. The old kontory which handled various product groups and functions within each FTO have been replaced by firmy which handle product groups supposedly defined to closely correspond to the domestic sector nomenclature. These firmy seem to have enhanced right of signature in foreign trade contracts within parameters set by the director of the FTO; and this is a change compared to the powers of the kontory. A complete evaluation of the legal ramifications of these changes is beyond my expertise, and practical experience in the next few years will reveal whether there are any major effects on economic performance. It would appear that these changes are of a minor operational nature, and that they do not affect any of the fundamental arrangements in the system.

Possible Changes in the Near Future

Further, more far-reaching, changes in the organization and management of the Soviet foreign sector are possible in the near future, although not likely. It would appear that in the late 1970's there was some discussion of a major reorganization of the foreign sector, along the lines of what has
transpired in Eastern Europe, involving a considerable decentralization of
decisions on foreign trade to the level of the enterprise or, more likely,
the association. The Ministry of Foreign Trade was apparently, and predict-
sably, opposed to such changes; and to date that opposition seems to have
effectively stopped the discussion. 17 Still, Patolichev (1978b) notes that
foreign economic relations are considered an increasingly important determin-
ant of Soviet economic performance, and, at least in the few years including
and preceding 1978, they were discussed at virtually every Politbureau meet-
ing; one doubts that matters have changed since then. The main issues dis-
cussed are improvement in foreign trade effectiveness, increases in export
potential, improvements in planning and management of foreign trade, and
strengthening of the links between the sectoral ministries and the foreign
sector.

There was an August 1976 decree on all aspects of foreign economic rela-
tions (which is still unpublished), which led to the 1978-79 changes discussed
above (Patolichev [1978b, 5]). In addition, judging from published statements
in the last five years, this decree—and the numerous Politbureau meetings—
must have discussed increased concentration of the production of manufactured
goods for export in a few firms, each of which would direct a high proportion
of their output for exports. Kosygin raised the matter at the Twenty-Fifth
Party Congress ("Osnovnye napravleniia..." [1976, 2]). Alkhimov, then Deputy
Minister of Foreign Trade, expanded on the notion of special export enterprises
dedicated to producing products in demand on foreign markets (Alkhimov [1976]).
He states that matters are moving forward in concentrating existing export
capacity in fewer firms. He also suggests it would be useful to build small
enterprises, requiring little capital, which could quickly pay for themselves
on export markets. In the longer term he anticipated expanding capacity to
produce exportables in areas such as shipbuilding, computers, aircraft and automatic power-station equipment.

In fact it would appear almost nothing of substance has been done. There may be a few enterprises specialized in exports, but there is nothing like a move towards the creation of a group of export enterprises, that is, a special export sector. And while pressures arising from difficulties in export performance may stimulate reinvigorated efforts in this direction, in the final analysis this is an attempt to avoid fundamental change, and will therefore have only a minor impact on export performance.
IV. Prospects for the Next Two Decades

Concerning the foreign sector, the key question for the next two decades is if, and when, the Soviet institutions which control foreign economic relations will change in any fundamental way. This is really a question of when the entire institutional system which governs the Soviet economy will be restructured. Soviet problems in producing manufactured goods exportable for convertible currency are the direct result of a planning system which consistently generates taut plans, which—in the context of a highly protected domestic market—perpetuates a sellers' market; a planning and management system which discourages the introduction of new technologies in production processes; and a price system which provides neither sufficient information nor incentives to economize on imports or stimulate exports. While the foreign sector may be separate from the domestic economy in the minds of Soviet policy-makers and many Soviet economists, and while the Soviet economic literature may focus solely on the foreign sector in discussing the problem of exports, that myopia cannot be allowed to obscure the fact that problems in the Soviet foreign sector originate in the domestic economy. Any attempt to improve export performance without addressing the ultimate source of the problem—the institutions which allocate resources in the domestic economy—is destined to produce at best very modest improvements in economic performance.

Soviet economic institutions, particularly those which have a major effect on foreign economic performance, will not be changed unless such change is unavoidable. The entire governmental and party hierarchy, and their authority over the economy, would undergo dramatic change in the event of truly meaningful reform in the system; and that is something which individuals in those hierarchies will accept only when failing to do it guarantees that they will lose their power. As Foreign Trade Minister Patolichev has made crystal
clear, the monopoly of foreign trade means only one thing: Gosplan, and through it the Ministry of Foreign Trade, retains absolute control over trade transactions. Any suggestions to the contrary are attacks at the foundations of socialism (Patalichev [1978]). The vested interests in favor of retaining the essential elements of the current institutional structure are so firmly entrenched that the only way their opposition can be overcome is when economic performance is bad enough, long enough, to weaken their bargaining power.

In the 1970's the Soviet economy enjoyed windfall gains through its foreign sector, and because of that the pressures for institutional change were less than they otherwise could have been. Soviet capacity to produce and increase net exports of primary products for convertible currency rose in the 1960's and 1970's not because planners were sure that relative prices of those products would continue to rise, but because the system could not successfully develop other goods exportable for convertible currency, and therefore it had to push traditional exports. If in the 1970's the world price of oil, natural gas, other primary products and gold, had plummeted, the pressures for change in the Soviet economy would have multiplied rapidly in the face of increasing debts and a decreasing ability to import advanced machinery and equipment. In fact the opposite occurred; the changes in the net barter terms of trade provided Soviet planners with an unexpected, ex post, ratification in world market prices of a decision made for reasons unrelated to those prices.

The probability is very low that the 1980's will be as favorable for the Soviet economy, and particularly for Soviet convertible currency exports, as the 1970's. The Soviets will be lucky if they can increase net petroleum exports for convertible currency in the face of growing domestic demands, the growing needs of Eastern Europe, and a dramatic slow down in growth rates for
petroleum extraction; they could easily see their exports of petroleum dissipate by 1985, assuming the CIA is correct. Natural gas exports can replace part, but hardly all, of hard currency lost from decreased petroleum exports. In addition, as petroleum products lose some of their importance in exports (or gain importance in gross imports), that will cause the (Paasche) terms of trade to deteriorate, thus reversing the windfall gains of the 1970's from that source. Therefore, without venturing a guess at the level of convertible currency earnings possible from exportable primary products and fuels, it is highly probable that in the early 1980's convertible currency export performance will deteriorate, and that the pressures for system change will increase.

At first these pressures may not be very strong. The Soviet Union enters the 1980's with substantial possibilities for borrowing on convertible currency markets: their debt service ratio is quite low by world standards, and their gold reserves are large. They could easily borrow dollars to cover several years of zero petroleum exports, assuming those would have equaled $5 billion or $6 billion a year. Furthermore, if (and this is not a prediction) gold prices sustain their present level, or continue their upward trend, then that $40 billion (or higher) gold stock is another buffer allowing the Soviet leaders to buy time in their search for a solution to stagnating or falling convertible currency exports. It would not seem to be at all difficult for planners to do nothing new about system arrangements in 1981-85, and yet replace temporarily the convertible currency proceeds lost as capacity in traditional exports sectors deteriorates.

One obvious solution to a deterioration in real export capacity is to cut back on hard currency imports, but this is probably an option that Soviet planners will reject. There isn't a great deal of obvious "fat" in the Soviet hard
currency import bill. For example in 1976-78 34% of imports were machinery and equipment. These are really imports of embodied technology and it is likely that as the Soviets continue to push for higher productivity growth rates to sustain GNP growth rates, that imported machinery (hence technology) will be more, rather than less, important to them. Another 20% of 1976-78 hard currency imports were food, mostly grain, and here there is little prospect that the Soviet agricultural sector will soon improve its performance so dramatically to reduce the need for hard currency food imports. Another 14% of the imports were rolled ferrous metals, of which the most important component was pipe. Here, again, Soviet import demands are likely to increase as they push the development of their gas industry. Therefore, while Soviet planners may consider reducing hard currency imports when the growth of their hard currency export capacity falls, they will probably conclude that they cannot afford significant cuts in hard currency imports; on the contrary the pressures to increase those imports will grow.

As planners turn their attention from conserving imports to expanding exports, their first attempts will surely focus on efforts to develop special enterprises devoted primarily or totally to export for convertible currency. This will certainly appeal to Soviet planners, who see in it the possibility to retain control over the bulk of the domestic economy, while dedicating selected enterprises to earning convertible currency. In fact there is a precedent in the military sector which, unlike the remainder of the Soviet economy, produces high quality goods which are apparently quite acceptable to the Soviet military and to foreign customers.

It is unlikely that this approach will succeed, although it could be late in the 1980's before that is evident. The most obvious problem is that this would entail creating a second "defense" industry while attempting to sustain, and probably increase, the output of the first, the true, defense industry. This new export sector would not be allowed to drain resources from defense, so
it would have to draw on the remainder of the system, which means consumer goods, capital for consumer goods industries, and so on. That could affect the supply of labor, or at least the supply of effort, and it would surely influence the already skeptical political opinions in the population at large concerning the justification for a special export sector which makes high quality products for people in other countries, and low quality products for Soviet citizens.

Also, there are social and economic problems attached to a special export sector. The export sector will somehow have to draw out of the labor force more, and higher quality, work than most Soviet enterprises seem able to manage. This probably will require higher wages, and, in effect, partial wage payments in convertible currency. That means the creation of an elite among workers hard to justify, particularly as the remainder of the population suffers cutbacks in the quality, and possibly the quantity, of consumables available for purchase.

Thirdly, there are a number of issues involved in establishing an export sector which—while they have always plagued the Soviet economy—would be particularly tricky in this case. Because prices for goods and labor in the USSR are misleading indicators of true costs (even true private costs, let alone true social costs), planners must ensure that the export sector does not become a funnel through which domestically cheap, but actually quite expensive and scarce, inputs are incorporated into manufactures and then sold too cheaply on world markets. This is, of course, a problem in any export of any economy like the USSR. But the existing Soviet resource allocation system informally compensates for this in part because as highly valuable inputs (say highly skilled labor) grow scarce, and various users bid for those inputs, in the process the inputs may indeed end up going where they are most needed, where they are paid for with a low price, but with side-payments reflecting their actual value. A
special export sector, if given first claim on all inputs, and an ultimatum to maximize dollar profits, could surely avoid the bargaining process, buying at cheap domestic prices, and then selling the resulting output at world market prices.

To avoid the possibility of giving away national income this way, planners would have to establish an iron-clad rule that export enterprises buy absolutely everything they use either from the world market, or from the domestic economy, but at world market prices. This concerns not only the purchase of current inputs, but also buildings, machinery and equipment, and money itself.

Finally, all of these issues aside, probably the most formidable obstacle to the formation of a special export sector is the bureaucracy itself. The
establishment of such a sector attacks the power base of several important lobbies in the economy. Gosplan and the ministries lose control over what would surely be the best-run enterprises in the economy, and they lose control over valuable material and human inputs. The Ministry of Foreign Trade loses control over exports of manufactured goods exports for convertible currency, something it will fiercely oppose. Party officials will have to relinquish controls over operative decisions in these key enterprises. Consequently, important elements of the Soviet governmental and party apparatus will oppose the creating of a pure export sector. If difficulties in convertible currency exports are severe enough that some sort of special export sector is created, then the opponents will do all they can to dilute the actual implementation of the changes.

Despite all of these obstacles, something like a special export sector will probably emerge in the 1980's in the Soviet Union. Problems in export performance will force them to do something, and this is the one substantive avenue of change which seems destined to do the least harm to vested interest groups. All of these changes will transpire simultaneously with the political succession, and that might smooth the way a little bit, but I suspect that second tier of party and government officials is as committed to the fundamental structure of the system as the old generation.

Major losses to the Soviet economy in the early 1980's (say because the most pessimistic of the CIA scenarios on petroleum transpires) could speed up this process; major new windfall gains could slow it down. But in the absence of anything terribly dramatic, in the late 1980's the Soviet economy should be well along the path of attempting to develop a special export sector. This will probably improve export performance somewhat, but not a great deal; and, for reasons discussed above, the cost to the domestic economy will be large.
In the 1990's, if hard currency export performance has not improved considerably, or if—which seems more likely—it is generally considered by the leadership to be poor and unsustainable, then further changes will be forced through. The changes involved will probably go beyond the special export sector to a more decentralized system which finally makes major alterations in the substance of the monopoly of foreign trade. A likely outcome is a move towards what the Hungarians have been doing since 1968, namely a controlled partial decentralization of all decisions on production, sales, purchases, and therefore foreign trade. Planners in this system do not lose control, but rather shift to using more indirect instruments (prices, interest rates, taxes, and subsidies) and to less formal, but still quite effective, techniques which might be called "moral suasion." Planners retain virtually total control over investment, thus increments to productive capacity; they control the income distribution at the enterprise level through taxes; and they use tariffs and licensing to ensure that the foreign sector does not become a major source of disruption. Within these tight controls enterprises are encouraged to maximize profits, faced with prices, interest rates and exchange rates which roughly reflect the true cost to the economy of the goods, capital, and foreign exchange involved.

This is the route the Hungarians have followed. They were forced into these changes by the problems they encountered in their convertible currency exports, which in turn reflected problems in their economic institutions similar to those in the Soviet economy today. Of course the Soviet economy is a far larger, and consequently more complex, political-economic system, and it can hardly be expected to replicate the Hungarian experience. The Hungarian reformers faced what were surely less well entrenched bureaucrats than Soviet reformers would face, yet even so, the Hungarian reformers have
experienced several setbacks as anti-reform groups have managed to resist reform, or roll back new reform measures (Hewett [1980b]). But the most valuable lesson of the Hungarian experience does seem to be transferable to the Soviet situation: it is possible to decentralize in some areas, retain control in others, and considerably improve export performance.

Something like this option could not be introduced in the USSR much before 1990. It could not even receive serious consideration and debate until, and if, the succession reaches into key parts of the bureaucracy, including the major institutes dealing with economics. Even then, a long period of discussion and debate would have to ensue before the requisite support would come from the party, the government, and in particular the economists. The redefinition of words such as "planning," the "monopoly of foreign trade," and "prices" will not come easily in Soviet society. Unlike Eastern Europe where reforms came only twenty years after the initial imposition of Stalinist central planning, in the Soviet Union virtually the entire Soviet population has known only one system. It will not be an easy or a quick matter to reverse years of propaganda surrounding that system and convince people that a new system will serve them better. This is particularly true because transition to a system such as the Hungarian system will mean increased uncertainty about prices (subsequent to some major price reforms), and increased pressure for productivity increases in the workplace, but with the reward of possibly considerable improvements in living standards.

Because of these impediments to major system change, it seems likely that the 1990's will be a period in which Soviet problems in convertible currency exports persist, while simultaneously a transition begins to a system the Hungarians introduced in the late 1960's. As long as no major disasters befall the Soviet economy this is not an at all implausible scenario. Soviet
leaders would like to avoid all change, but they cannot. Either they would have to starve the economy for imports, eventually sell their entire gold stock, or ask the international banking community for more than it is willing to lend. So they will begin to change, but as slowly as possible. The reserves they have (in money, and even in unrealized opportunities within the framework of the current system) are formidable enough that it is possible for them to go quite slowly. But if in 1990 they are beginning to talk about a Hungarian-type reform, and if by the year 2000 they are beginning to introduce such a reform, that will be more rapid and fundamental change than they have undergone in the last twenty years; and it just may be enough change to allow the party and the government to maintain— in an admittedly restructured way—its basic control over Soviet society.
Quantity Indices in Table 10

Over the years 1960-78, which are the years covered in the tables, the USSR Ministry of Foreign Trade has published in its Vneshniaia torgovlia: statisticheskii obzor (Foreign Trade: Statistical Compendium, abbreviated here as VTSS) a quantity index for total exports and imports. Since 1963, indices have also been published for exports and imports to and from socialist countries, the CMEA countries, and other (that is, capitalist) countries. The weighting of the indices has changed over time, but since the indices are published for two years at a time, there is always a one year overlap, and it is possible to link the indices into one quantity index.

This procedure can lead to more than one index, depending on the decisions one makes along the way, and this for two reasons. First, there are, from time to time, unannounced revisions of the quantity indices. For example the 1972 and 1973 VTSS's both reported quantity indices weighted in 1970 prices, with 1960 = 100. Yet in almost every case the values of the quantity index for the year 1972 differ in the two sources. In all cases of this sort I have taken the later value in constructing the index.

The second problem relates to weights and samples, and it became extremely important beginning in the mid-1970's. The sample problem becomes obvious in comparing the data for VTSS 1974 and 1975 concerning the 1974 quantity index. VTSS 1974 reports the 1974 quantity indices weighted in 1970 prices with 1965 = 100; VTSS 1975 reports the 1974 quantity indices, weighted in the same prices (1970), but with 1970 = 100. Yet for total trade and for each country group, for exports and for imports, the indices for 1970 = 100 are lower (sometimes by more than 20 percent) than the indices where 1965 = 100,
converted to 1970 = 100. The sample must have changed with the base year.
I used the percentage changes implied by the indices beginning in 1974, multiplied by the earlier value, so that the resulting quantity index is at the high end of the 1970 = 100 quantity indices one could obtain.

In data reported in VTSS 1976, the price basis is changed once again to 1975 prices; and then in VTSS 1977 onward, the indices are computed with what are called "comparable prices," which means prices of the previous year. This means that from 1975 onward these indices have almost become Paasche indices, which are probably below what Laspeyres quantity indices would record. Again, I simply used the percentage price changes given by these indices multiplied by the previous year, so that the quantity index obtained is the highest index suggested by the data.

An alternative, and lower, quantity index would be obtained for 1970, and 1974-78 by simply taking the reported quantity indices straight out of the VTSS's (instead of applying their implied percentage price change to the high 1974 value). What matters here, other than the record of the quantitative change in the level of foreign trade, is the implied unit value indices and the terms of trade. Of course, the unit value indices are higher using the Paasche, 1970 = 100, quantity indices. But, the terms of trade come out almost the same.

The quantitative records concerning the changes in foreign trade flows are not so far apart as to alter the fact that foreign trade has grown much faster than national income. 20

The tables documenting these indices are extensive and are not reproduced here. A copy of them is available on request.
Estimates of Windfall Gains in Table 10

The first column of Table 10, "Additional Imports Possible Due to Improved Terms of Trade," is obtained by dividing nominal exports for convertible currency (from Table 6), by the terms of trade in convertible currency (Table 7) to obtain deflated exports. Those are then subtracted from nominal exports to obtain the first column. For example, nominal exports in 1974 were $7,470 million, and the terms of trade were 1.70 (1971 = 1.00).

\[ \frac{7,470}{1.70} = 4,394.12 \text{ million}, \]  

which is deflated exports. That subtracted from $7,470 million yields the figure $3,075.88 million in Table 10.

The second column represents the quantity of gold sold (Table 9) multiplied by the difference between the price of gold in 1971 ($1.317 million per metric ton) and its price in every year since 1971. The prices are from Ericson and Miller (1979, 239) through 1979, and for 1979 a price of $9.778 million per metric ton was used, which is the unweighted average of monthly gold sales prices in Zurich in 1979 (reported in the International Monetary Market 1978-79 Yearbook).
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The socialist countries include the CMEA countries (Bulgaria, Cuba since 1972], Czechoslovakia, East Germany, Hungary, Mongolia [since 1962], Poland, Romania, and Vietnam [since 1978], North Korea, China, Laos [since 1978], and Cuba, Mongolia and Vietnam before they were CMEA members.

One possible explanation for the inconsistency is that the index for total trade is computed using a different sample than the indices for trade with capitalist and socialist countries. The former predates the latter, and given the way Soviet bureaucracy works, it is conceivable that separate samples have been developed. Another possibility is that the total indices are indeed an average of the capitalist and socialist indices, but the weights are some mixture of base and current year weights. It is virtually impossible to intelligently choose among these and other possibilities because official Soviet sources provide almost no information on samples and computational procedures for these indices. For a discussion of what is known about the indices, see Hewett (1980a, Appendix B).

Recently the Economic Commission for Europe published estimates of price and quantity indices for "western" countries (West Europe, the U.S., Canada and Japan) trade with the Soviet Union and Eastern Europe covering the period 1965 to 1977 (U.N. Economic Commission for Europe [1979]). These could conceivably be used in combination with the Table 1 data to estimate Soviet trade with developing and developed capitalist countries separately, and I did experiments along that line. But the problem is that these are data from western sources, and it is well documented that there is frequently strong disagreement with eastern data on the same trade flows, and the growing consensus is that the eastern data are right (Gullo [1979]). Furthermore the split between Laspeyres and Paasche unit value indices on western exports to the Soviet Union were enormous. The authors blame this on changing price weights, which is no doubt true, but one must wonder if the underlying sample included some incredibly high price changes reflecting changing composition in the product group (pp. 57-58). My experience with computing unit value indices showed that it was quite possible for a commodity of no consequence to total trade to have such a large price change that it caused a significant split between Paasche and Laspeyres and either deflated or inflated both. The authors do not discuss how they watched for such commodities, if they did so at all; and until they clarify this, these indices should be used with great care, if at all.

Finally, the study states that the quantity and price indices are both Paasche (pp. 124, 127, 166 and 169); but that is obviously not the case. The methodological discussion (p. 56) states that the volume indices are obtained by dividing indices of total value by Paasche price indices, which yields Laspeyres quantity indices; and indeed a check of their data indicates that is indeed what they have got. Even more puzzling is the fact that their Laspeyres indices for the one-digit SITC groups, used to derive trade by one-digit SITC level in 1965 dollars, are obviously inconsistent with the indices for total trade.

The C.I.A. has published some estimates of quantity and unit value indices for Soviet convertible currency trade. They are not useful here since the Soviets are clearing so much of their trade with developing countries in convertible currencies, but they will be discussed below in the section on convertible currency trade.
Actually a "proper" exchange rate and a "proper" price system both of which accurately reflect the supply and demand conditions for currency and goods could well produce rather high trade/national income ratios since tradables are probably undervalued in the Soviet economy.

This pricing problem extends to comparisons of the relative magnitude of Soviet exports to CMEA countries and to other countries. The exchange rates the Soviets use to convert their trade flows with CMEA into Rubles overstates the value of those trade flows relative to the Ruble value of Soviet trade with other countries, and consequently it overstates the relative share of CMEA in total Soviet foreign trade. For a discussion of this and an attempt to adjust the data, see Vanous (1980).

Ericson and Miller (1979, 237-39) give a list of all the countries with which the Soviet Union reportedly settles its trade accounts in convertible currencies. The 1978 convertible currency export figure reported by the C.I.A. (given here in Table 6) is $13.157 billion. The Soviet data that year reported exports to developed capitalist countries less Finland of $7.695 billion, which equals $11.312. Thus, estimated convertible currency earnings in 1978 from partners other than developed countries was $1.845. These estimates do not include CMEA hard currency trade.

The petroleum and petroleum products export data are taken from VTSS (1978), and are a total of the value of exports of those products to all countries which reportedly settle their accounts with the USSR in convertible currencies, multiplied by the dollar/ruble ratio in 1978 (1.47).

See, for example, the excerpts from Brezhnev's speech to the XXV Party Congress in Vneshniaia torgovlia 5 (1979), i-iii, and Klochek (1976, 2-9).

There are some important ambiguities in the C.I.A. numbers. It is not clear if their production figures include gold as a by-product in non-ferrous metal production; the Kaser figures do include that information. Also note that stocks will fall even if gold sales on world markets equal production, due to internal use, which Schoppe estimates at 50 tons in recent years (Schopp [1979, 64-65]).

In 1936 about 500 tons of gold were sent to the Soviet Union from Spain for safe-keeping. The Franco regime was unsuccessful in reclaiming it, and the Soviet Union now claims it as its own (Schoppe [1978, 44]).

For further details, see the Data Appendix.

For more detailed accounts of how institutions are set up in the Soviet foreign sector see "Institute Mirovoi Ekonomiki...." (1977), Hewett (1978), Gruzinov (1979), Berman and Bustin (1975), and Quigley (1974).

Hewett (1974, Chapter 4) gives a general discussion of this planning process, which is updated in Hewett (1978). The efficiency of foreign trade, really the gains from trade, has been a concern of parts of the planning apparatus in the Soviet Union since the 1960's. In 1968 Gosplan published a "temporary" methodology for computing foreign trade efficiency which was to be used in justifying all proposed exports and imports. In 1980 that methodology was formally adopted in an expanded form that relates also to agreements on specialization and cooperation USSR participation in projects abroad, the expansion of productive capacity in the USSR as part of plans to expand trade, and Soviet participation in agreements on the purchase and sale of new technology ("Metodika opredeleniia..." [1980]).
For a discussion of these issues see Kirillov (1978), Patolichev (1977), Alkhimov (1976), "Osnovnye napravleniia..." (1976)


Smirnov (1978, 1980) gives the details. Bozek (1979, 524-25) contains several good examples of how the changes were carried out for Stankoiimport and Prodintorg.

I am guessing about this entire discussion, based on Patolichev (1978a, 1978b). In those two speeches Mr. Patolichev, the Minister of Foreign Trade, vigorously defends the monopoly of foreign trade against unnamed attackers who suggest that the planning and management of foreign trade should be decentralized. This involves notions "...of more open access to the markets of socialist countries, of the establishment of direct contacts between producers and users of products, of a closer connection between internal and world prices, and so on. One cannot help but see that all of this 'advice' is directed at weakening the monopoly of foreign trade and undermining the planned basis of our economy. This requires of us great vigilance and a decisive rejection of any attempts by our non-friends (nedrugy) to seek out changes in the basic foundations of socialism." (Patolichev [1978a, no page]).

While the speech seems directed at outsiders trying to break the monopoly of foreign trade, one suspects that they have friends on the inside. In fact Patolichev (1978b) notes that opposition to the monopoly of foreign trade has, since its beginning under Lenin, come not only from capitalists, but also from rightist forces in the USSR.

The most convincing evidence of a lack of progress here is the absence of articles praising the positive effects of new export-oriented enterprises. Also, Savin (1979), in his discussion of the export potential of the central RSFSR, makes it abundantly clear that there are virtually no enterprises which devote a significant amount of their output to export, and it appears that there are no administrative moves underway to change that.

The numbers are computed from Ericson and Miller (1979), Appendix G, p. 241

On the total import side, the high quantity index shows imports in 1978 at 2.3 times their 1970 level; the low index shows the ratio to be 2.16. On the export side the numbers are 1.94 and 1.74, respectively.