TRENDS IN OIL EXPORTS

In the course of our review of the historical development of the petroleum industry in the USSR, we have seen how the industry has grown over a period of time.

As a re-examination of past performance is likely to help us gain a better understanding of the existing problems, we may just as well begin with a profile of the evolution of Russian oil exports from 1933 onwards and an analysis of the difficulties which the Russians encountered in the international markets. We shall then be able to embark on a detailed discussion of the geographical distribution of oil exports in the past quarter of a century with a view to examining the degree of concentration in the distribution of exports. Closely allied with the question of concentration is the problem of stability of exports. We shall, therefore, use both the Hirschman index and the Coppock index to examine the role of geographic concentration on the stability of the export trade in oil. Then we proceed to inquire how far the Soviet Union's oil production depends on its exports compared with the world oil industry and probe into the motives for the expansion of oil exports. After isolating the political factors incidental to export, we shall
try to see whether the Soviet Union, in terms of resource endowments, has a comparative advantage in the exports of oil.

**Historical Perspective**

It was in 1883 that Russian kerosene first appeared in Austria, England and Hungary. At that time the US oil industry had practically monopolized the world market. Within the next two years, Russia was able to compete with the United States in the oil market in as many as nine countries. Four years later still the two countries were competing in seventeen countries. In 1885 a small quantity of Russian kerosene reached India. By 1888 Russian exports to China almost equalled to those of America. In 1885 Russian oil threatened US oil in Switzerland. In Greece, where the sale of kerosene was a Government monopoly, only American oil had been used for a long time. But in 1886 Russia entered the field, and with that the sale of US oil suffered sharp decline. Russian oil gained a firm foothold in the German market as well. Thus a historian might well regard the export of the first barrel of Russian oil as the opening shot in the cold war which was ingrained in the Russian oil exports in the 1950s.

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There were several reasons for this remarkable success of Russian oil in foreign markets. First of all, the rich natural endowment of the country facilitated production at low cost. This was reinforced by the reduction in cost resulting from an improved transport system. The completion of the railroad from Baku to the Black Sea across the Caucasus facilitated oil shipment westwards over the mountains to Batumi, making it the chief export centre. By the end of the nineteenth century a pipeline was laid from Baku to Batumi. Eight inches in diameter and 333 kilometres in length, this pipeline had an annual capacity of 900,000 tonnes. Adequately refinery facilities were established to cater to the export markets.

The Baku oil was better for heavy machinery and railroad than US oil. It was also cheaper than US oil. That was why Mendeleev, the renowned scientist, estimated that the cost of producing oil in Russia was one-third to one-half of the cost of producing oil in the United States of America.

Another factor that favoured the expansion of Russian kerosene exports was the pattern of domestic consumption of oil. The consumption of fuel oil was very high.

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3 See ch. 3 infra.
4 Harvey O’Connor, World Crisis in Oil (New York, 1962), p. 33.
5 Cited in Hidy and Hidy, n. 1, pp. 122-3.
whereas that of kerosene was very little. It was this surplus kerosene that was exported, and the refiners were willing to sell it at the price it would bring.

There was a controversy over the comparative merits of US and Russian kerosene. Some authors maintain that US oil was superior, others praise Russian oil. Yet others argue that neither enjoyed general superiority. There is, however, evidence to show that the Standard Oil Company of the United States of America did not export its best kerosene. On the other hand it shipped only the cheaper and more dangerous "Standard White", which was in fact yellowish. Its inferior quality was the subject of repeated complaints. An international congress of oil dealers in Bremen in 1879 protested against the inferior quality of US oil. Definitely Russian kerosene was less dangerous because the Russian "Water White Kerosene" met a flash test of 83°F. on the Abel instrument, whereas most of the kerosene sold by the United States was "Standard White" of 73°F. flash test. It is thus clear that Standard oil was not decidedly

7 O' Connor, n. 3, p. 33.
8 Hidy and Hidy, n. 1, p. 134.
10 Hidy and Hidy, n. 1, p. 135.
superior to that of Baku. Not only was Russian oil cheaper, but it was also of a better quality. That was why it was able successfully to challenge Standard oil for some time.

By virtue of its monopolistic grip on many markets, however, the Standard Oil Company enjoyed an advantage over other oil-producers, including the Russians. The competitors, whether Royal Dutch Shell or Nobels or Rothschilds, were more or less localised in their operations. Standard Oil on the other hand had world-wide branches. It could indemnify its losses wherever the price war broke out, in India or in China, on the strength of its large profits elsewhere, especially in the domestic American market, which was immune to competition from abroad. That was why it was not easy to compete or challenge Standard. To enter into a competition with Standard meant waging a price war. Russian oil, both during the Tsarist times and subsequently, caused many price wars. Notable among the price wars of the Tsarist times were those of 1897 and 1910-11.

To regain its original position and put the Baku oil out of the market, Standard slashed prices wherever necessary. Standard had a remarkable distributing system which its rivals lacked. It formed aggressive marketing companies in foreign countries and commanded large fleets of tankers.
The Russian oil companies were much handicapped at this time by a series of unfavourable measures which the Tsarist Government took so much so that Russian oil lost its foothold in many markets except those of Austria-Hungary, the Balkans, and Turkey. Early in 1894 the Oil, Paint, and Drug Reporter credited the United States of America with supplying 90 per cent of the oil that Germany consumed, 77 per cent of the oil that France consumed, and 69 per cent of the oil that England consumed. At the turn of the century standard had successfully warded off the competitors from Russia.

Owing largely to frequent communal riots and prolonged strikes in the oil-fields, oil production fell sharply in Russia at the turn of the century. Then there came the Russo-Japanese War, which also affected production. Consequently, the oil exported in 1908 is estimated to have been 40 per cent of what had been exported five years earlier. In 1910 exports constituted only 8.9 per cent of the production. Exports fell so low in 1913 that oil accounted only for 3.3 per cent of all the foreign exchange that Russia earned that year. With the outbreak of the First World War


12 Quoted in Nevins, n. 6, vol. 2, p. 122.
and then the Revolution, oil exports ceased to exist in 1920.

But not for long. Soviet oil soon reappeared in the international market. In 1927 Soviet oil exports reached more than 2 million tonnes, surpassing the record of Tsarist Russia.

In 1928 a second pipeline was laid between Baku and Batumi. Subsequently Tuapse, a seaport on the Black Sea, was linked by pipeline with the fields of Groznyi. Apparently, the Company was impressed by the advantage of supplying oil to India through the seaports, on the Black Sea, for here was a route which was shorter by about 5,000 miles than the nearest alternative route. This paved the way for the Soviet Union to re-emerge as a factor in the world oil trade. In 1930 more than 25 per cent of the Russian production of oil was exported. In 1933 oil exports declined to about 4.9 million tonnes, a fall of 19 per cent in one year. By 1938 exports were reduced to less than a million tonnes. The increase in domestic consumption and the stockpiling of oil for use in the war were responsible for the disappearance of Soviet oil from the international market.

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The Soviet Union resumed its exports in 1946 on a modest scale. While its exports that year were about 0.5 million tonnes, its imports were about 0.9 million tonnes. It was only in 1951 - the first year of the Fifth Five-Year Plan - that the Soviet Union became a net exporter of oil. A major breakthrough occurred in 1955, during the post-Stalin era, when the exports amounted to 4 million tonnes. The share of the output exported rose from 13 per cent in 1955 to 23 per cent in 1961. By 1965 the volume of exports reached the high figure of 64.4 million tonnes. Although the share of the Soviet Union in the international market was just about 10 per cent, all "major" international oil companies took alarm at the "surge" of Soviet oil. National Economic Research Associates - a US firm of consulting economists - in a study funded by the "major" oil companies, concluded that the Soviet oil deliveries had cost the non-Communist oil-producing countries some $175 million in lost royalties and taxes in 1963 alone. According to its estimate, the total impact on the oil-producing countries for 1962-62 had been about $1,000 million - a staggering figure indeed.

In the mid sixties, the Soviet Union supplied oil and oil-products to upwards of forty countries. In 1973,

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15 Ibid., p. 30.

when it completed a hundred years as an exporter of oil, its exports totalled 118.3 million tonnes. Although it thus became the biggest oil-producer in the world in the year 1974, its exports that year were less by 2 million tonnes than those of the previous year. In 1976, its exports amounted to 150 million tonnes.

Geographical Distribution of Exports

The geographical distribution of oil exports has undergone significant change. In 1950 almost all Soviet exports were destined to the countries of the Soviet bloc. In 1965, however, the Soviet bloc accounted for just half the 64.4 million tonnes exported. The rest went to countries outside the Soviet bloc and met about 5 per cent of their total requirements. Subsequently, as Tables 1 and 2 indicate, exports to the Soviet bloc once again picked up. They were higher than the exports made to other countries. Exports to the non-Communist countries at times decreased (as in 1972 and 1974). Even when they increased, they did so at a slow pace. On the other hand, exports to the countries of the Soviet bloc increased without exception, at a steady rate. Even in a year like 1974, when the total exports declined by 2 million tonnes, exports to the Socialist countries increased by 4 million tonnes whereas exports to the non-Socialist countries decreased by 6 million tonnes.
### Table 1

MAIN COUNTRIES IMPORTING SOVIET OIL AND OIL PRODUCTS
(In Millions of Tons)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
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<td>Czechoslovakia</td>
<td>0.4</td>
<td>2.4</td>
<td>6.0</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
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<td>12.9</td>
<td>14.3</td>
</tr>
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<td>0.7</td>
<td>1.3</td>
<td>4.9</td>
<td>-</td>
<td>0.4</td>
<td>0.5</td>
<td>9.3</td>
<td>11.5</td>
<td>14.4</td>
</tr>
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<td>Poland</td>
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<td>0.7</td>
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<td>0.2</td>
<td>1.4</td>
<td>1.5</td>
<td>8.6</td>
<td>11.1</td>
<td>11.9</td>
</tr>
<tr>
<td>Italy</td>
<td>0.1</td>
<td>3.9</td>
<td>6.5</td>
<td>0.1</td>
<td>0.3</td>
<td>0.7</td>
<td>10.2</td>
<td>8.4</td>
<td>6.8</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>0.8</td>
<td>1.9</td>
<td>0.6</td>
<td>1.4</td>
<td>2.6</td>
<td>7.8</td>
<td>8.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>-</td>
<td>-</td>
<td>2.2</td>
<td>0.1</td>
<td>0.3</td>
<td>1.3</td>
<td>7.1</td>
<td>7.9</td>
<td>10.9</td>
</tr>
<tr>
<td>Cuba</td>
<td>-</td>
<td>1.7</td>
<td>3.5</td>
<td>-</td>
<td>0.5</td>
<td>1.2</td>
<td>6.0</td>
<td>7.0</td>
<td>7.6</td>
</tr>
<tr>
<td>West Germany</td>
<td>-</td>
<td>1.2</td>
<td>2.6</td>
<td>-</td>
<td>0.3</td>
<td>0.5</td>
<td>6.2</td>
<td>6.2</td>
<td>6.3</td>
</tr>
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<td>Hungary</td>
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<td>1.4</td>
<td>2.1</td>
<td>-</td>
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<td>0.5</td>
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<td>6.7</td>
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<td>Sweden</td>
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<td>-</td>
<td>-</td>
<td>0.7</td>
<td>2.0</td>
<td>2.8</td>
<td>4.8</td>
<td>4.4</td>
<td>3.0</td>
</tr>
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<td>0.1</td>
<td>0.3</td>
<td>0.1</td>
<td>0.7</td>
<td>0.8</td>
<td>2.6</td>
<td>3.1</td>
<td>1.2</td>
</tr>
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<td>Japan</td>
<td>-</td>
<td>1.2</td>
<td>2.3</td>
<td>-</td>
<td>0.2</td>
<td>1.6</td>
<td>2.7</td>
<td>1.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>0.2</td>
<td>0.4</td>
<td>0.6</td>
<td>-</td>
<td>0.1</td>
<td>0.4</td>
<td>2.7</td>
<td>3.4</td>
<td>3.3</td>
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<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.2</td>
<td>0.1</td>
<td>1.3</td>
<td>2.5</td>
<td>1.8</td>
</tr>
<tr>
<td>United Arab Republic</td>
<td>0.2</td>
<td>0.7</td>
<td>0.7</td>
<td>0.2</td>
<td>0.6</td>
<td>0.1</td>
<td>1.6</td>
<td>1.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Netherlands</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.4</td>
<td>2.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Austria</td>
<td>-</td>
<td>0.5</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.4</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>China</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.2</td>
<td>2.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total exported by the USSR</strong></td>
<td>2.9</td>
<td>17.8</td>
<td>43.4</td>
<td>5.1</td>
<td>15.4</td>
<td>21.1</td>
<td>95.8</td>
<td>107.0</td>
<td>107.0</td>
</tr>
</tbody>
</table>

* In order of importance as of 1972.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Socialist Countries</td>
<td>49.7</td>
<td>46.8</td>
<td>50.7</td>
<td>44.6</td>
<td>52.7</td>
<td>70.0</td>
</tr>
<tr>
<td>Socialist Countries</td>
<td>55.4</td>
<td>60.2</td>
<td>67.6</td>
<td>71.6</td>
<td>77.7</td>
<td>80.0</td>
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<tr>
<td>Total</td>
<td>105.1</td>
<td>107.0</td>
<td>118.3</td>
<td>116.2</td>
<td>130.2</td>
<td>150.0</td>
</tr>
</tbody>
</table>

* Provisional figure.

Sources: *Handbook of Foreign Trade* (Moscow), various issues.
Between 1955 and 1965 oil products constituted about 60 per cent of the exports. The rest of the exports consisted of (crude) oil. Till the completion the Drumba pipeline in December 1964, products constituted an important part of the Soviet exports to the East European countries. Since 1964 the countries of Eastern Europe have preferred to take (crude) oil, which they can refine in their own refineries. In the years when the Soviet Union had not yet entered upon the refining stage, it mainly sold products to countries like Finland, India, Italy, Sri Lanka and West Germany. Subsequently, it started selling oil also in increasing measure. From the viewpoint of the Soviet Union also, selling oil rather than products is advantageous because oil is cheaper to transport. Its production is easier to plan; for there is no need to refine it.  

Now that we have seen how the exports are geographically distributed, we may go on to examine the degree of concentration in the distribution of exports. This would reveal how far the industry depends on the export trade in oil.

In international business every country endeavours to diversify its markets because any concentration of exports

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would amount to putting its eggs in fewer baskets. It also seeks to minimize fluctuation in the quantity that is exported to a given market because fluctuation would mean instability in the export earnings. The Soviet Union is no exception to these norms.

**Concentration of Exports**

One way of examining the market distribution of Soviet oil exports and finding out the degree of their concentration is to use the Hirschman index. The index may be written as follows:

\[
I = \sqrt{\frac{p_1^2 + p_2^2 + p_3^2 + \cdots + p_n^2}{n}}
\]

or

\[
I = \frac{\sqrt{\sum_{i=1}^{n} p_i^2}}{n}
\]

Here \( p_i \) represents the percentage share of the \( i \)th market for Soviet exports, and a total of \( n \) importing countries accounts for all oil trade.

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18 A.O. Hirschman, *National Power and the Structure of Foreign Trade* (Berkeley, Calif., 1945). The index equals the square root of the sum of squares of the percentage shares provided by the importing countries. The measure may theoretically have a maximum value of 100, since \( \sqrt{100^2} = 100 \).
Table 3 shows the concentration indices for different years in the different segments of the markets so that the relative concentration of exports over time may be compared. If the world as a whole is taken, there is little concentration of exports. In other words, Soviet oil exports are destined for markets so numerous that their concentration or dependence on any single market is little. There is, however, less diversification within the "market

<table>
<thead>
<tr>
<th>Year</th>
<th>Socialist countries</th>
<th>Market economy countries</th>
<th>All world</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>29.70</td>
<td>43.86</td>
<td>38.75</td>
</tr>
<tr>
<td>1960</td>
<td>45.79</td>
<td>29.73</td>
<td>35.11</td>
</tr>
<tr>
<td>1965</td>
<td>33.83</td>
<td>41.57</td>
<td>25.88</td>
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<tr>
<td>1970</td>
<td>26.04</td>
<td>36.37</td>
<td>39.72</td>
</tr>
<tr>
<td>1971</td>
<td>37.32</td>
<td>37.69</td>
<td>36.90</td>
</tr>
<tr>
<td>1972</td>
<td>39.54</td>
<td>26.18</td>
<td>34.40</td>
</tr>
<tr>
<td>1973</td>
<td>27.17</td>
<td>37.16</td>
<td>39.53</td>
</tr>
<tr>
<td>1974</td>
<td>37.59</td>
<td>48.21</td>
<td>37.75</td>
</tr>
</tbody>
</table>

Sources: Computed from the various relevant issues of Vneshnaya torgovlya SSSR (Moscow).
economy countries" than in the East European countries. In
the absolute sense, it can be said that there is not much
of concentration of Soviet oil exports the world over. This
speaks well for the export strategy of the Soviets, who
have ensured a fairly high degree of diversification for
their oil exports.

Stability of Exports

There are various methods of measuring the stability
of exports. The best of these is the index of instability
constructed by Coppock, for it makes due allowance for the
elimination of trend factors, which is quite important. The
index may be written as follows:

Let $P_t$ be the quantity coefficient in the year $t$;
$N$, the number of years; $P$, the simple arithmetic mean of the
logarithmic differences between $P_t$ and $P_{t+1}$, $P_{t+2}$, etc.;
and $V_{\log}$ the logarithmic variance of the series.

Then,

$$V_{\log} = \frac{\sum (\log \frac{P_{t+1}}{P_t} - \bar{P})^2}{n-1}$$

The Coppock index is

$$\left( \frac{100}{\sqrt{\log} - 1} \right) \times 100$$

19 UN Secretariat, Instability of Export Markets of Under-
developed Countries (New York, 1952), p. 77; see also
D.R. Shufet, The Demand and Price Structure for Selected

20 J.D. Coppock, International Economic Instability (New
The results are given in Tables 4 and 5. If we take the world as a whole, we find from Table 4 that Soviet oil exports have had a higher degree of stability. There is more of fluctuation in the exports to the Socialist countries than in the exports to the "market economy" countries. Within the Socialist countries also, the degree of fluctuation in the exported quantities varies. It is lowest for Cuba and Hungary and highest for Yugoslavia and Mongolia.

Table 4

INSTABILITY INDEX, 1958-1974 (QUANTITY)

<table>
<thead>
<tr>
<th>Area</th>
<th>Index of instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>All world</td>
<td>14.52</td>
</tr>
<tr>
<td>Socialist countries</td>
<td>19.66</td>
</tr>
<tr>
<td>Market economy countries</td>
<td>15.47</td>
</tr>
</tbody>
</table>

Sources: See Table 3.
Table 5

INSTABILITY INDEX FOR SOCIALIST COUNTRIES

(COUNTY), 1968-1974

<table>
<thead>
<tr>
<th>Country</th>
<th>Index of instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>61.92</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>9.00</td>
</tr>
<tr>
<td>East Germany</td>
<td>13.01</td>
</tr>
<tr>
<td>Hungary</td>
<td>8.96</td>
</tr>
<tr>
<td>Poland</td>
<td>45.41</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>90.03</td>
</tr>
<tr>
<td>Cuba</td>
<td>3.75</td>
</tr>
<tr>
<td>Mongolia</td>
<td>83.25</td>
</tr>
</tbody>
</table>

Sources: See Table 3.

Though exports are less concentrated within the East European countries than within the "market economy" countries, the degree of fluctuation in exports is greater in the case of the former countries. This is so because, though the volume of exports to countries like Cuba, Czechoslovakia, East Germany and Hungary are highly stable, the volume of exports to Bulgaria, Mongolia, and Yugoslavia,
widely fluctuates. It is the latter set of countries that have introduced the element of fluctuation in the calculation.

Export Capability of the Industry

As we have already discussed, for many years when domestic consumption was low in Russia, the industry remained essentially an export-oriented industry. Now that domestic consumption has increased manifold, it would be interesting to inquire how far oil production in the Soviet Union depends on exports compared with the world oil industry. In other words, the extent to which production depends on exports would give us a measure of the impact of exports on production.

To find out the extent of "openness", i.e., the relative size of the exports to production, it is necessary to work out "openness-coefficient". To compare the "openness" of the Soviet oil industry with that of the world oil industry as a whole we make a similar calculation for the world oil industry as well. The period covered for both the Soviet Union and the world is from 1957 to 1974 - a total of eighteen years.

The formula used is:

\[ O_t = \frac{\sum_{t=1}^{n} \frac{t^2}{P_t}}{n \cdot t} \]
where \( \sigma_0 \) = openness coefficient;

\( x \) = export;

\( x_t \) = export in year \( t \); and

\( P_t \) = production in year \( t \) \((t = 1 \ldots n)\).

The \( t \) changes from 1, i.e., the first year 1957, to \( n \), the latest year 1974. To ensure that the more recent exports influence the ranking more than past exports, a higher weightage is given to the former. Thus \( \frac{x_1}{P_1} \), export share in year 1 (1957) is given the weight 1; \( \frac{x_2}{P_2} \), export share in year 2 (1958) is given the weight 2; and so on.

\( \sigma_0 \) for the Soviet Union = 0.18

\( \sigma_0 \) for the world = 0.49

In other words, the degree of influence of exports over production is less in the case of the Soviet oil industry than it is in the case of the world oil industry.

The fact that Soviet oil production depends less on its exports than the world oil industry as a whole confers on the country a major benefit; the growth of the industry would not be affected by the uncertainty of the international oil market. To be sure, it would also mean that the ability to benefit from any "price boom" like the one that occurred in the seventies would be limited too.

The Soviet economy has now reached a stage where its domestic demand for oil cannot be sacrificed for long to
sustain exports. In order to increase its oil exports, therefore, the Soviet Union is obliged simultaneously to enhance its fuel production. During the period 1965-71 the annual increase in apparent consumption was below 7 per cent while the annual oil output grew by 7.5 per cent. This released a substantial volume for export. From 1971 to 1973 the annual increase in consumption was about 23 million tonnes while the increase in oil availability (production and import) was about 33 million tonnes. During the same period the annual increase in exports was limited to about 10 million tonnes.

A study of the export capability of the industry reveals that the Soviet oil industry is no more export-oriented. Hence a favourable international market, though desirable, is not a necessary condition for its survival and growth.

**Economic Importance of Oil Exports**

Export of oil is an important economic activity for the Soviet Union and an essential source of foreign exchange. It would, therefore, be useful to study the economic importance of oil exports to the Soviet Union. Before we attempt such a study, we may make a couple of comments on the Soviet concept of foreign trade so that the significance of oil exports may be better appreciated in the Soviet scheme of things.
The Soviet concept of foreign trade is different from the concept of foreign trade in a "market economy". According to the Soviet concept, "foreign exchange is essentially the investment resources", and imports are necessary only when all possible domestic sources of supply have either been exhausted or do not exist. Once import needs are determined, exports are planned so as to pay for them. Since the function of exports is to obtain imports, exports play the role of an intermediate product. In the words of Spulber, "the dynamics of the plan determine the dynamics of imports, which in their turn condition the dynamics of exports". The planners do not like uncertainty, and international trade often is a source of uncertainty. This is what makes Soviet planning particularly "inward-looking".

The Soviets do not have too many internationally acceptable commodities for export, but oil is a near-ideal


commodity because of its high propensity for export. Such an attractive "hard commodity" as oil, which can facilitate the import of a large range of much-needed goods, is not likely to be bartered away exclusively for political considerations. It is, therefore, quite reasonable for us to conclude that an important aim of oil exports is to earn foreign exchange. If this premise is accepted, it follows that the future of Soviet oil exports would largely be economic.

For a long time, oil has been an important source of foreign exchange for the USSR. As early as 1923, it accounted for 13.5 per cent of the value of all exports. For some time thereafter, the share of oil in the total exports declined. It was a mere 2.4 per cent in 1950. However, in a decade time, it improved again to reach the level of 11.8 per cent. The year 1974 is an important year for the country; for, in that year, not only did the Soviet Union become the biggest producer of oil but it also netted a new record level of foreign exchange through sale of oil. Oil accounted for about 21 per cent of the total amount of foreign exchange earned. At present oil is the biggest foreign-exchange earner. (See Table 6.) In 1974 oil earned about $2,490 million from the Western markets alone.
126

Table 6

SHARE OF OIL IN TOTAL VALUE OF EXPORTS
(In Percentage)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1913</td>
<td>3.3</td>
<td>1975</td>
<td>12.2</td>
</tr>
<tr>
<td>1923</td>
<td>13.5</td>
<td>1970</td>
<td>11.5</td>
</tr>
<tr>
<td>1931</td>
<td>14.2</td>
<td>1971</td>
<td>13.3</td>
</tr>
<tr>
<td>1935</td>
<td>12.0</td>
<td>1972</td>
<td>13.0</td>
</tr>
<tr>
<td>1950</td>
<td>2.4</td>
<td>1973</td>
<td>15.2</td>
</tr>
<tr>
<td>1955</td>
<td>6.7</td>
<td>1974</td>
<td>21.0</td>
</tr>
<tr>
<td>1960</td>
<td>11.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Handbook of Foreign Trade (Moscow), various issues.

Politics of Oil

This does not, however, mean that the Soviet Union has never taken tactical advantages of a political nature by means of its oil trade. Indeed there are several instances of the Soviet Union using oil to further its political ends.

Oil is such a strategic commodity that Harvey C. Connor goes so far as to declare that "he who owns the
Throughout its history, oil has truly been a political resource par excellence. Hence oil -- whether it is American or Arabian or Soviet -- has seldom remained neutral. It has never been free from political ticks.

While Western scholars criticize "Russia's Machiavellian oil politics", the Soviets talk about the "oil doctrine of Imperialism". Laqueur says that he is convinced of the "primacy of politics over economics" in Soviet oil business, whereas Boris Rachkov compares the oil business of the Western countries with international piracy. These allegations and counterallegations conceal numerous instances of oil being used as a political tool by both the Western countries and the Soviet Union. Some of them need mention here, however brief.

Very often the case of Israel is cited to illustrate the way the USSR uses oil as a political weapon. On 17 July 1956 the USSR concluded a contract with two Israeli


25 David Hirst, Oil and Public Opinion in the Middle East (New York, 1966), p. 44.

26 Boris Rachkov, Oil Nationalism and Imperialism (New Delhi, 1967), p. 45.


28 Boris Rachkov, "Oil, Trade and Politics", International Affairs (Moscow), April 1966, p. 20.
companies to deliver oil to them. On 6 November 1956, following the invasion of Suez, it unilaterally cancelled the contract and justified its action on the basis of an interpretation of force majeure which was not consistent even with Soviet law. 

Late in 1958 the Soviets, disturbed by the formation of a Government in Finland which they believed to be hostile to them, cut off the supply of oil to Finland. The supply of oil was not resumed till the conservatives withdrew from the Finnish Cabinet and the Cabinet was forced to resign. Moscow cancelled its oil contract with Yugoslavia in the spring of 1958 to show its displeasure with Tito. Similarly it cut off its oil supply to Uruguay in 1958 and to Greece in 1961 to reap certain political benefits.

The international oil companies too have, with the help of their mother countries, indulged in politics in no small measure to further their oil interests. 

29 Background Information on the Soviet Union in International Relations, House Committee on Foreign Affairs, US Congress, 27 September 1961, p. 32.

30 Ibid., pp. 51-52.


34 For detailed instances, refer S. Manoharan, The Oil Crisis; End of an Era (New Delhi, 1974), pp. 13-16.
1938, when Mexico nationalized its oil industry, the oil companies launched a boycott of Mexico's oil exports and its imports of goods and services to run the industry. 35 The British and US Governments used their diplomatic influence with other countries to block the export of Iranian oil when the Iranian oil industry was nationalized by Mossadeq in 1951. 36 According to M.S. Venkataramani, the oil companies worked in close alliance with the officials of the US Government during the Suez crisis in 1957. 37 Many oil-importing countries have been targets of oil boycotts by the international oil companies. They include China, Israel, Italy, Rhodesia, South Africa, and, the most significant of all, Cuba. When Sri Lanka and Peru nationalized the oil companies owned by US interests, the United States stopped its aid to them. 38

This is why Jack Anderson concluded in 1967, after studying many confidential papers of the State Department, that -

38 Biplab Dasgupta, "Large International Firms in the Oil Industry", *Oil and Development* (London), vol. 6, no. 2, October 1974, p. 49. Also see the same author's "Soviet Oil and the Third World", *World Development* (Sussex), vol. 3, no. 5, May 1978, p. 356.
...the State Department has often taken its policies right out of the executive suites of the oil companies. When Big Oil can't get what it wants in foreign countries, the State Department tries to get it for them. In many countries, the American Embassies function virtually as branch offices for the oil combines. 39

Michael Tenzer too found a "basic symbiosis" between the international oil companies and their home Governments. The Western oil interests have been no less guilty than the Soviets of using oil to achieve non-economic benefits. Political factors do play a role in Soviet trade decisions even as they play a role in the trade activities of the USA and other Western countries. The use of political considerations in the Soviet oil business should by and large be taken as an exception rather than as a rule or as a primary motive. Political considerations come in only when the political benefits clearly outweigh the economic costs.

Comparative Advantage in Oil

If the Soviet oil exports are motivated by economic considerations, their profitability will be sustained in the long run by the comparative advantage that the Soviets


40 Ibid., p. 41.
possess in oil. The Soviet attitude, being conditioned by their Marxian ideology,\footnote{Karl Marx, \textit{Capital} (Moscow, 1959), vol. 1, p. 560. See, also S. Dushchenko, \textit{A Guide to Karl Marx} (Tuticorin, 1964), pp. 59-72.} is different from that of the Western countries towards the classical theory of comparative cost.

The classical theory of comparative cost is a product of \textit{laissez faire} and hence is not valid under a centrally planned economy. The classical theory rests on the assumption of the proportionality of prices to real economic costs. But in the Soviet economy, scarcity is not exactly reflected in the prices.\footnote{Andrea Boltho, \textit{Foreign Trade Criteria in Socialist Economics} (London, 1961), pp. 14-15.} However, in recent years, the Soviet planners seem to have realized the merits of the theory of comparative advantage. Wilczynski, for instance, observes that the Socialist countries in the higher stages of economic development "will find the principle of comparative costs, even in its static form, less objectionable on doctrinaire grounds and increasingly acceptable as a guide to international specialization even on a national scale."\footnote{J. Wilczynski, \textit{The Economics and Politics of East-West Trade} (London, 1969), p. 74.}

Whether, owing to their ideological inhibition, the Soviets admit the merits of the theory of comparative
cost or not, it does enter at least vaguely into their various economic calculations. We shall, therefore, make an attempt here to examine whether the Soviet Union has any comparative advantage in oil or not, and whether there is any profit in oil exports or not. The analysis would be made from the point of view of transport costs and opportunity cost.

Calculating the cost of production is beset with numerous problems, a major problem being lack of data. We cannot use the cost data for oil published by the Soviets as they do not contain interest charge as a basis for investment planning. They do not, also, allow for depreciation. Moreover, the Soviets do not charge the costs of capital for exploration. According to Campbell, the return to the investment made in exploration and development drilling seems to have diminished since 1955. It is especially so in the Volga region, where a large number of oil-fields used to be located. Exclusion of the return to the investment from the cost data distorts the actual cost of production. There is much the same problem in the case of transport costs also. It is, therefore, necessary to resolve

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the above-said problems to find out the cost of production. Adelman, weary of the problems involved in calculating the cost of oil even in a "market economy", says: "...it is of little help to talk about 'the cost' of oil..."\(^{46}\)

Besides, oil is only one form of energy, and it has a near substitute in coal and gas. Hence the cost of one tonne of oil that is exported is equal to the cost of production of an equivalent amount of the substitute energy, viz. coal or gas. If the cost of the substitute energy is higher than oil, or even if its cost of production is less in absolute terms, it would not be better for the country to export oil. However, it is not as simple as that; for if the ratio of the foreign price to domestic cost is far higher for oil than it is for the other commodities that are exported, the difference in the cost of production of oil and the substitute energy would be compensated by the better ratio of the foreign price to the domestic cost of oil vis-a-vis the other commodities that are exported. But even if oil does not have a better ratio of the foreign price to domestic cost than the other commodities that are exported, and even if the cost of production of the substitute energy is higher than oil, oil may willy-nilly be exported if there is an urgent need to finance import demands. Compared with other exported commodities, oil has added attraction. Firstly, it is a "hard commodity" in the sense its foreign

demand is quite high. Secondly, most Soviet commodities are not as readily acceptable in the Western markets as oil. By and large (despite its high sulphur content) Soviet oil has no difficulty as regards acceptability. Hence there is always a tendency to temptation to export oil, discarding the opportunity cost.

Even if these constraints are overlooked, there is the problem of attaching an opportunity cost value to a tonne of oil exported in a situation whose equilibrium is in a flux. In a disequilibrium situation, with marginal cost of substitutable fuels varying sharply, the opportunity cost of exported oil will differ widely according to the energy used for replacement. That is why the "optimum fuel mix", which we have discussed in our second chapter, cannot be divorced from the Soviet plans for exporting oil. However, there is one small consolation: the Soviet Union is moving towards "an optimum fuel mix". Hence any exercise based on an assumption of an equilibrium situation would not be totally irrelevant to the task of interpreting the comparative advantage of fuels. It is within the above constraints that we must compute the cost of production of oil.

In the pages that follow, we have attempted a computation of the costs of production of oil, gas, and coal. We have taken our data on the extraction costs for 1970 from Soviet sources and have estimated the costs for
1975 on the basis of those data.\textsuperscript{47} As the Soviet sources give only extraction costs, we have added depreciation and geological and amortization allowances on investment in order to arrive at the cost of production. Similarly, after collecting basic data for transport costs, we have added other costs previously omitted.\textsuperscript{48} For the purpose of calculating the cost of production, we have taken the Tyumen oil and the Volga oil, the Tyumen gas and the Kugnetsk coal, as representatives.

While comparing the cost of Soviet oil and international oil we have made price adjustments for sulphur differences. We have assumed that both the Tyumen oil and the Volga oil contain 2 per cent sulphur.\textsuperscript{49} As price varies according to its specific gravity, we have, in calculating the cost, taken the price of Saudi Arabian light (34\textdegree) crude as the international price, and the price of

\textsuperscript{47} Voprosy Ekonomiki, 1971, no. 6, p. 56; Ekonomika neftodobyvayushcheн promyshlennosti (Moscow), October 1975; and Problemy severa (Moscow, 1971).


\textsuperscript{49} Neftyanik (Moscow), no. 2, February 1972, p. 2.
Tulimazy (31.8°) crude as representative of all Russian oil. We have also made other relevant adjustments for the differences in specific gravity.

In converting both gas and coal into one tonne of oil equivalent, we have used the Soviet conversions, viz. that a tonne of crude oil is equivalent to 1,430 tonnes of standard fuel equivalent (SFE); that a cubic metre of natural gas is equivalent to 1,190 tonnes of SFE; and that a tonne of coal is equivalent to 0,718 tonnes of SFE. We have also assumed that a tonne of oil is equal to about seven US barrels, depending on specific gravity; that the Kuznetsk coal is hard coal; that a dollar is equivalent to 0,7565 rubles (which is the average of the official exchange rate for twelve months beginning June 1976); and that the international price for oil is $11.0 per tonne (f.o.b.).

A. Delivered Cost of Oil at the Soviet Export-Port

<table>
<thead>
<tr>
<th>Ruble/per tonne</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellhead cost of the Tyumen oil</td>
</tr>
<tr>
<td>Wellhead cost of the Volga oil</td>
</tr>
<tr>
<td>Transport cost for the Tyumen oil (3,000 kilometres to seaport on the Black Sea)</td>
</tr>
<tr>
<td>Transport cost for the Volga oil (2,500 kilometres to the Novorossiisk port)</td>
</tr>
</tbody>
</table>

50 Oil and Gas International (Tulsa, OK), May 1986, p. 75.
Delivered cost of the Tyumen oil 39.0 (or 5.46 rubles per barrel or 7.22 per barrel)
Delivered cost of the Volga oil 36.0 (or 5.04 rubles per barrel or 6.66 per barrel)

International price per barrel of oil = 11.0

Hence profit per barrel of the Tyumen oil = 11.00 - 7.22 = 3.78
Profit per barrel of the Volga oil = 11.00 - 6.66 = 4.34

This section can be fittingly brought to a close with these words of Adelman: "Exports are profitable business for the Russians, even at lower...price levels." 51

B. Delivered Cost of the Tyumen Gas at the Soviet Export Port

Wellhead cost of gas is = 6.0 rubles per 1,000 cubic metres
Conversion factor of natural gas into a tonne of crude oil is = 1,201,630 cubic metres

51 M.A. Adelman, "The World Oil Outlook", in Marion Clawson, ed., National Resources and International Development (Baltimore, Md., 1964), pp. 93-96. In terms of proximity to certain markets the Russians ports do have some advantages. Compare the cost of transporting Soviet oil from the Volga-Ural fields to Stockholm via Ventspils with the costs of transporting oil from non-Soviet sources from the Persian Gulf to Stockholm. (Cents per Barrel)

<table>
<thead>
<tr>
<th>Pipeline to Ventspils</th>
<th>Volga-Ural</th>
<th>Persian Gulf</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;anker to Stockholm&quot;</td>
<td>17</td>
<td>64</td>
</tr>
</tbody>
</table>

Hence the cost of gas per tonne of oil equivalent is 7.2 rubles. Transport cost for carrying gas equivalent to a tonne of oil over a distance of 3,000 kilometres by means of a pipeline 1.42 metres in diameter is 42.36 rubles. Delivered cost of gas equivalent to tonne of oil is 7.20 + 42.36 rubles, or 49.56 rubles.

C. Delivered Cost of the Kuznetsk Coal at the Soviet Export-Port

Cost of production at pithead for a tonne of Kuznetsk hard coal obtained by strip-mining is 8 rubles. The cost of coal per tonne of oil equivalent is 15.93 rubles.

Cost of transporting coal by rail over a (hypothetical) distance of 3,000 kilometres tonne of oil equivalent would be 34.50 rubles.

So the delivered cost would be 15.93 + 34.50 rubles, or 50.43 rubles, per tonne of oil equivalent.

Ruble-Dollar Ratio of the Cost of Production

On the basis of the above cost of production of oil, gas and coal, a ratio of domestic cost to foreign exchange earning can be calculated and inter se comparisons made. For oil the ruble-dollar ratio is about 50 kopecks per dollar. That is, it costs the Soviet Union 50 kopecks to produce a dollar’s worth of crude oil. The ratio for
gas is 68 kopecks; and for coal, 64 kopecks.

As the official exchange rate is 76 kopecks per dollar, it would be reasonable to suppose that the export of oil, as well as of gas and coal, is more attractive than that of many other commodities. Compared with other fuels, oil is cheap, and the country stands to gain by exporting oil rather than gas and coal. Though the cost of production of gas is cheaper than oil at the wellhead, gas becomes, because of its higher transport costs, less attractive as a commodity of export. It would also mean that it is well for gas to be consumed locally rather than to be carried over a longer distance.

**Opportunity Cost**

If the opportunity cost of the export of oil is considered, the absolute cheapness of oil will not in itself be enough to warrant its export. If the volume of oil that is exported is to be replaced by an equivalent quantity of energy in the form of coal, the cost of export of a tonne of oil is not 36 or 39 rubles (the delivered cost of the Volga oil and the Tyumen oil respectively) but 50.43 rubles, which is the cost of production of coal equivalent to a tonne of oil. It is only when the volume of oil that is exported is replaced by gas at home that the export of oil becomes attractive. Campbell has, therefore, suggested that the Soviets cannot really afford to export oil if its opportunity
cost is computed on the basis of replacement cost by coal. Conversely, they can afford to export oil if its cost is calculated on the basis of the cost of its replacement by natural gas. Thus the attractiveness and scope of oil exports of the Soviet Union depend on the rate at which gas output is expanded.

Before we conclude, a word of caution may be in order. The computations made above have had necessarily to be approximations in view of the difficulties inherent in the exercise.

We have thus seen how, because of the comparative advantage which the Soviets have in oil, it is a profitable business for them to sell abroad. We have also seen how the basic motivation behind the expansion of exports is mainly economic, though there may be some incidental political benefits also. Oil being an important source of foreign exchange, there is need for a carefully planned strategy to promote the sale of oil against the heavy odds in the international market. It would, therefore, be interesting to study the strategy that the Soviets have adopted for the purpose.

52 Campbell, Economics of Soviet Oil and Gas, n. 44, pp. 237-8.