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Trade Between Iceland and the Soviet Union, 1953-1993

- Rise and Fall of Barter Exchange -

Iceland Science Fund

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Contents

Abstract

This paper adopts a multi-country (Iceland, Russia and the rest of the world) approach to compare some welfare effects for the two trading partners (Iceland and Russia). Two periods characterized by different trade techniques are considered, first having been organized as a co-operative trade agreement in volumes, subsequently cleared in bilateral units (ISK), and the second being based on hard currency payments with contracts specifying volume or value (never both).

The countries under investigation are very different - one of them (Iceland) having a small and open economy and the other (Russia) with a huge and almost self-sufficient economy. Mainly two composite commodities are traded - fish and oil, which is the factual case. We consider Icelandic exports or at least part of them (herring) sold to Russia as being an inferior good. The gains and losses are measured in terms of the Labour-Cost Theory of Value and in terms of the Marginal Theory. A explanation in political terms is also presented.

It is shown that trade arrangements changed in the middle of the '70s resulting from pressure on the part of the Soviet Union but it was not free trade.

The conclusion is reached that for the whole period (1953-1993) the trade was advantageous for Iceland. Howevèr, the gain for Iceland was not conceived as reciprocal loss by Russia. The reasons for this may have been - (i) objective, the value of imports (from Iceland) accounts for less then 0.1 per cent of Soviet Union's total foreign imports; (ii) subjective, or allowing for different tastes in Russia and the rest of the world; (iii) noneconomic, gains and losses were measured in different - "political" terms.

For some initial period managed trade could be justified for Iceland on purely economic grounds but its continued existence may have a negative impact on investment and resource allocation.

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However, the views expressed in this paper are my own and do not necessarily reflect anybody else's opinions.

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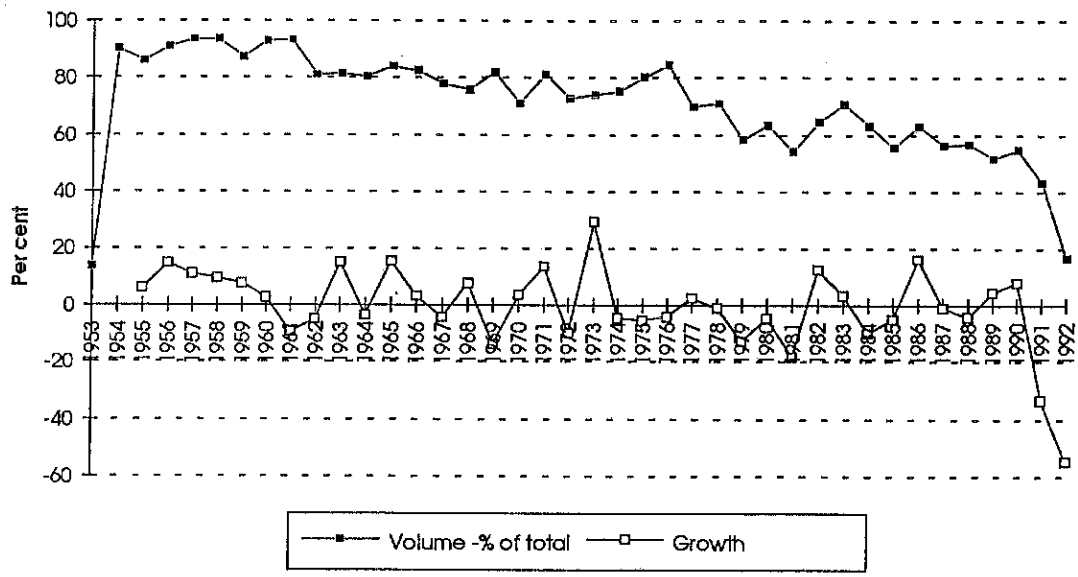
Introduction

To carry out this research all available information concerning foreign trade between Iceland and Soviet Union was compiled and an attempt made to evaluate it. The primary sources were: 1) the trade statistics from The Statistical Bureau of Iceland; 2) the transactions recorded by the Ministry of Commerce in the form of protocols and agreements between the Icelandic government and the Soviet Union authorities. The paper provides also information from Soviet Union/Russian and international origins.

Because of the structure of its economy (small and open) Iceland is dependent on foreign trade. Especially important are commodities that can not be produced domestically, e.g., oil. For such a commodity this study looked particularly to Russia (the ex-Soviet Union). For the most recent period from 1986 to 1990 (which is not the best trade period) Iceland received about 330,000 tons of Russian oil annually, or about 60 per cent of its total oil imports (cf. fig. 1).

Figure 1



For the whole period the trade connections were organized essentially as barter exchange. The particular form of trade changed in 1976, but always remained the same as to content. The concrete trade arrangements could be described as: (i)1953-1975, a negotiated co-operative agreement in physical terms (containing obligatory commodity lists) cleared in bilateral units (ISK) with the possibility for subsequent settlement of eventual deficits exceeding a certain limit in pounds sterling; (ii) 1976-1991, state protected trade with payments in freely convertible currencies (mainly USD), with the retention of commodity lists; (iii) 1991-1994 an almost complete breakdown in trade relations. To have trade organized as that was rather natural for the Soviet Union (and

for the member countries of the Council of Mutual Economic Assistance) as international trade in these countries was handled by the state, and political motives took superiority over economic considerations. As for Iceland's (mixed) economy, the decision was more complicated. Any satisfactory explanation must have something to do with the economic policy pursued by the different governments at each time and any additional advantages obtained, e.g., secured deliveries in a troubled time, selling types of fish that could not easily be sold elsewhere, and access to the not so pretentious Russian market. Because of its specific conditions and heavy dependence on foreign trade, Iceland pursued policy of, an almost universal openness towards all possible export markets whereas access to its own (import) market was given selectively.

However, as the above described system is far from a market mechanism it may result in an inefficient allocation of resources. Consequently, productivity and output may have been affected, as well as, capital accumulation and employment.

1. Comparative costs or trade availability explanation

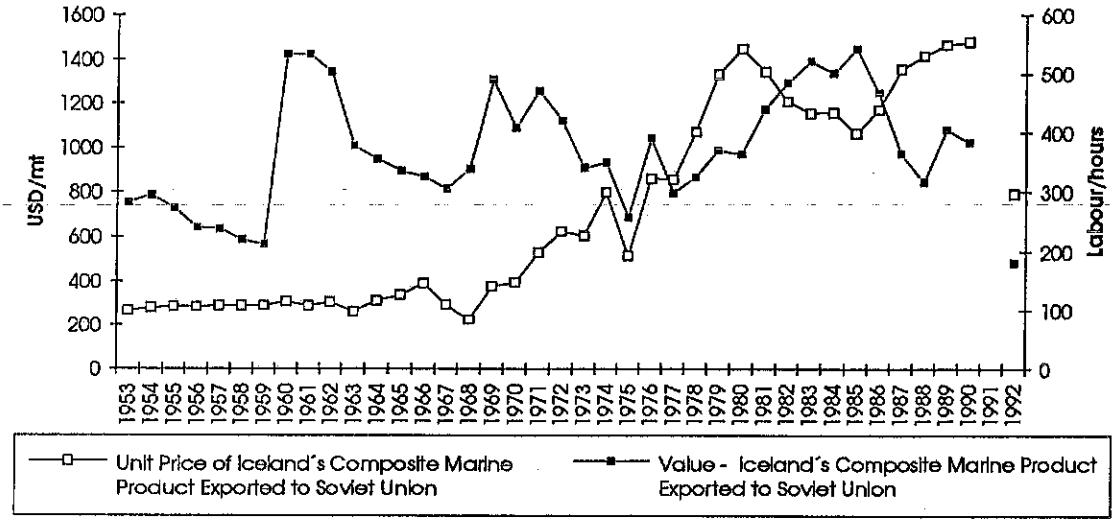
We may assume that both export industries - oil production and fisheries, located in the Soviet Union and Iceland respectively, did follow an extensive development path. That is to say, whatever alterations in the technologies used in both industries have ever taken place, the countries continued to exchange the same goods. This seems to suggest, that the objects of trade were simply the most abundant goods possessed. But in order to reject comparative advantage (the Heckschler-Ohlin theorem) as a satisfactory explanation of trade between Iceland and Soviet Union, we will have to compare the absolute values of the two composite commodities. For a measuring rod we chose labour. In doing so we are aware of the objection concerning the non-homogeneity of labour. Even if it could be assumed that labour within a reasonable limit is homogenous and commands only one price in a perfectly competitive market, still the greater difficulty of the different organic composition of capital would remain. To compare the labour contents of the two commodities would be erroneous, as the proportions of the factors of production (capital-labour ratio) embedded in them vary. Furthermore, the quantity of labour spent cannot be approached *out of time*. When the constant changes in production, e. g., adoption of more capital-intensive processes, and the increase in the size of the market are taken into consideration it becomes clear that labour, once spent, does not determine the (future) current value of the product. To overcome this difficulty, as suggested by Malthus ([1836] 1951), we measured the quantity of standard (simplest) labour that a respective commodity commands in a certain moment of time.

We next proceed by observing value and price simultaneously (cf. fig. 2). The prices of the composite marine product exported to the Soviet Union were relatively stable prior to 1970. During the same period (1953 - 1970) the value of the composite marine product, measured by labour, that it could command[1] deviated within a wide range but always remained on a "higher" level than the price. After 1970 prices were much less stable and clearly followed an upsward trend until 1977. That year (1977) was also the first year when the price level moved "above" the value level. It is worth noting that this was the first year after the trade between Iceland and the Soviet Union was reorganized on a freely convertible currency basis. From 1977, when prices "climbed over" the value level of the exported composite marine product things changed again and both (value and price) began moving more or less together until 1981. The next five years, beginning with 1981, were characterized by opposite movements in values and prices - the value rising and prices falling. In the last five years of the study (1987 - 1992) prices and values continued to move in different

[1] For wage unit we use daytime wage rates for ordinary dock labour in Reykjavik until 1981, after 1981- the daytime wage rates in the fish processing industry

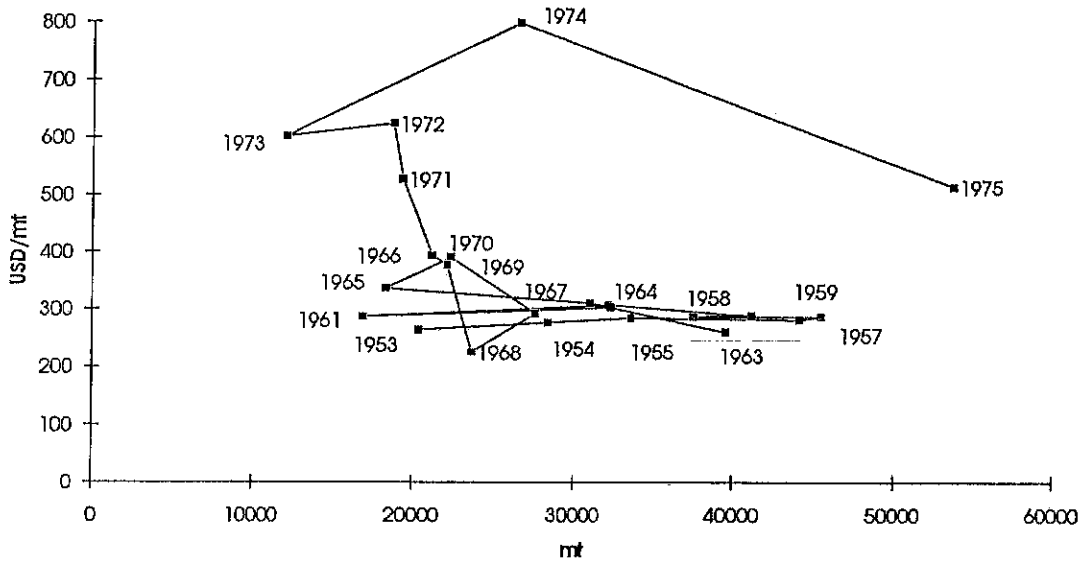
directions but with exchanged places, that is prices up and values down. If commodity prices can increase permanently only in accordance with the increment of capital and labour employed in their production, we are witnessing an anomaly. But taking into account the size of Iceland and its small share in the world's fish industry this result becomes plausible. The country does not have a choice (given the unchanged time preference) but to sell at a price independent of cost of production.

Figure 2



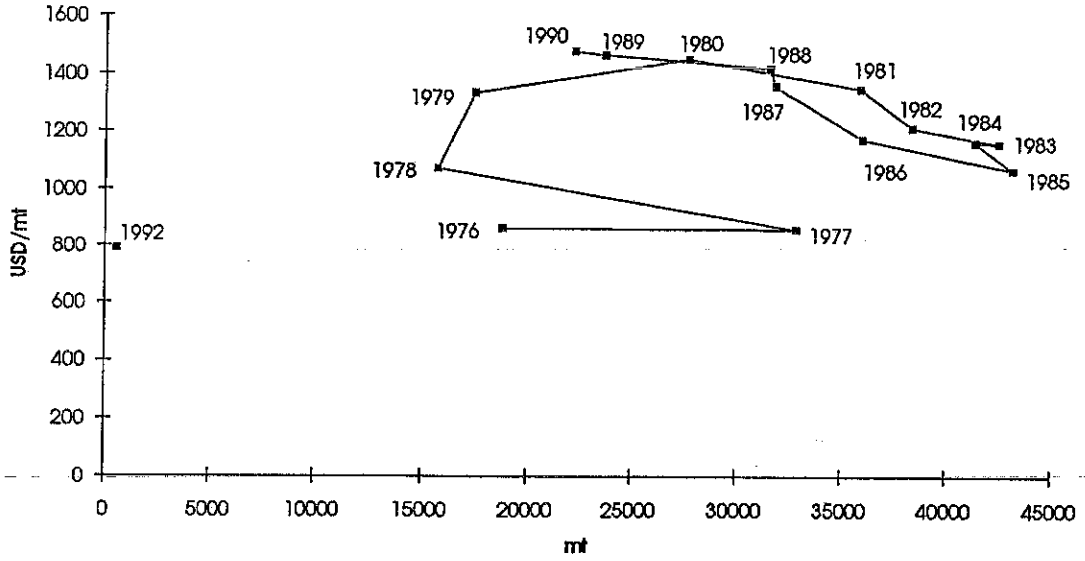
A further point could be established if we look at the actual demand for Iceland's composite marine product in the Soviet Union. Figure 3 a and b is shows the actual demand for the last 40 years.

Figure 3a, b



Note: Some of the years are not shown to simplify the graph.

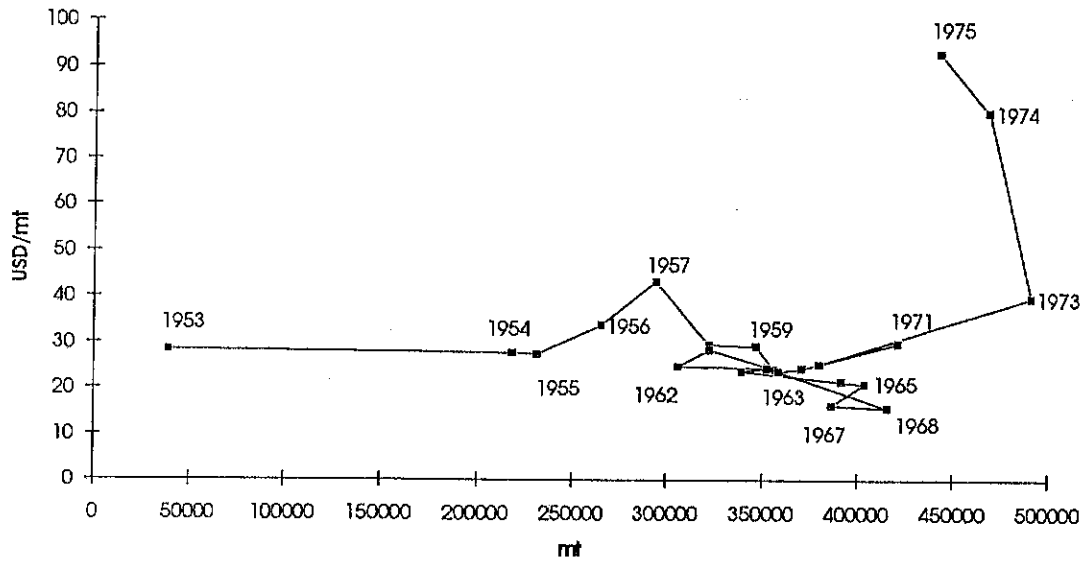
(b)



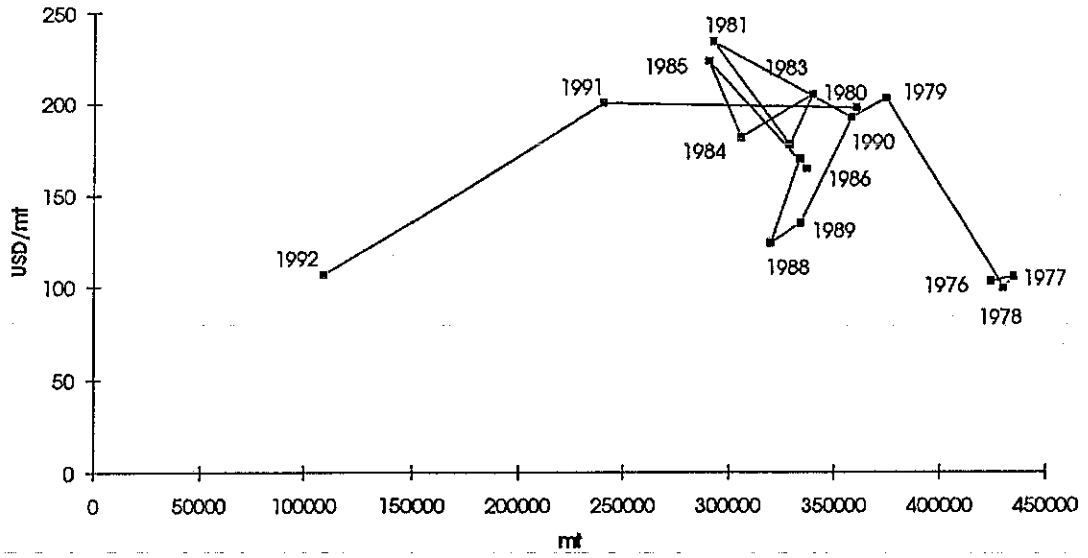
The coefficient of correlation between the quantities and prices of the composite marine product bought by the Soviet Union is small, negative from the beginning of the period to 1975 (R= -0.2694) and positive but small for the years 1976-1992 (R=0.2327).

The coefficients of correlation calculated in the same manner and for the same time periods for prices and quantities of Soviet Union composite petroleum product actually demanded in Iceland (cf. fig. 4 a, b) are R= 0.2865 for 1953 to 1976, and R=-0.1826 for the rest of the period.

Figure 4 a, b

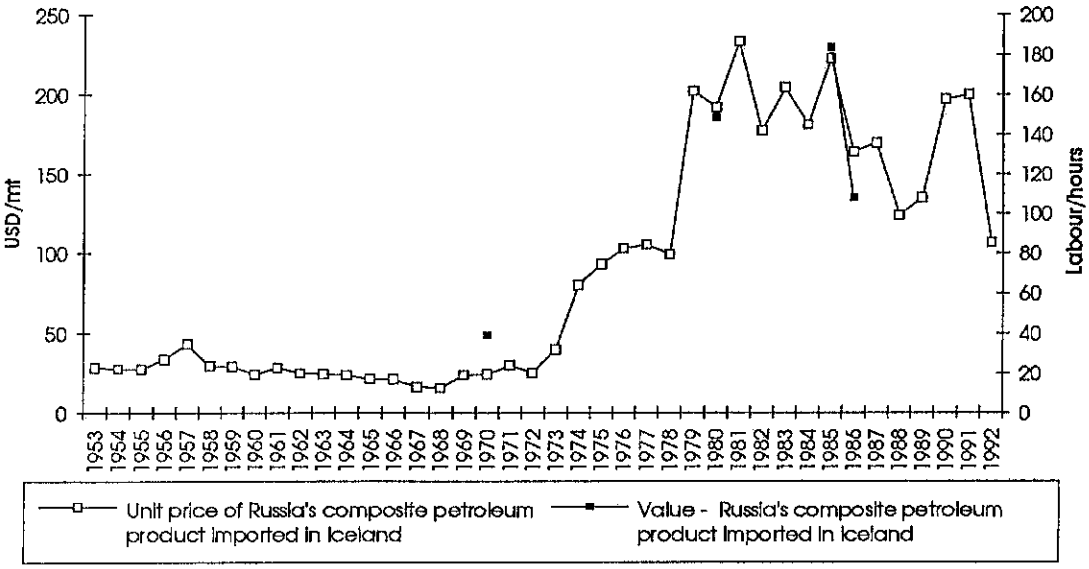


Note: Some of the years are not shown to simplify the graph.



Apparently it seems that for all those years (1953-1992) the trade relations between Iceland and the Soviet Union were essentially free of market considerations. It is clear that both the price and quantity of Icelandic exports varied frequently in the same direction. However, this clear-cut result must be qualified additionally as Iceland is not in a position to dominate world market prices for fish, and although desirable, the stabilization of foreign exchange earnings is not within its power. As regards the Soviet Union's exports, there could have been some other, perhaps decisive factor, the influence of which could bring about this result.

Figure 5



We shall discuss shortly this possibility, after the values and prices of the Soviet Union's composite petroleum product imported into Iceland are examined. Unfortunately, as seen from Figure 5 above, the data which we have obtained about the Soviet Union's wage rate are very limited. That is why we have to use another method for a value change appraisal. Hence we turn our attention from wages to the other - constant - part of capital (cf. table 1) to have a way through which we can compare the costs of the exchanged goods in accordance with the efforts[2] spent on their production. As with the wage unit, when capital (constant) is taken for measuring unit the underling idea is the same - to measure labour productivity.

Table 1

Specific capital investment in oil extraction - Soviet Union, 1966 - 1980

Type of investment	1966-1970	1971-1975	1976-1980
Output of oil and gas condensate, mill tons	1,543.8	2,156.2	2,825.8
Introduction of new capacity, mill tons	222.9	377.2	501.4
Increment in output, mill tons	110.0	137.8	112.4
Total capital investment			
Roubles per ton of output	7.1	7.5	9.3
Roubles per ton of new capacity	49.1	42.9	52.3
Roubles per ton of increment in output	99.5	117.5	233.3
Capital investment in operational drilling and field preparation			
Roubles per ton of output	4.9	5.2	7.1
Roubles per ton of new capacity	33.9	29.7	39.9
Roubles per ton of increment in output	68.7	81.3	178.0

Source: Tretyakova, A. and Meredith Heinemeier, *Cost Estimates for the Soviet Oil Industry: 1970 to 1990*, CIR: US Department of Commerce

From the data given above (table 1) we may come to the conclusion that the productivity of labour in the Soviet Union's oil industry continually diminished from 1966 to 1980. This to say that profitability must have fallen as more and more capital had to be employed just to keep the growth rate of output practically constant (i.e., with diminished productivity the same ammount of capital combined with the same amount of labour cannot produce the same output).

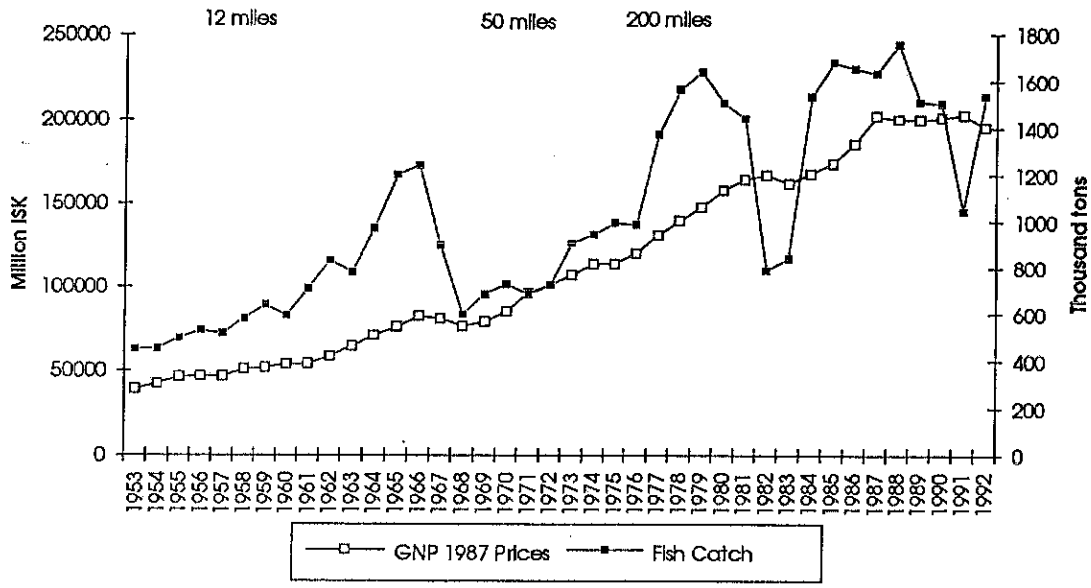
Allowance should be made for the scarcity of natural resources. However, if such a constraint is imposed by growth in the agricultural sector, this would inhibit development in the other sectors for a short time only. As this situation lasted much longer - actually until the collapse of the USSR - the explanation must provide for the sharp decline in intensity of labour and destruction of capital on a significant scale.

[2] " Human effort and human consumption are the ultimate matters from which alone economic transactions are capable of deriving any significance; and all other forms of expenditure only acquire importance from their having some relationship, sooner or later, to the effort of producers or to the expenditure of consumers." (Keynes, 1930)

2. Macroeconomic conditions and trade

As a small open economy dominated by the fishing industry Iceland is particularly predisposed to significant variability in its GNP rates of growth. The share of fishing and fish processing in total employment together amounts to less than 13 per cent and their share in gross domestic factor income is about 16 per cent[3], which presents a somewhat misleading picture for the importance of this industrial branch. Practically all the output of the fisheries is exported, thus constituting around 80 per cent of total foreign exchange earnings. The economic situation in the fisheries virtually predetermines the expansion or contraction process within the entire economy (cf. fig. 6), given the necessity for constant imports of wide range of raw materials, intermediate goods and finished products.

Figure 6



Being a primary producer and price taker[4] Iceland is often confronted with the difficult task of reducing the magnitude and evening out the external shocks to the economy from variations in fish catch volume and terms of trade movements. However, these efforts were always met with very limited success. Usually instability in income from fisheries resulted in inflation and as a rule led to constant devaluations. To be more exact the mechanism works as follows: during the periods when fish catches and export prices are rising and therefore marginal productivity (from a level well above all the other economic branches) and profitability grow

[3] The data are for 1987, source: National Economic Institute

[4] The qualification must be added. Actually Iceland has some price setting power in certain types of fresh fish. There were situations (on the London fish market) where, by altering in the quantity supplied, Iceland could manipulate the prices.

faster, the windfall profits are shared through higher prices and wages "charged" by the entire economic system. In periods of slump in export earnings, the income position of fisheries is restored (the burden is shared) normally by currency devaluation. The exchange rate adjustment has, as a consequence, changed the prices of export goods. The change in export sector prices affects the price level as a whole and the level of real balances, all of which influences spending, income and trade.

It is important to note that the first priority of Icelandic economic policy was to maintain full employment. Indeed, the fast-growing labour force has been absorbed successfully and open unemployment did not occur until recently.[5] However, it was achieved only at the expense of persistent high inflation.

The internal (full employment) and external (current account balance) instability of the Icelandic economy is closely connected with the country's level of productivity (cf. table 1) and its competitive position.

Table 2

	1971-1975	*1976-1980*	*1981-1985*	*1986-1990*
TFP [a]	1,2805	4,1456	0,4822	2,3884
GNP	6,06	6,79	1,98	3,05
Labour Productivity	2,84	4,78	-0,428	3,15
Capital Productivity	-2,24	5,97	1,07	0,785
Combined Inputs[b]	4,7795	2,6444	1,4978	0,6616
Man-hours	3,09	1,95	1,69	-0,07
Capital	8,54	4,19	1,07	2,29

a The amount by which output would increase as a result of improvements in methods of production with all inputs unchanged - average annual rates of growth

b Combined inputs are calculated in a Cobb-Douglas linear homogeneous production function using weights of 0.69 percent and 0.31 percent for labour and capital respectively. The weights represent the labour and capital cost distribution in 1987.

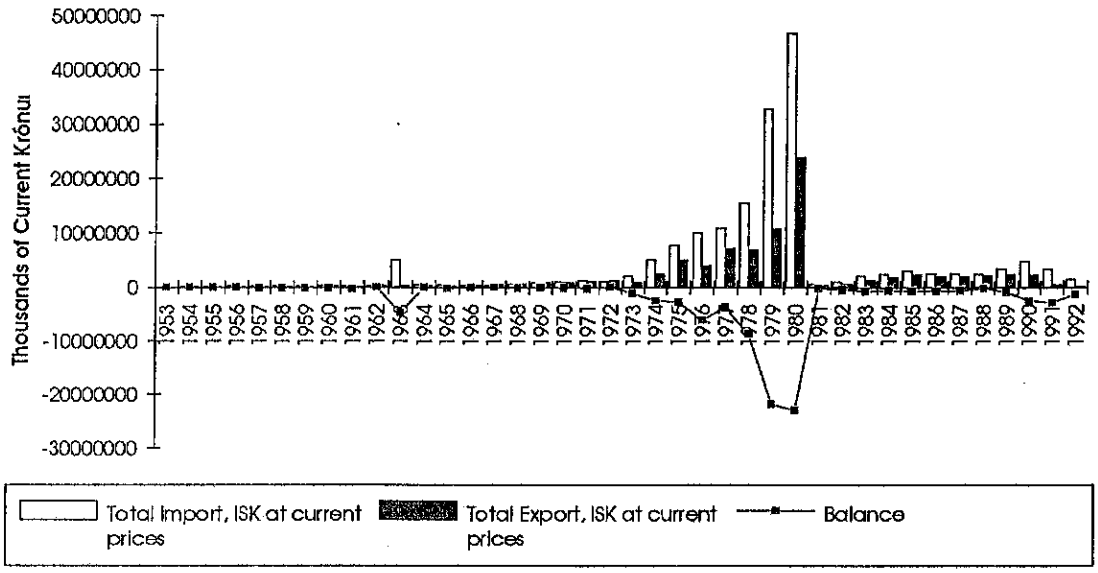
The variations in labour inputs (man-hours) as seen from the table have been relatively small compared to the changes in output. The capital formation pattern shows little interdependence with the changes in GNP and probably could be explained by underutilised capacity, i.e., overcapitalization by the fishing sector. We need to mention that national wealth data are used for capital employed. Probably no significant error will arise from this substitution, but because all capital is wealth and not all wealth is capital it should be remembered that the actual quantity of productive capital could increase or decrease by a change in the proportion to total quantity of wealth.

[5] With the exception of the years 1967-1968 when unemployment reached 2,5% of the estimated labour force it was around 1% from 1953 to 1990.

Since in the long run Iceland has to be in balance with its trading partners, this condition imposes a limit on current account deficits. In other words, the country has a financial constraint and the maximum deficit level is dependent on the availability of foreign exchange reserves and long-term capital inflow. Being dependent on its foreign exchange holdings for practically everything, Iceland sought to limit the effects of the fluctuations by trade control. The most popular device was the barter trade agreements.

In 1953 an agreement on trade and payments between the Soviet Union and Iceland was signed. This trade was organized at the state level with payments in kind - fish for oil. Transactions were recorded in bilateral trade units (ISK) and overdraft facilities were available for both parties, while any persistent deficits eventually were to be settled in pounds sterling. It turned out to be an unlimited overdraft facility for Iceland, whose trade balance with the Soviet Union was in deficit most of the time (cf. fig. 7), with the additional advantage of being interest-free. Ever since this agreement was concluded it was credited for providing price stability, guaranteeing supplies and contributing to high returns. Not much if anything at all is being said about the discriminating nature of the contract (towards the rest of the world) or its implications for internal competition and resource allocation.

Figure 7



But before we try to address these questions we need to find some reliable criterion for the evaluation of foreign trade efficiency. Unfortunately this is a difficult task because of the inconvertibility of the Soviet rouble and Icelandic króna. The exchange rates of those currencies are not determined on the international money market but are determined more or less arbitrarily by the respective authorities. For

example, it is known that the Soviet rouble was overvalued for most of the time as is demonstrated by the black market exchange rates for hard currencies, though one cannot rely completely on its (black market rates) accuracy. As in Iceland, where the black foreign currency market lost its significance after the beginning of the '60s, the existing discrepancy is shown by the difference between the established and would-be market (offsetting inflation) exchange rate.[6] For the sake of illustration of the Icelandic case we include the following model:

$\bar{R}^2 = 0.9929 \qquad D-W = 1.0318 \qquad Degrees\ of\ Freedom\ 16$

$$EFFEX = 101.83 - 0.9667 LABPRO + 0.2041 RINTRATE + 0.7120 CONSPRICE +$$

(0.0107) (0.0112) (0.2148) (0.0000)

$$+ 0.0606 TRTERMS + 0.0011 POSBAL + 3.8919 TREND$$

(0.7233) (0.0193) (0.0002)

This equation supposedly expresses the behavioural relationship between the dependent variable "effective price of foreign currency" and the independent variables "productivity of labour, real interest rate (bills of exchange), consumer prices, terms-of-trade, position of the balance of current account" and the "trend" (time) for the years 1970 - 1992. It seems that the model has very high explanatory power, the coefficient of mutual determination corrected for degrees of freedom equals 0.9929 and the Durbin-Watson statistic is equal to 1.0318. The signs of coefficients are correct, though in theory one may expect negative signs in front of RINTRATE and POSBAL. However, for the Icelandic economy this might be the result of persistent high negative real interest rates for the former and low demand elasticity for exports and imports for the latter (the Marshall-Learner condition does not hold). The relationship between effective exchange rate and labour productivity (LABPRO) expressed by the regression coefficient in front of the latter (-0.9667) is strong, negative and highly significant (0.0122). The real interest rate influence (RINTRATE) on the dependent variable is small (0.2041) and not significant (0.2148), resembling, probably correctly the passive role of interest rates in Icelandic economic life. Any change in consumer prices (CONSPRICE) moves the value of the dependent variable (EFFEX) in the same direction by roughly 70 per cent (regression coefficient = 0.7120) of the change in prices. The existence of this relationship is "guaranteed" by the very high level of significance (0.0000). Next, we consider how the terms-of-trade

[6] From 1970-1976 the effective exchange rate of the króna depreciated by 50 per cent. For the same period the OECD consumer price index rose by 70 per cent and for Iceland alone by 350 per cent. *Source: OECD Economic Surveys*, Iceland, December, 1977

(TRTRADE) changes affect the effective exchange rate development. Here the regression coefficient is extremely low (0.0606) and insignificant (0.7233). It appears to be an appropriate reflection of the reality of the Icelandic economy. Its terms-of-trade vis-à-vis the world rose two times on average from 1950 to 1977, but the króna never appreciated [7] . The position of the balance of current account (POSBAL) has very limited power, if any at all, over the effective exchange rate determination. Although the regression coefficient is highly significant (0.0193) its magnitude is too low (0.0011). Checking the actual figures, we see that this may very well have been the case. Iceland's trade and current account deficit is usually covered by heavy external borrowing and not only by effective exchange rate adjustments. At the end, we reach a somewhat controversial independent variable - the Trend. Its regression coefficient is highly significant (0.0002) and has considerable value (3.8919). In our model it is taken to be equal to T-1981; in other words, for every year between 1970 and 1992, the year 1981 is subtracted, the same year when monetary reform took place and one hundred old krónas were exchanged for one new krónas. Our interpretation is that with the Trend factor all unincluded factors in the model are presented. We conceive for the main candidate the government's intervention and particularly its unrestricted use of the printing press and the establishment of arbitrary exchange rates. Of course the Trend may express something else which is unknown to us. However, as stated earlier the model is intended to illustrate and help organise our analysis and not to give any exact results. We have only shown that our hypothesis for the arbitrary determination of the effective exchange rate (of the króna) can not be rejected. Therefore, when the exchange rate of the domestic currency does not correspond to the international-domestic price ratio, the foreign trade decisions undoubtedly are intuitive. Logically, we should proceed by calculating the terms-of-trade between Iceland and the Soviet Union and their development. But before we start, let us examine the economic position of the Soviet Union, which will help explain the change in trade arrangements between both countries.

The Soviet Union's economy was at the time, the second largest world's economy. Despite the shortcomings of centrally planned economic systems and despite the difficulties in managing such an economy the achievements deserve to be mentioned. In short, the Soviet Union's economy became the number two economy in the world virtually without price inflation and very rare currency devaluations. As seen from Table 2 (below) the Soviet Union's economy functioned very well until the mid - '70s. Output, investment and productivity grew or remained high. The country achieved great progress in most industrial and strategic economic fields. Living conditions improved and price levels remained stable. The Soviet rouble gained

[7] A small revaluation did occur, but only in 1973.

strength and made the country an acceptable borrower in the Western financial markets. In the years 1971-1975 (the period of the Soviet's ninth five-year plan) the economic situation in the country began to deteriorate. The low grain harvest in 1972 necessitated huge imports of wheat from the West, drawing down hard currency

Table 3 USSR Macroeconomic performance

	1951 1955	1956 1960	1961 1965	1966 1970	1971 1975	1976 1980	1981 1985	1986 1990	1991
NMP Growth, Soviet Measures	11,4	9,2	6,5	7,8	5,7	4,3	3,2	1,4	-15
NMP Growth, CIA Estimates				5,3	3,3	2,3	1,5		
GNP Growth Soviet Measures				7,6	6,2	4,8	3,6	2,5	-17
GNP Growth CIA Estimates	6,0	5,8	4,9	5,1	3,0	2,3	1,9	-0,6	
Real GNP Per Capita Growth, CIA Estimates			3,3	4,0	2,1	1,4	1,1		
Labour Productivity Soviet Measures			6,1	6,8	4,5	3,3	2,7	1,5	
Labour Productivity CIA Estimates			3,3	3,0	1,3	1,1	1,2		
Factor Productivity CIA Estimates			0,5	0,9	-1,1	-0,9			
Gross Investment Soviet Measures	12,3	13,0	6,2	7,6	6,9	3,7	3,7	6,1	

Sources: Narodnoe Khozjaistvo SSSR, various issues
CIA, Handbook of Economic Statistics, various issues

Table 4 USSR Hard Currency Balance of Payments, Million USD

	1960	1970	1975	1980	1982	1983	1984	1985	1986
Trade balance	-250	-306	-4,804	1,814	4,468	4,712	4,727	534	2,016
Exports	768	2,405	9,453	27,874	31,975	32,429	32,173	26,387	25,104
Imports	1,018	2,711	14,257	26,060	27,507	27,717	27,446	25,853	23,088
Net interest	-5	-80	-473	-977	-944	-1,012	-1,110	-1,554	-2,133
Other invisibles	-65	500	760	890	1,100	1,100	1,100	1,100	1,100
Current account balance	**-320**	**114**	**-4,481**	**1,727**	**4,624**	**4,800**	**4,717**	**80**	**983**
Borrowing from abroad	90	290	5,576	-818	-536	1,541	546	6,673	8,525
Change in assets	0	-25	391	33	-1,982	-932	570	-1,812	-1,707
Net Credits to LDCs	NA	NA	-715	-950	-2,120	-3,200	-2,700	-1,700	-4,100
Gold sales	200	0	725	1,580	1,100	750	1,000	1,800	4,000
Capital account balance	**290**	**265**	**5,977**	**-155**	**-3,538**	**-1,841**	**-584**	**4,961**	**6,718**
Errors and omissions*	30	-379	-1,496	-1,572	-1,086	-2,959	-4,133	-5,041	-7,701

* Including Soviet hard currency aid to and trade with other Communist countries, trade credits extended to finance Soviet exports to developed countries, and other non specified hard currency expenditures.
Source: CIA, Handbook of Economic Statistics 1987

reserves. Gold was sold to help finance the deficit and a few billions of dollars were borrowed (cf. table 3, above).

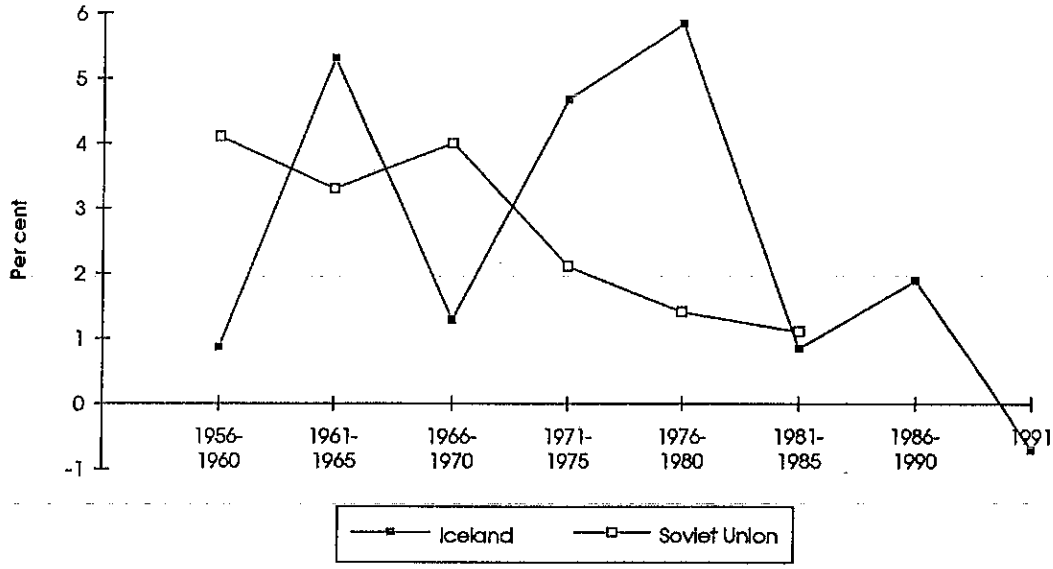
Generally speaking all this came as a result of internal economic problems and not just unfavourable weather conditions. Extensive industrialization reached a critical point of stagnation with low utilization of resources. The agricultural shortcomings additionally aggravated the crises. There was an urgent need for advanced technology and equipment. Therefore, at the beginning of the 1970s, Soviet Union trade policy changed towards openness.

Foreign trade increased as huge imports of machinery and grain took place. In 1975 import from the Western world accounted for 37 per cent of total Soviet imports - an unusually high figure. However, these measures did not succeed in overcoming stagnation and technological inefficiencies. Economic development continuously deteriorated and the rate of growth of the gross national product increasingly slowed down. In 1976 the internal prices of oil and oil products were elevated by 20 per cent and also the prices CMEA countries had to pay for these products increased by 10 per cent.

To summarise, whatever the differences between the sources of information, clearly back in the 1950s the Soviet Union economy grew faster than the Icelandic economy. Later in the 1960s the growth levels equalized more or less and in the 1970's growth declined sharply in the Soviet Union while Iceland experienced its decade of highest economic growth (cf. fig. 8, below). It is understandable that domestic economic difficulties in Soviet Union could influence and change the country's trade connections and their organization. This is exactly what happened with the trade arrangements between the the Soviet Union and Iceland. At the end of 1975 both parties signed the Protocol of Amendment stating that from then on, all trade relations would be handled in freely convertible currencies. It is readily conceivable that the timing of the re-negotiation is not just coincidence. Looking again at fig. 8 we can see how the "blades of the scissors" representing real per capita growth of GNP in Iceland and the Soviet Union opened in 1971-1975, and continued to move even more in opposite directions for the period 1976-1980.

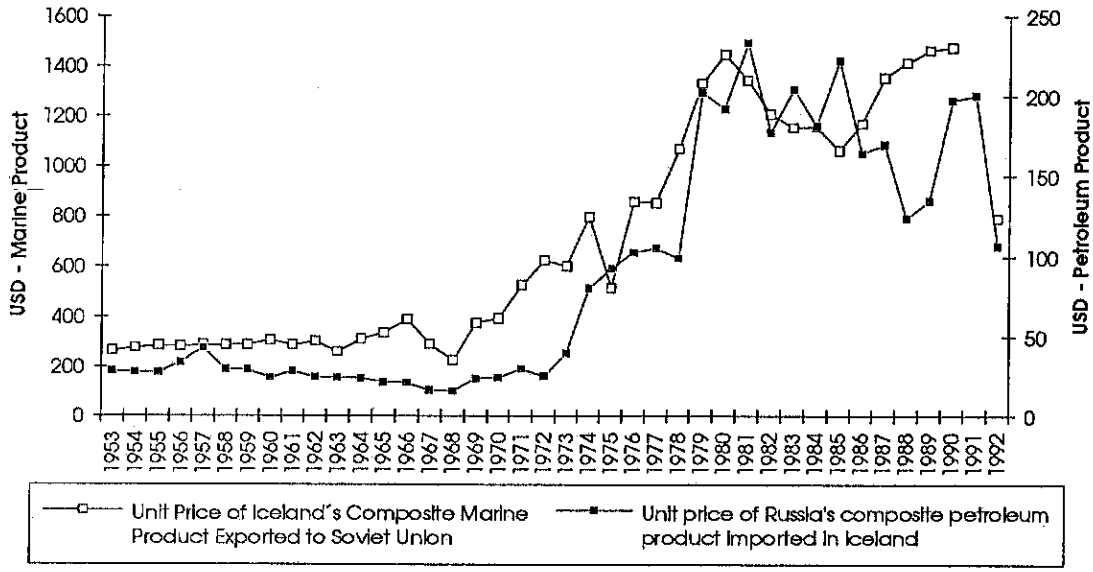
However, just because the payments were going to be settled in convertible currency does not necessarily imply free market relations. The bilateral quota system together with the principle for setting oil prices between the parties on the basis of an average of past world prices remained in place. Iceland preserved its advantage so to speak through the binding contracts for future oil deliveries as measured by quantity without previous price specification. Once such an agreement has been signed at a high governmental level, its concrete execution at the lower levels, i.e., by import and export companies or organizations, is strictly predetermined. Most importantly, the

Figure 8



Icelandic side was capable of compensating for the movements in Russian oil prices (cf. fig. 9, above). In other words when the local (Icelandic) importer did approach the Soviet Union exporter the position of the former was fortified by additional bargaining power. To comment further on the typical objective surroundings, we see, on the one hand, a Soviet official who knows his country's obligation to reach a price agreement for the already specified quantity of oil and, on the other hand, an Icelandic private importer who knows that his offer cannot be rejected. The former has no direct financial motivation while for the latter any price "improvement" leads directly to

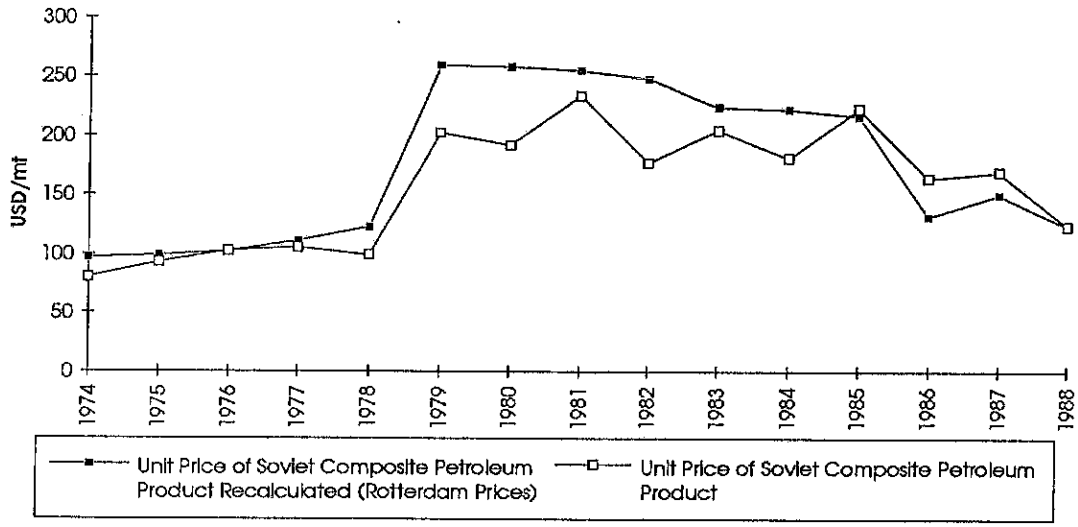
Figure 9



higher profits. Additionally, because of the stage of processing or/and technology used, the fish sold on the Soviet Union's market were practically considered without other possible or advantageous markets. Especially important was the sale of salted herring, an inferior product for the rest of the world, which in dealing with the Soviet Union, turned out to be a source of indirect hard currency for Iceland.

As shown in Figure 9 above, the unit price of Russia's imports and the unit price of Iceland's exports moved in concert. Although some of the most significant price increases obviously came into being as a consequence of international market adjustments, e.g., the oil crisis in 1973, the boom in food stuff prices in 1973, and the second oil crisis in 1979, it might be suspicious that such a coincidence should last for such a long period. It is not entirely clear how this situation was evaluated by the Soviet Union authorities. Most likely the additional costs of selling oil for a non-convertible currency, of granting unlimited non-interest bearing overdraft facilities, and of the implicit agreement to sell cheaper or/and buy dearer were considered just short-term costs which would bring future returns. Along this line it is worth noting that oil exports played a special economic role for the Soviet Union, as the main hard currency earner. Naturally enough, political considerations could have decisive power in certain cases, ignoring purely economic factors. As Soviet export oil always has had its price expressed in dollars on the world market, it is possible to compare the ruling price there and the one used for trade with Iceland (fig.10).

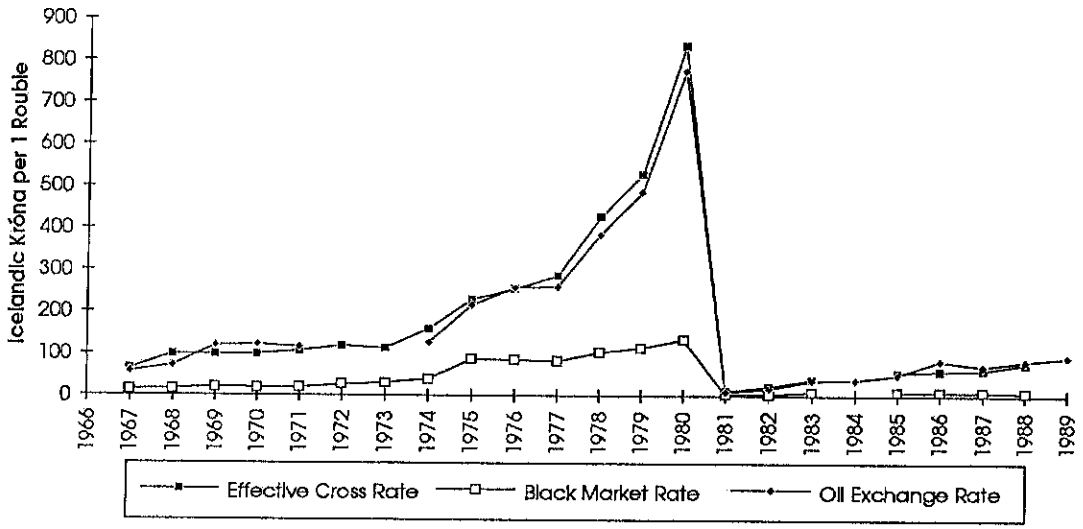
Figure 10



In doing so we have recalculated the unit price of the Soviet Union's composite petroleum product exported to Iceland on the basis of Rotterdam spot oil prices. This was done by assigning the respective international prices as weights to the different types of petroleum products imported into Iceland from the Soviet Union. Then, both

were compared, with the result showing that the Soviet Union's price was lower. The average difference for the entire period (1974-1988) was around 8 per cent in favour of the world market (Rotterdam) prices. Practically, the difference was greater, as Rotterdam prices are spot, while the Icelandic import prices are CIF, i.e., additionally including transportation and insurance costs. We now turn to exchange rate consideration. As explained earlier the currency exchange rates of both countries were administratively determined. The Icelandic króna and Soviet rouble fluctuated significantly and not uniformly, i.e., exhibited typical multiple exchange rate regime behaviour, as becomes evident by observing the official exchange rate, black market rate and oil exchange rate simultaneously (cf. fig. 11). The official and black market exchange rates between the króna and the rouble were obtained through their quotations for US dollar. The data about the so-called oil exchange rate were calculated as a ratio between the Soviet Union export prices (in roubles) and Icelandic import prices (in krónur). The resultant oil exchange rate is overestimated because the prices used are FOB for the Soviet Union, and CIF for Iceland. But even overstated, the exchange rate by which oil was traded was always below or coincided with the official rate of exchange. This suggests an additional advantage for Iceland, i.e., paying fewer krónur than officially required per rouble. But what about the black market exchange rate? Is it not supposed to be a more reliable indicator for the purchasing power of these monetary units? Yes, the black market exchange rate is a result of the interaction of demand and supply in the respective home markets. However, these are consumer goods markets having nothing to do with investment goods and raw materials. It is known that the former markets in the Soviet Union were characterized by great shortages.

Figure 11



Also, beyond any doubt a considerable amount of the industrial production in the civil sector was of inadequate quality or simply obsolete. Naturally, this led to an even higher demand for hard currency. However, this is was not the case for space and military production, nor for oil and oil products. These products were quite up to or exceeded the world standards. On the other hand, for the type of fish bought from Iceland, things were different and much less comparable to any standard. It is not because the fish species sold to the Soviet Union did not sell for hard currency as well actually most of them did, but because they were at a different stage of processing and of a different quality. Additional technical problems in handling the analysis arose from the way in which the data were and are still aggregated in (FAO) international fishery statistics. But even if some scattered information about international fish prices was possible to be obtained, when compared to Icelandic - Soviet Union prices, the volume of transactions should always be kept in mind. So, if some small quantity of salted herring was sold at a higher price outside the Soviet Union, and the bulk of that merchandise (cf. table 4) was bought by the Soviet Union at a lower price, this does not necessarily indicate an economic loss for Iceland. It is much more likely that the exporter (Iceland) simply attempted to equalize its marginal revenue[8] from different trading partners.

Table 5

Mt. \ years	1982	1983	1984	1985	1986	1987	1988	1989	1990
Production of salted herring	22353	24555	24370	25753	27826	25885	25920	24404	12500
Salted herring sold to USSR	14859	16177	19753	21757	15625	18557	19753	12962	14958

Sources: FAO Yearbook 1991, Fishery statistics, FAO 1993
Trade Statistics, The Statistical Bureau of Iceland, various issues

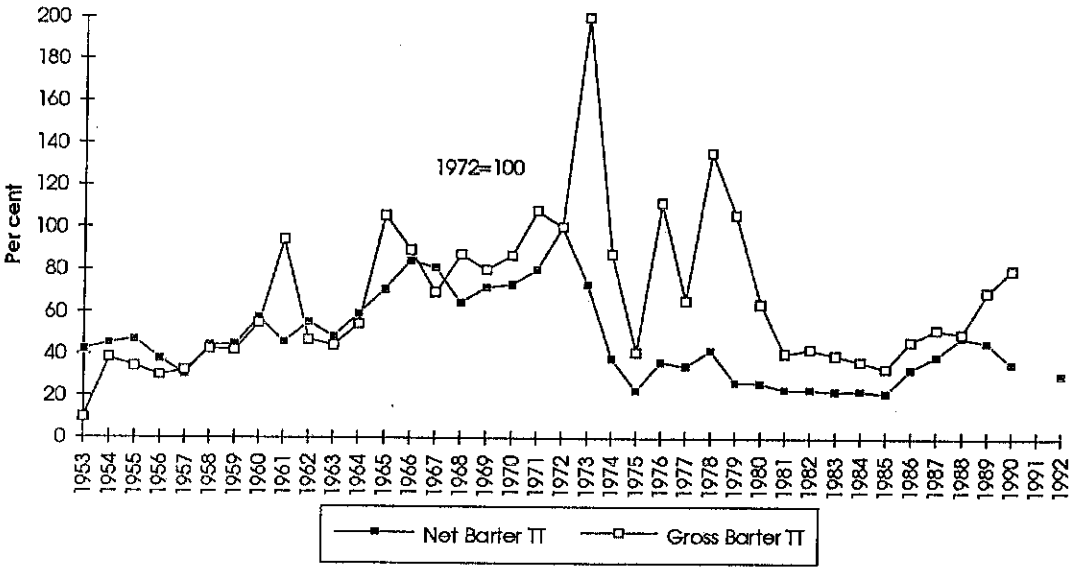
The question as to what would have happened if the Soviet Union had not exchanged its oil directly for Icelandic fish requires some speculation but two considerations lead to the conclusion that the Soviet Union would have gained and Iceland would have lost. The first consideration is that the Soviet Union would have always been free to spend its petrodollars. The second is that Iceland could not sell its salted herring on other markets at all, while the other types of fish were sellable after

[8] Marginal revenue is an abstract concept only definable for continuous variations in revenue and quantity, but it is always approximately equal to the added revenue obtained from one unit increase of quantity from a given level.

further processing. This implies losses from additional time and inputs required, as well as probably from the restricted capacity of the fish processing industry. Furthermore, if the trade had not been organized on a compensatory basis it would have aggravated the problem of Iceland's balance of payments. At the same time as the problem was avoided through the form of trade (compensatory) it may have had other extra costs.

Next, we turn our attention towards the development of the terms-of-trade. The obtained net barter terms-of-trade and gross barter terms-of-trade for the last forty years are presented on Figure 12 (below). The former concept (net barter terms-of-trade) represents a relation between export and import prices, while the latter (gross barter terms-of-trade) is the ratio between the quantity of imported and exported goods.

Figure 12



Observing the terms-of-trade changes (fig. 12) during the period 1953-1992 we notice that for some years, e.g., 1957 to 1960 the net and gross barter terms-of-trade were equal, that is the trade was balanced. However, for most of the time the gross barter terms-of-trade exceeded the net barter terms-of-trade, especially significantly during the 1970s. This seems to reflect the fact that Iceland received more oil for less fish or that its balance of payments towards the Soviet Union showed a persistent deficit. We believe that both influences came into play, enabling Iceland to enjoy better gross barter terms-of-trade than otherwise possible. How much less fish had been exchanged for the same quantity of oil, or how much more oil had been obtained for the same quantity of fish is indeterminate. Nevertheless, the outcome, whether more or less, was in Iceland's favour. The balance of payments deficit was not covered at the time of its

occurrence, but significantly later, usually by loans from international financial institutions. Meanwhile the real resources (oil) were available for consumption, providing breathing space and helping to accommodate the economic expansion in the 1970s (cf. table 5, below).

Table 6

Year	Iceland's trade deficit, US dollars	Debt payments to Soviet Union
1973	13 345 214,29	- - -
1974	21 088 843,88	21 700 000
1975	15 984 549,18	22 500 000
1976	31 609 451,77	18 500 000
1977	17 399 558,89	29 500 000
1978	27 133 750,39	18 000 000
1979	55 246 948,59	
1980	36 754 125,66	

Source: Fréttatilkynning Nr. 15, 1978, The Central Bank of Iceland

Additionally, Iceland did not have to pay any interest on its debts to the Soviet Union. However, borrowing at zero interest rate is not entirely free of costs, as consumption in the future (by comimg generations) has to be restricted.

Now we have come to the question, was this all done consciously, or was this the outcome of trade based rather on intuitive decisions and planning instead of on sound economic criteria? We believe that both countries were well aware of the nature of their trade relations. Moreover, they knew from their own experience how trade could be used as a political weapon. Back in 1948 the Soviet Union cancelled for five years (until 1953) almost all trade relations with Iceland, i.e., refused to buy Icelandic fish. Accepting this proposition, we proceed to the next section, where gains, losses and their possible explanations are restated.

3. Gains and losses - why and for whom?

As explained elsewhere, the case considered here is rather specific. The sizes of the trading partners (Iceland and Soviet Union) were vastly different. The share of Icelandic imports from the USSR and the Soviet Union's imports from Iceland differed significantly. The former approximated 10 per cent, on average, and the latter only 0.1 per cent. It is obvious, that the Icelandic export (fish) was not in a position to alter (lower) the respective Soviet Union's domestic prices. Thus, the Soviet Union simply *could not gain*[9] and the remaining possible gainer was Iceland. Naturally enough, one might be surprised and expect quite a different outcome. The least to be expected is that Iceland will share the risk of price variance with its trading partner.[10] Essentially it could be seen as a safeguard, like insuring or hedging. The long period contract (five-year barter trade agreement) secured in advance can be perceived in a sense as an option contract on oil deliveries. Then Iceland had to pay a "premium", i.e., higher price, for Soviet Union oil, but enjoyed stable prices (for the next five years). However, at least for the period considered here, this was not the case. As said earlier, the Icelandic oil import prices always lagged behind the trend. Actually, there is no doubt that Iceland gained. The country received the bulk of its oil imports for almost the last forty years from the Soviet Union. Iceland paid or offset to a significant extent its liabilities by trading fish which was not sellable elsewhere. But being aware that trade and policy go hand in hand we may ask how it happened. Even if the Soviet Union's welfare was in no way altered through that trade, which is a very strong assumption (because of the higher opportunity costs incurred), it may not have been enough to have justified the existence of this trade from the Soviet point of view. Moreover, the Soviet Union utility function most likely included not only the country's gain with a positive sign, but also the trading partners gain with a negative sign. The latter factor was especially important during the cold war period (the period under discussion) when the East and the West always considered not only their own gain from trade, but even more importantly not allowing any significant gain to the other party. If so, then what was the Soviet Union gain? But there is still another factor to be taken into account, namely the difference in tastes. We could accept this opportunity and keep everybody happy. This works as follows: the consumers in the Soviet Union have different tastes as compared to Icelandic consumers. They have a strong preference for consuming salted herring and other types of Icelandic fish at low stage of processing. Then by getting higher satisfaction (utility; use value) from Iceland's

[9] We use *cannot gain* in a sense, that because of the huge Russian fish market the relatively insignificant quantity of Icelandic fish supplied there cannot alter Russian price level, so the consumers welfare cannot be improved. However, certainly Iceland can lose.
[10] This idea was suggested by Prof. Gudmundur Magnússon

export the Soviet consumers wer fully compensated for the quantity of oil exported. For this to be true we must accept the notion that everything has only comparative value, and nothing has an absolute value. But without going so deep into the matter there is enough evidence to be found on the Soviet Union market. Most importantly if the Icelandic herring was of superior quality to Soviet Union consumers this worth should have been reflected in its price. The actual case was quite different as the herring bought from Iceland never sold under its own name, but was lumped together with the local (Soviet Union) catch of Atlantic herring. Furthermore, there were five types of herring on the market, the Atlantic falling within the less popular group.[11] Interestingly, at the same time the import price for salted (Atlantic) herring paid by the Soviet Union to Iceland was significantly higher than the one paid to the other suppliers (cf. table 7).

Table 7

	1958	1959	1960	1961	1962	1963	1964	1965
Iceland	186,2	185,9	186,8	197,7	197,8	219,7	225	222,7
Denmark	155	...	...	...	194,4	202,4	187,4	177,4
Great Britain	146,5	127,3	122,5	...	...	...	...	...

Note: All prices are in roubles per metric ton
Source: Vneshnaya Torgovlya, Moskva, various issues

Nothing is left but to examine the possible noneconomic gains and see if they could give some reasonable explanation of the situation. It is known that Iceland's geographical position used to be of great importance from a strategical point of view during the cold war. It is not a mere coincidence that there is a NATO naval station at Keflavik run by the US navy, nor was the Soviet Union military presence a coincidence (though unofficial) until the collapse of communism. At the same time, Iceland's strategically important position used to be the only reliable weapon for a number of Icelandic governments in their attempts to get access to broader fishing areas. As Archer for example points out (1988:171):

> "Until 1976 Iceland had a series of fishing disputes with a major NATO country - the United Kingdom - and, until 1974, the presence of the US base at Keflavik was an active political issue in Icelandic politics. Both questions produced negative views of NATO .... the 1976 settlement of the fisheries dispute with Britain, an outcome which a number of NATO countries facilitated, helped to remove for Icelanders two major political stigmas from NATO."
>
> (Clive Archer 1988:171)

[11] Direct communication with the Russian Trade Representation in Iceland

It is quite plausible that under such circumstances the Soviet Union would pay some price for being present in Iceland. This was nothing unusual for Soviet Union foreign policy; moreover, the implicit subsidy paid to Iceland in exchange for noneconomic gains obtained (whatever they may have been) were relatively insignificant. We cannot calculate any exact amounts, but as total Soviet exports to Iceland never exceeded 100 mill US dollars per year the magnitude of the implicit subsidy should remain up to this level[12]. Practically they must have been much lower. For comparison, Soviet economic aid extended only to Cuba and only as a subsidy on petroleum products, equaled 345 mill dollars in 1983, and total aid to the same country was 4.260 mill dollars for the same year.

Let's see if we can explain the change in payments arangements (transition to hard currency) in 1976 within this framework. Speaking in political terms, Iceland spent its political trump - thought not for nothing by threatening to leave NATO if the 200 mile fishing limit was not granted. After the desired fishing limit had been conceded, either the implicit probability for movement towards the Soviet bloc vanished or the Soviet Union had much less to gain. Or the requirement that oil deliveries should be paid in convertible currency was a small punishment for Iceland's strengthened connections with NATO. However, the bilateral trade system with quotas specified by quantity never changed until the break-up of the USSR.

[12] Unless direct transfers took place

4. Concluding remarks

The nature of the Icelandic economic system was rather close to the ex-CMEA[13] economic mechanism. The state interfered in trade directly, and also through a system of subsidies, taxes, and different exchange rates for different cases. In this particular case, this brought high returns to oil importing and fish exporting companies, which now understandably are reluctant to switch to new trade arrangements. These high returns (resulting from the restrictive practices) came also at the expense of consumers.

However, it can be argued that this is an effective way for public investment financing. Or, in other words, if the super-profits are collected by the state, the proceeds might be used in the same way as the proceeds from a tax.

The bilateral quota system gave Iceland an additional advantage. Payments were made (accounts kept) in Icelandic krónas. The króna fluctuated significantly and not uniformly, influencing the trade balance between the countries and the level of indebtedness.

How to deal with the problem within fundamentally changed conditions? Although the trade relations between the USSR and Iceland could be regarded as being of small importance from the USSR's point of view, and seems to be so far forgotten by Iceland, do they have any economically justifiable future? Is it possible that the importance and opportunity for mutually beneficial trade are underestimated? Whatever the truth, it seems likely that the two countries, Russia and Iceland, cannot continue their trade relations under the old Soviet Union - Icelandic rules.

New trade conducted directly by the economic agents at freely contracted prices should be established. Eventually the liberalization of trade should improve the allocation of the factors of production and increase output. Of course, for this to be valid we must assume perfect competition or something close to it (a rather strong assumption for Iceland). But even if perfect competition is assumed, no change in the trade regime will reduce the volume of inputs needed to generate a specific output. This fact bears upon our problem in two ways. First, although the trade regime with the Soviet Union might have had an injurious effect on the long-run development of output (through Soviet oil over dependence of the Icelandic economy), a certain compensation (a greater quantity of oil than otherwise obtainable) had been provided. Second, the process we are dealing with takes time to reveal its ultimate effects.

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[13] Council of Mutual Economic Assistance - founded in January, 1949 by the USSR, Bulgaria, Czechoslovakia, Hungary, Poland and Romania. Albania joined in 1949 and cancelled its membership in 1961. The German Democratic Republic joined in 1950, Mongolia in 1962, Cuba in 1972, and Viet Nam in 1978. In 1964 Yugoslavia was given associate status. Afghanistan, Angola, China, Ethiopia, Laos, Mozambique, Nicaragua and Yemen participated as observers. Finland, Iraq and Mexico had co-operative agreements. CMEA ceased to exist in 1991.

If the obstacles to a resumption of trade seem difficult to overcome, Iceland should remember the reliability of Soviet oil deliveries, and Russia must not forget that any future communications with North America will have to pass through Iceland.

Appendix A

Petroleum products imported into Iceland

Year	Quantity, total imports in metric tons	Quantity, imports from USSR in metric tons	Value, total imports in "000" ISK	Value, imports from USSR in "000" ISK
1953	283260,5	39066,1	159150	18143
1954	242593,2	218380,1	134708	98786
1955	269089,2	231286,3	150456	103674
1956	292142,6	265411	186124	146299
1957	315551,3	294489,6	242049	207896
1958	344724,7	322213,3	189578	155132
1959	397725	346769	217990	155326
1960	383465,3	356092,2	408006	322835
1961	346310,1	322424,9	431474	348456
1962	378485,9	306225	470274	326555
1963	433127,2	352399	511715	369093
1964	422760,1	339218	501375	345999
1965	466976,1	391645	511672	362123
1966	489885,2	403689	507142	364111
1967	496328,8	386439	550779	359510
1968	549597,3	415868	869175	576358
1969	438316,7	358347	1038456	748436
1970	522041	370778	1249413	792651
1971	519478,3	421330,3	1508851	1100165
1972	521988,4	379698	1490563	935504
1973	663601,1	490759	2421933	1637722
1974	622933,5	468179,7	6208126	4443451
1975	552369,1	442363,4	9127463	7007731
1976	502680,6	424116,3	10205537	8266809
1977	622308,6	434809,7	15109450	9754068
1978	606470,6	430142	21261453	13560565
1979	641605,1	374795,5	55257812	29921329
1980	564466,8	358219,6	76833992	42881352
1981	540520,3	292561,1	1153954	557330
1982	509937,5	328909,5	1688097	968778
1983	480594,4	339836,5	3108382	1990631
1984	483732,9	305803,7	3833768	2245225
1985	522720,7	290494,7	5376718	2718428
1986	534369,5	337071,1	3864548	2226087
1987	593366	333711,4	4055860	2018580
1988	563612	319635	3853396	1827697
1989	644344,8	333963,8	6319602	2751791
1990	658344,9	360709,6	8694214	3936476
1991	554007,5	240414	7717120	2673074
1992	663342,3	109249,8	7425742	743537

Source: *Trade Statistics*, The Statistical Bureau of Iceland, various issues

Appendix B

The Soviet Union's average cost of oil and associated gas, 1970-1990
(In roubles per ton or roubles per 1000 cubic metres)

Year	Cost, including geology fee	Cost, excluding geology fee
1970	4.56	3.57
1971	4.65	3.66
1972	4.74	3.74
1973	5.15	4.15
1974	5.59	4.58
1975	6.07	4.37
1976	6.63	4.83
1977	7.01	5.31
1978	7.54	5.84
1979	8.11	6.41
1980	8.72	7.02
1981	9.48	7.78
1982	10.48	7.25
1983	12.14	8.91
1984	14.05	10.82
1985	16.28	13.05
1986	17.68	14.45
1987	19.2	15.97
1988	20.85	17.62
1989	22.65	19.42
1990	24.59	21.36

Appendix C

Icelandic Marine Products Exported to the Soviet Union, 1953 -1992

	1953		1954		1955		1956		1957	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring										
Heilfrystur fiskur Wholefrozen fish										
Karfi Red fish										
Flatfiskur Flatfish										
Steinbítur Catfish										
Ufsi Saithe										
Ýsa Haddock										
Þorskur Cod										
Aðrar fisktegundir Others										
Fryst fiskflök Frozen fish fillets	11258,6	58925	19143,5	99219	23784,7	124095	27995,3	148259	31415,5	166690
Karfaflök Red fish fillets	*5003,4*	*25260*	*8891,9*	*46226*	*11574*	*60579*	*18955,6*	*83561*	*16004,1*	*84015*
Lönguflök Ling fillets										
Steinbítsflök Red fish fillets										
Ufsaflök Saithe fillets										
Þorskflök Cod fillets	*6254,2*	*33665*	*10451,7*	*52993*	*12212,7*	*63516*	*12039,7*	*64698*	*13407,4*	*82675*
Flatfiskflök Flatfish fillets										
Önnur fiskflök Others										
Saltsíld venjuleg Salted herring	1522,4	2692								
Saltsíld sérverkuð Salted herring*	*7299,1*	*26115*	*8767,8*	*28597*	*9869,6*	*32295*	*14185,9*	*54767*	*14913,2*	*46257*
Þorskmjöl Codmill										
Loðnumjöl Lingmill										
Lagmeti Cans										
Niðurlögð síld Canned herring	*275,9*	*1600*	*61*	*355*						

* Salted herring specially processed

	1958		1959		1960		1961		1962	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring									5000	22414
Heilfrystur fiskur Wholefrozen fish										
Karfi Red fish										
Flatfiskur Flatfish										
Steinbítur Catfish										
Ufsi Saithe										
Ýsa Haddock										
Þorskur Cod										
Aðrar fisktegundir Others										
Fryst fiskflök Frozen fish fillets	25416,2	135226	28663,5	151414	27349,5	340747	7485	116511	17984,5	280263
Karfaflök Red fish fillets	*12196,3*	*64100*	*24401,1*	*128515*	*14944,3*	*188596*	*4734,8*	*73928*	*3674,7*	*57924*
Lönguflök Ling fillets									*666,9*	*10035*
Steinbítsflök Red fish fillets							*904,6*	*14116*	*1809,9*	*29277*
Ufsaflök Saithe fillets									*1335,8*	*20041*
Þorskflök Cod fillets	*13198,5*	*71022*	*4262,8*	*22899*	*12404,2*	*152151*	*1554,3*	*24400*	*8947,6*	*136254*
Flatfiskflök Flatfish fillets	*22,4*	*104*								
Önnur fiskflök Others							*251,3*	*4067*	*1351*	*26732*
Saltsíld venjuleg Salted herring							*741*	*3312*	*13469,9*	*124456*
Saltsíld sérverkuð Salted herring*	*12177,2*	*40890*	*12384,8*	*41636*	*4921,8*	*36089*	*8554,2*	*82126*	*765*	*7263*
Þorskmjöl Codmill										
Loðnumjöl Lingmill										
Lagmeti Cans			*139,7*	*751*			*49,6*	*2458*	*31,8*	*2157*
Niðurlögð síld Canned herring							*111*	*4956*	*177,6*	*7866*

* Salted herring specially processed

	1963		1964		1965		1966		1967	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring	12063,8	63440	8297,8	34790	5332	38966	4937,4	30612	3357,4	23773
Heilfrystur fiskur Wholefrozen fish					169,3	2575	4832,2	66667	4703	71281
Karfi Red fish										
Flatfiskur Flatfish										
Steinbítur Catfish							32,8	403		
Ufsi Saithe							155,2	1900		
Ýsa Haddock					169,8	2575	1143,1	16766		
Þorskur Cod							3154,1	47067		
Aðrar fisktegundir Others							37	531		
Fryst fiskflök Frozen fish fillets	15411,6	248623	16709,2	288410	10021,7	195635	11700,2	245669	15868,3	301566
Karfaflök Red fish fillets			5394,4	*94161*	5743,3	*115319*	4307	94333	5890,4	*116177*
Lönguflök Ling fillets			*744,8*	*11738*	408,7	*7166*	617,3	11055	1462,6	*23049*
Steinbítsflök Red fish fillets			*757*	*13223*	482,1	*9510*	282,9	5138	686,7	*14306*
Ufsaflök Saithe fillets			*2047,4*	*32339*	2340,7	*44469*	2275,5	41328	3453,9	*56523*
Þorskflök Cod fillets	7000		*7653,6*	*135241*	1044,9	*19171*	3956,9	88393	4306,7	*91510*
Flatfiskflök Flatfish fillets										
Önnur fiskflök Others			*91,8*	*1708*			315,6	5422		
Saltsíld venjuleg Salted herring	12022,7	125088	7878,1	84114	1350	14321	191,8	2136	1908,8	24845
Saltsíld sérverkuð Salted herring*							582,8	6515	630	8376
Þorskmjöl Codmill										
Loðnumjöl Lingmill										
Lagmeti Cans	146	6763								
Niðurlögð síld Canned herring			114,8	6719	304,2	13966	469,2	23887	484,6	29472

* Salted herring specially processed

	1968		1969		1970		1971		1972	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring	488,6	3200								
Heilfrystur fiskur Wholefrozen fish	1016,8	61769	2287,8	70412	5577,3	149124	6757,4	158808	3999,3	96224
Karfi Red fish										
Flatfiskur Flatfish							343	*8135*	686,7	*16530*
Steinbítur Catfish							52,4	*1505*	131,8	*3168*
Ufsi Saithe							216,9	*4951*	245,4	*5902*
Ýsa Haddock							330,7	*7968*	314	*7551*
Þorskur Cod							4631,1	*114563*	1792,7	*43116*
Aðrar fisktegundir Others							971,3	*21686*	829,7	*19957*
Fryst fiskflök Frozen fish fillets	12490,4	255739	11762,7	546690	16616,1	584047	12382,8	689510	13998,9	767500
Karfaflök Red fish fillets	5825,5	*130758*	4353,5	*211633*	3411,4	*138120*	5496,2	*326073*	6423,8	*378749*
Lönguflök Ling fillets	646,4	*14434*	1909	*50827*	1194	*35527*	572,1	*29347*	412	*22033*
Steinbítsflök Red fish fillets	165,6	*3826*	46,1	*1436*	0,6	*25*	0	*0*	0	*0*
Ufsaflök Saithe fillets	4212,5	*75191*	6549,6	*172422*	7457,2	*228995*	4992,8	*226186*	6050,7	*294955*
Þorskflök Cod fillets	1350,8	*31530*	2554,4	*95807*	1468	*58976*	271,2	*1095*	320,1	*18872*
Flatfiskflök Flatfish fillets					2965,5	*117182*	1546,6	*104815*	743,3	*50432*
Önnur fiskflök Others			329,1	14565	140,4	5222	46	*1994*	49	*2459*
Saltsíld venjuleg Salted herring	8812,9	85322	2095,7	56953		1555				
Saltsíld sérverkuð Salted herring*	2132,2	33787	10,7	708						
Þorskmjöl Codmill										
Loðnumjöl Lingmill										
Lagmeti Cans		28572		60317		51119		8936	58,7	7327
Niðurlögð síld Canned herring							217,3	45010	703,5	152896

* Salted herring specially processed

	1973		1974		1975		1976		1977	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring									0	0
Heilfrystur fiskur Wholefrozen fish	4400,4	121424	1810,7	85291	5098,3	439562	4270,9	365733	3148	371736
Karfi Red fish									36,8	*4410*
Flatfiskur Flatfish	600	*21839*	421,6	*23493*	1169,8	*85119*	1460,4	*129201*	2262,9	*268411*
Steinbítur Catfish	146,7	*4630*	108,1	*5973*	136,4	*9843*	214,2	*18227*	383,6	*32949*
Ufsi Saithe	100,6	*2758*	135	*7804*	199,6	*14476*	120,2	*10529*	40,9	*4945*
Ýsa Haddock	667,1	*18176*	142	*8367*	1138,7	*81649*	427,6	*19607*	95,1	*11189*
Þorskur Cod	2034,9	*55972*	549,1	*31730*	3191,4	*219101*	2112,5	*179998*	307,3	*35620*
Aðrar fisktegundir Others	635,9	*18049*	154,7	*7924*	283,3	*29374*	126,6	*8171*	112,9	*14212*
Fryst fiskflök Frozen fish fillets	7816,1	461467	14374,6	1577026	17234,8	2429070	9478,6	1635394	9404,2	2438891
Karfaflök Red fish fillets	1587	*113039*	7760,6	*889884*	6767,8	*1306976*	5284,3	*1081830*	4554,9	*1232278*
Lönguflök Ling fillets	89,9	*2436*	346	*73896*	913,4	*135717*	402,6	*78158*	270,4	*72617*
Steinbítsflök Red fish fillets	0	*0*	1271,5	*140564*	741,3	*108447*	347,9	*68934*	430,6	*115674*
Ufsaflök Saithe fillets	5191,9	*306690*	4139,9	*411702*	5389,6	*812663*	2501,5	*339904*	3126	*414288*
Þorskflök Cod fillets	0	*0*	0	*0*	0	*0*	0	*0*	0	*0*
Flatfiskflök Flatfish fillets	170,8	*13105*	529,3	*58006*	274,8	*40316*	257,5	*47841*	2169,1	*581322*
Önnur fiskflök Others	826,5	*26197*	24,8	*2974*	171,7	*24951*	59,9	*18727*	83,9	*22712*
Saltsíld venjuleg Salted herring							3458,5	517409	2364,8	319625
Saltsíld sérverkuð Salted herring*									1657,5	397329
Þorskmjöl Codmill			5203	190311	6987,4	283316			1000	81260
Loðnumjöl Lingmill			4296,8	193886	13036	900986			13778,5	1134278
Lagmeti Cans				16137		15390				
Niðurlögð síld Canned herring	427,8	73223	159	53373	392,4	174925	628,7	421466	1123,9	836336

* Salted herring specially processed

	1978		1979		1980		1981		1982	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring										
Heilfrystur fiskur Wholefrozen fish	2503	421490	3413,1	916904	2062,4	917147	4092,4	18997	8657,2	53285
Karfi Red fish	1,4	*212*	66,9	*15768*	32,1	*9993*	345,7	*1811*	4,8	*44*
Flatfiskur Flatfish	202,6	*340350*	2366,2	*577396*	2455,3	*854318*	3268,9	*15087*	5343,1	*51114*
Steinbítur Catfish	405,2	*34805*	164,8	*42997*	47,2	*14651*	177,1	*806*	224,4	*1585*
Ufsi Saithe	1,4	*219*	118,4	*29023*	0	*0*	6,4	*24*	0	*0*
Ýsa Haddock	0,9	*154*	134,5	*31375*	0	*0*	61,3	*294*	24,7	*178*
Þorskur Cod	38	*5749*	604,8	*142590*	100,6	*30185*	189,6	*851*	33,6	*221*
Kella Torsk			293,2	*66773*	13,1	*3919*	8,3	*39*	8,5	*64*
Aðrar fisktegundir Others	249,3	*40001*	44,6	*10982*	13,7	*4081*	17,8	*85*	12	*79*
Fryst fiskflök Frozen fish fillets	5174,6	2777326	5227,4	4699924	18280,3	13814677	16281,4	187061	17490,4	321038
Karfaflök Red fish fillets	3746,1	*1560001*	4436,1	*2577159*	11142,9	*8651167*	12614,8	*149148*	13603,2	*253415*
Löngueflök Ling fillets	269,2	*118930*	317	*173354*	574,1	*646888*	409,6	*4666*	298,6	*4882*
Steinbítsflök Red fish fillets	496,9	*206672*	358,4	*192158*	460,3	*324999*	637,4	*7381*	842,2	*8933*
Ufsaflök Saithe fillets	305	*98016*	335	*298819*	1304	*780763*	420,6	*3652*	611,6	*6840*
Keiluflök Torsk fillets			195,2	*106023*	65,4	*44867*	5,4	*58*	9,3	*134*
Þorskflök Cod fillets	0	*0*	0	*0*	0	*0*	0	*0*	1636,1	*27229*
Flatfiskflök Flatfish fillets	1279,9	*723069*	2302,7	*1352411*	4453,1	*3365993*	1866,3	*21185*	1257,6	*19579*
Önnur fiskflök Others	173,3	*70638*	0	*0*	0	*0*	107,5	*971*	1,8	*26*
Saltsíld venjuleg Salted herring	4738	681611	1673,8	429776	1767,4	579676	2227,3	13390	3128,8	27783
Saltsíld sérverkuð Salted herring*	2881,2	686912	3159,1	1187797	4204,8	2485196	12542,4	106509	11730,8	143957
Þorskmjöl Codmill	0	0			0	0	0	0		
Loðnumjöl Lingmill	0	0			0	0	0	0		
Lagmeti Cans										
Niðurlögð síld Canned herring	1049	1136063	625,4	966127	626,8	1425119	713,9	23481	619,6	34561

* Salted herring specially processed

	1983		1984		1985		1986		1987	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring									0,1	2
Heilfrystur fiskur Wholefrozen fish	5935,9	96509	5857,2	130070	5246,6	150922	5405,7	155488	1781,5	63444
Karfi Red fish	*73,3*	*1069*	*12,4*	*235*	*27,7*	*803*	*20,2*	*592*	*0*	*0*
Flatfiskur Flatfish	*4911,6*	*79416*	*5877,5*	*111963*	*3540,6*	*101730*	*3913,4*	*114537*	*1412,5*	*49668*
Steinbítur Catfish	*382,9*	*6066*	*244,1*	*4629*	*198,4*	*5704*	*114,6*	*3341*	*27,3*	*935*
Ufsi Saithe	*169,3*	*2991*	*152,6*	*3065*	*439,2*	*12629*	*276,4*	*8253*	*22,9*	*903*
Ýsa Haddock	*73,6*	*1087*	*3,4*	*68*	*17,6*	*522*	*15,5*	*456*	*9,3*	*384*
Þorskur Cod	*175,2*	*2768*	*381*	*7724*	*718*	*20597*	*475,1*	*13877*	*167,2*	*6076*
Kella Torsk	*94,2*	*2518*	*90*	*1857*	*241,2*	*6952*	*456,7*	*13423*	*162,6*	*5203*
Aðrar fisktegundir Others	*33,5*	*594*	*25,6*	*529*	*58,1*	*1985*	*34*	*1009*	*9*	*275*
Fryst fiskflök Frozen fish fillets	19514,6	698518	14436,9	664488	15489,3	895135	14039,9	901311	10337,1	850986
Karfaflök Red fish fillets	*16271,2*	*578961*	*11595,2*	*535800*	*10174,6*	*646879*	*8061,9*	*558813*	*5674,9*	*488253*
Lönguflök Ling fillets	*638,9*	*22188*	*262,8*	*12011*	*599,9*	*24952*	*642,7*	*45659*	*375,1*	*32374*
Steinbítsflök Red fish fillets	*798,8*	*25400*	*630,2*	*35178*	*747*	*46649*	*892,3*	*54667*	*376,9*	*32461*
Ufsaflök Saithe fillets	*1041*	*31903*	*254,2*	*9481*	*3890,9*	*165133*	*3213,4*	*155307*	*3727,7*	*282637*
Kelluflök Torsk fillets	*31,9*	*1181*	*25,1*	*1169*	*109,4*	*6905*	*221,2*	*15419*	*89,9*	*7587*
Þorskflök Cod fillets	*4,3*	*80*	*0*	*0*	*0*	*6*	*25,4*	*737*	*0*	*0*
Flatfiskflök Flatfish fillets	*936,2*	*38716*	*1866,9*	*70849*	*73,9*	*4608*	*1042,7*	*70701*	*89*	*7674*
Önnur fiskflök Others	*4,3*	*89*	*0*	*0*	*0*	*3*	*0*	*8*	*0*	*0*
Saltsíld venjuleg Salted herring	4200,3	69554	7261,9	208664	12572,6	386162	15625,3	521230	13856,6	569664
Saltsíld sérverkuð Salted herring*	11947,5	272707	12489,1	410480	9184,9	363964	0	0	0	0
Þorskmjöl Codmill										
Loðnumjöl Lingmill										
Lagmeti Cans										
Niðurlögð síld Canned herring	717,6	85330	720,9	94267	584,4	96928	976,6	141133	1039,7	160840
Fisklifur niðursoðin Fish leaver	46	2471	100,1	6959	81,9	7748	85,2	8995	169,8	20025

* Salted herring specially processed

	1988		1989		1990		1991		1992	
Vörulýsing Commodity	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"	Tonn	ISK "000"
Fryst síld Frozen herring									61,4	1174
Heilfrystur fiskur Wholefrozen fish	1152,4	56838	689,7	37531	208,2	13902	0	0		
Karfi Red fish	*12,8*	*875*	*45,7*	*2404*						
Flatfiskur Flatfish	*178,4*	*8993*	*79,8*	*4312*	*74,6*	*4171*				
Steinbítur Catfish	*26*	*1353*	*25,3*	*1416*						
Ufsi Saithe	*40,9*	*2049*	*13,4*	*700*						
Ýsa Haddock	*19,5*	*948*	*17,7*	*926*	*1,1*	*66*				
Þorskur Cod	*248*	*11711*	*46,4*	*2291*						
Kella Torsk	*71,4*	*3455*	*45,7*	*2446*	*92,1*	*5297*				
Aðrar fisktegundir Others	*648,7*	*27454*	*416,4*	*23036*	*40,4*	*4368*				
Fryst fiskflök Frozen fish fillets	9811,7	925198	5999,7	992336	4365,2	838619	0	0		
Karfaflök Red fish fillets	*4940,6*	*516235*	*3636*	*471682*	*3851*	*505476*				
Löngueflök Ling fillets	*107,1*	*11178*	*103,2*	*12667*	*56,1*	*7894*				
Steinbítsflök Red fish fillets	*178,2*	*17901*	*134,4*	*16223*	*38,6*	*4991*				
Ufsaflök Saithe fillets	*3098,8*	*349493*	*1600,6*	*331843*	*272,1*	*317167*				
Kelluflök Torsk fillets	*35,9*	*3494*	*19,8*	*2470*	*21,4*	*3091*				
Þorskflök Cod fillets										
Flatfiskflök Flatfish fillets										
Önnur fiskflök Others	*250,9*	*26897*	*1305,7*	*157451*						
Saltsíld venjuleg Salted herring	2257,8	105694	12962,4	667662	14958,6	872710	0	0	500,1	22814
Saltsíld sérverkuð Salted herring*	17496,9	577038								
Þorskmjöl Codmill										
Loðnumjöl Lingmill										
Lagmeti Cans										
Niðurlögð síld Canned herring	1124,1	252331	1089	284112	663,9	174276			10,3	1341
Fisklifur niðursoðin Fish leaver	46	7845			43,1	9696			4,8	781

* Salted herring specially processed

Source: Trade Statistics, The Statistical Bureau of Iceland, Various issues

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