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INDUSTRIAL DEVELOPMENT IN AN OPEN ECONOMY:  
THE CASE OF NORWAY

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This paper examines the strategy of industrial development followed by Norway in the postwar period. It is shown that Norway has been successful in expanding its manufacturing industry in the framework of an open economy with low tariff barriers. Foreign competition has contributed to the efficient operation of Norwegian firms while the maintenance of realistic exchange rates and low duties on imported inputs have permitted the expansion of exports. The result has been a rapid expansion of manufacturing industries, characterized by an export orientation. The expansion of the manufacturing sector has involved a shift towards industries with a high labor skill requirement, as well as to a higher level of processing. There has also been a tendency toward intraindustry specialization: Norwegian firms specialize in narrow ranges of products for domestic use and for exports while other varieties are imported.

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Industrial Development in an Open Economy:

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Bela Balassa

I

In the period following the Second World War, the need for protection to foster manufacturing industries in primary exporting countries was widely argued. With import substitution as the principal objective, generous margins of protection were provided for domestic firms while the cost of the protective measures to the national economy received little attention. <sup>1/</sup> At the same time, the incentives accorded to import-competing industries, the high cost of protected inputs, and the over valuation of the exchange rate associated with high trade barriers all entailed discrimination against export activities. The newly-developed manufacturing industries of these countries are therefore geared to supply the sheltered domestic market and do not have to meet the test of the world market.

While permitting the expansion of manufacturing industries, this policy has led to the establishment of inefficient firms in various developing countries of Latin America and Asia. <sup>2/</sup> Moreover, continuing high levels

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<sup>1/</sup> As an ECLA official noted in regard to Latin America, the basic objective was "import substitution at any cost, regardless of which industries it is more expedient to develop and how far the process should be carried". (Santiago Macario, "Protectionism and Industrialization in Latin America, Economic Bulletin for Latin America, March, 1964, p. 61)

<sup>2/</sup> For a discussion of the Latin American case, see my "Integration and Resource Allocation in Latin America", in The Next Decade of Latin American Development (Tom Davis ed.) forthcoming.

of protection in these countries do not provide inducement for improvements in efficiency and thus the life of high cost industries tends to be perpetuated. Accordingly, whereas the infant industry argument calls for the use of protective measures for a limited period to permit the industry to become competitive in the world market, in case of the indefinite maintenance of protection the industry may never "grow up" and the misallocation of resources will provide obstacles to further industrial development

These adverse consequences have recently led to a reappraisal of trade policies in several of the developing countries. Emphasis is given to changing the mix of trade and exchange rate policies, with a view to reducing the extent of protection accorded to import-competing industries and encouraging exports. The search for new policies draws attention to the experience of countries that expanded their manufacturing industries in the framework of an open economy with low protective barriers. In the postwar period, Norway and Denmark provide examples of this type of policy in Western Europe,

Until the Second World War, primary products and industrial goods at the lower stages of transformation characterized the export pattern of both of these countries. However, they subsequently increased the exports of manufactured goods at a rapid rate, thereby providing a stimulus to the expansion of manufacturing industries. The experience of Norway and Denmark is of additional interest since it indicates the possibilities of expanding manufacturing exports in countries where relatively high wage levels have been reached due to high productivity in primary activities and in industries at lower stages of transformation.

The present investigation is limited to Norway because the availability of input-output tables on an annual basis makes possible detailed comparisons

over time. 1949, 1953, 1958, 1961 and 1966 have been selected as benchmark years. By 1949 the damage suffered during the Second World War was virtually restored; 1953 was the first post-Korean peace year; 1958 preceded the establishment of the European Free Trade Association; by 1961 tariffs on intra-EFTA trade in nonagricultural products were reduced 20 percent; and by the end of 1966 tariffs on all such trade were abolished.

## II

As an introduction to the discussion, the structure of the Norwegian economy in the early postwar period will be briefly described. We shall distinguish among primary producing activities, industries producing intermediate products at lower stages of transformation, and manufacturing industries proper. The first group includes agriculture, fishing and whaling, forestry, and mining; the second encompasses processed food, processed fish, pulp and paper, fertilizers and carbide, unwrought nonferrous metals, and ferroalloys; the third comprises commodity classes 5 to 8 of the UN Standard International Trade Classification less paper, fertilizers, carbide, unwrought metals and ferroalloys. This classification permits us to separate the production of primary goods and standardized products requiring relatively simple technological processes from manufacturing taken in a narrower sense. Apart from the basic electro-chemical industry (fertilizers and carbide), industries producing primary commodities and intermediate products will further be combined into four major sectors, so that one can indicate changes in the relative importance of processing activities within each. The sectors in question are agriculture and processed food; fisheries and fish processing; forestry and forest products; and mining, nonferrous metals and ferroalloys.

In the base year, 1949, primary activities accounted for 41.6 percent of value added in the commodity producing sectors, intermediate products at lower stages of transformation for 21.3 percent, and manufactured goods for 37.1 percent (Table 1). Among primary activities, agriculture was of greatest importance, followed by forestry, fishing and whaling, and mining. The ranking is the same in regard to the intermediate goods produced in these sectors except that unwrought metals and ferroalloys, which in large part use imported materials, rank higher than processed fish.

Comparisons with other countries at similar levels of industrialization are of further interest. In semi-industrial countries, value added in the industrial sectors -- including intermediate as well as final production -- amounted to 25-30 percent of the gross domestic product in 1950; the relevant figures are Argentina 30 percent, Denmark and Norway 28 percent, and Japan 25 percent. By contrast, in the major developed countries of Western Europe (France, Germany and the United Kingdom) this share was in the 38-40 percent range. <sup>1/</sup> But intermediate products at lower levels of transformation accounted for a higher proportion of value added in the industrial sector in Norway than elsewhere, so that Norway was behind these countries in terms of the share of manufacturing as defined above. Around 1950, the share of manufacturing in the gross national product was 15 percent in Norway, as compared to 17 percent in Denmark and Japan, 21 percent in Argentina and 27 to 29 percent in France, Germany and the United Kingdom. <sup>2/</sup>

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<sup>1/</sup> United Nations, Yearbook of National Accounts Statistics, - 1964, New York, 1965

<sup>2/</sup> Ibid and United Nations, The Growth of World Industry, 1938-1961, New York, 1963. -- Data for the manufacturing sector refer to value added in the case of Argentina, Germany, Norway and the United Kingdom and to employment in Denmark, France and Japan. For each country available figures for a year nearest to 1950 have been used.

It should be added that the intermediate goods produced in Norway are material intensive and/or utilize large amounts of electrical energy; hence, their share in the commodity producing sectors was much greater in terms of production value (39.6 percent) than in terms of value added (21.3 percent). The importance of these products for the Norwegian economy is put in even stronger focus if we consider their contribution to exports. Intermediate products at lower stages of transformation provided nearly four-fifths of Norwegian merchandise exports in 1949, with processed fish and pulp and paper each providing one-fourth of the total (Table 2). <sup>1/</sup>

In turn, manufacturing activities were oriented towards the home market. Only 3 percent of output was exported in 1949, and manufactured goods accounted for less than one-tenth of merchandise exports. Consumer goods industries were created behind moderate protection to cater to domestic needs, the manufacture of wood and cork products benefited from the availability of cheap raw material, while the engineering industry specialized in shipbuilding and in machinery used for the processing of domestic materials. <sup>2/</sup> At the same time, despite the quantitative restrictions applied for balance-of-payments reasons, over one-fourth of the domestic consumption of manufactured goods was provided by imports.

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<sup>1/</sup> The paper does not consider the contribution of shipping services to foreign exchange earnings. These amounted to 42 percent of the exports of goods and services in 1949 and 38 percent in 1966. International Monetary Fund, Balance of Payments Statistics.

<sup>2/</sup> For a detailed description, see Norges Industriforbund, Industry in Norway, Oslo, 1951.

III

It appears then that in the early postwar period Norway showed the characteristic features of a semi-industrialized country. Although various manufacturing activities were established, primary activities and the relatively simple transformation of foods and raw materials had a preponderant place in the Norwegian economy. The development of these sectors reflected the availability of natural resources and hydroelectricity, and they supplied much of Norway's export earnings.

But, given the limitations of fishing, forestry and mining resources, the continuation of this pattern of specialization would not have permitted a full utilization of all productive factors and a rapid rate of growth of the Norwegian economy. <sup>1/</sup> Accordingly, Norway faced the choice between an inward-looking and an outward-looking strategy of industrial development, i.e. between import substitution and export-based expansion. The decision was made for the latter, with appropriate policy measures taken to stimulate exports and to increase foreign competition in domestic markets.

In the early part of the period, successful efforts to maintain price stability contributed to the profitability of sales in foreign markets, and exports were also favored by the government's investment policy. <sup>2/</sup> Subsequently, the maintenance of realistic exchange rates and low tariffs on

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<sup>1/</sup> On this point, see Alice Bourneuf, Norway -- A Planned Revival, Cambridge, Mass., Harvard University Press, 1958, p. 11.

<sup>2/</sup> Cf. Alice Bourneuf, Norway -- A Planned Revival, Ch.6 and 7 and The Norwegian Long-Term Program, 1954-1957, Oslo, 1957.

imported inputs benefited exports. In turn, the domestic market became increasingly open to foreign competition as quantitative restrictions were abolished and Norway proceeded with reductions in tariffs. <sup>1/</sup>

As a result, Norwegian import duties are not only substantially lower than in the semi-industrial countries of Latin America, where tariffs on manufactured products are mostly in the 100-200 percent range, but are also below the tariff levels of the major industrial countries. In 1958, the year for which comparable data are available, Norwegian tariffs on manufactured goods averaged 11.7 percent while the corresponding figures for the United Kingdom were 18.2 percent, for the European Common Market 14.5 percent and for the United States 16.8 percent. <sup>2/</sup> At the same time, aside from some agricultural goods, quantitative restrictions are not applied in Norway.

We can thus classify Norway as a low-tariff country even in comparison with the major developed nations that possess a highly advanced manufacturing sector. Furthermore, the structure of protection contains fewer peaks and valleys in Norway than in the United States and Britain, so that selected industries are not protected at the expense of others. <sup>3/</sup> In 1958, Norwegian

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<sup>1/</sup> As regards the liberalization of trade, it is interesting to note that while participation in the OECD required the dismantling of quantitative restrictions, the pressures were less strong in regard to reductions in duties. In multilateral tariff negotiations undertaken in the framework of GATT, the United States and the larger European countries were the major bargaining partners and reciprocity on the part of small countries was of secondary importance. Nevertheless, Norway has chosen to reduce tariffs to a considerable extent during the postwar period.

<sup>2/</sup> Weighted averages of tariffs for 91 three and four digit SITC categories derived from Political and Economic Planning, Atlantic Tariffs and Trade, London, 1962, Allen & Unwin, pp.3-62. -- In the averaging, the combined imports of the OECD countries have been used as weights while the PEP tariff data for the individual categories are unweighted averages.

<sup>3/</sup> This comparison does not hold for the EEC where the averaging of the tariffs of the member nations reduced the dispersion of duties.

tariffs exceeded 20 percent in only 11 of the 91 industrial categories while this was the case in 37 categories in the U.S. and 35 categories in the U.K. Norwegian duties are the highest on synthetic materials and fabrics, clothing and travel goods, and on passenger automobiles. As Norway does not produce automobiles, tariffs have the function of an excise tax in this case.

Changes in Norwegian attitudes towards economic integration are of further interest. Along with Denmark and Sweden, Norway participated in negotiations for the establishment of a Nordic Union in the early postwar period. But the talks were unsuccessful, largely because of Norway's reluctance to face Swedish competition in a customs union of the Scandinavian countries. Opposition was especially strong on the part of industrialists who feared that they would not be able to stand up to the more advanced Swedish industry. <sup>1/</sup> A further contributing factor was that the traditional Norwegian export products were subject to low duties while tariffs on imports of manufactures were at the time higher in Norway than in other Scandinavian countries.

Attitudes had changed, however, by 1958 when the Norwegian industrial federation joined similar organizations of the other Scandinavian countries, Austria, Switzerland and the United Kingdom in calling for the establishment of an all-European free trade area. Apparently, the ability of domestic producers to meet foreign competition despite reductions in tariffs in the postwar period, their increasing success in exporting manufactured goods, and the fear of being cut off from the markets of the participating countries,

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<sup>1/</sup> For a detailed account of the negotiations, see Frantz Wendt. The Nordic Council and Co-operation in Scandinavia, Copenhagen, Munksgaard, 1959. See also Stanley V. Anderson, The Nordic Council, Seattle, The University of Seattle Press, 1967, ch. 6.

led many industrialists to favor this scheme. It was further understood that the thrust of Swedish competition would not be concentrated on the Norwegian industry while producers expected to gain in the hitherto highly protected markets of the United Kingdom.

After the breakdown of negotiations for an all-European free trade area, Norway became one of the founding members of the European Free Trade Association, established in 1959. The other member countries of EFTA are Austria, Denmark, Portugal, Sweden, Switzerland, the United Kingdom and, in an associate status, Finland. Since its creation, tariffs on intra-EFTA trade in non-agricultural products have been successively reduced and ultimately eliminated.

#### IV

The policies followed in the postwar period have provided both the stick and the carrot of foreign competition in Norway. Rather than being sheltered from foreign competition, domestic industries have had to compete with imports. In turn, cost reductions obtainable in large-scale production have induced firms to search for export markets and these incentives have not been frustrated by the disadvantages of overvalued exchange rates and high input prices observed in semi-industrial countries which follow an inward-looking strategy. Thus, the process of industrial transformation has taken place in the framework of an open economy with considerable emphasis on exports, and the Norwegian manufacturing industry has had to meet the test of the world market at home as well as abroad.

The export orientation of manufacturing industries has led to a rapid rise of exports. Between 1949 and 1966, the volume of exports of manufactured goods grew more than twelve times, and their share in merchandise exports increased from 9 percent in 1949 to 31 percent in 1966. In the same period, the average ratio of exports to manufacturing output rose from 3 to 16 percent, with their incremental ratio exceeding 25 percent (Tables 1, 2 and 3). Even larger was the increase of exports as a proportion of value added which is a more appropriate measure of the effects of exports on the growth of manufacturing. Between 1949 and 1966, exports accounted for two-thirds of the increment in value added in manufacturing industries, as against a ratio of 8 percent in 1949.

The impact of exports on the growth of manufacturing in Norway was of especial importance after the establishment of the European Free Trade Association. This is shown by increases in both the incremental export-production and export-value added ratios; between 1949-58 and 1958-66 the former rose from 21 to 26 percent and the latter from 46 to 80 percent. As a result, the rate of growth of output accelerated; value added in manufacturing grew at an annual rate of 4.7 percent in the first period and 5.8 percent in the second.

While exports contributed to the growth of manufacturing in Norway, none of the commonly used measures of import substitution show evidence of import replacement. Thus, the share of imports in the consumption of manufactured goods rose from 26 percent in 1949 to 29 percent in 1958 and to 39 percent in 1966, indicating an acceleration after the establishment of EFTA. <sup>1/</sup>

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<sup>1/</sup> Similar trends are shown in the ratio of imports to the sum of production and imports, a measure of import substitution suggested by H.B. Chenery, ("Patterns of Industrial Growth", American Economic Review, September, 1960, p. 640). This ratio increased from 25 percent in 1949 to 27 percent in 1958, and 35 percent in 1966.

The results are explained by the fact that, apart from providing inducements to exports, an outward-looking strategy of industrial development also stimulates imports through the liberalization of trade.

V

The expansion of manufacturing industries brought about an increase in the share of this sector in value added in commodity production from 37.1 percent in 1949 to 48.4 percent in 1966: three-fifths of the increment of value added in the commodity producing sectors was in manufacturing during this period. In turn, the share of primary producing activities declined from 41.6 to 24.4 percent, and that of intermediate products at lower stages of transformation rose from 21.3 to 27.2 percent. Apart from the limitations of the domestic material base, the shift from primary activities to industries at lower stages of transformation reflects the growing importance of processing as well as the increased reliance on hydroelectricity. In fact, the expansion was the most rapid in industries using large amounts of electricity: fertilizers and carbide as well as ferroalloys and non-ferrous metals (chiefly aluminum).

We consider next the changes that occurred in the four major non manufacturing sectors: agriculture and processed food; fisheries and processed fish; forestry and forest products; and mining, ferroalloys and non-ferrous metals. The share of agriculture and food processing in value added in commodity production declined from 29.4 percent in 1949 to 20.1 percent in 1966. The entire decline took place in the share of crops and livestock, where production remained stationary although productivity increased. The soil and

climatic conditions for Norwegian agriculture being unfavorable, the result has been an improvement in the efficiency of resource allocation in the national economy. In turn, value added in food processing nearly doubled and exports rose at a somewhat higher rate.

Among primary activities, fishing and whaling also increased at a low rate in the period under consideration. With the continuing establishment of processing plants, increases were more rapid in value added in fish processing, and there was a shift towards the exportation of fish in processed form. Thus, a one-half decline in the exports of raw fish between 1949 and 1966 was accompanied by a doubling of the exports of processed fish. Still, limitations in the catch led to a decrease in the share of fishery products in commodity exports from one-third in 1949 to one-seventh in 1966.

Similar developments occurred in the case of forest products. Thus, supply limitations led to a decline in value added in forestry, yet the share of pulp and paper in commodity output increased. Also, Norway virtually ceased to export logs and pulpwood while the combined exports of pulp and paper more than doubled, with paper gaining at the expense of woodpulp. Nevertheless, the combined share of forest products in Norwegian exports fell from 28.5 percent to 15.3 percent.

On the other hand, the share of non-ferrous metals (aluminum and to a lesser extent nickel and copper) and ferroalloys in commodity production and exports increased during the 1949-66 period. Supply limitations did not play a role here since Norwegian aluminum production relies on imported bauxite and alumina, and nickel and copper ores as well as most alloying metals are also imported. Moreover, these industries benefited from the availability of

hydroelectricity. This explains the rapid expansion of their sales abroad, with Norwegian aluminum increasing its share in the world market. Similar factors have contributed to the rise in the share of basic electro-chemical products in commodity production as well as in exports.

## VI

Further interest attaches to changes within the manufacturing sector. As noted above, until 1949 manufacturing industries were oriented towards the domestic market in Norway. Sales abroad accounted for only 3 percent of output, ships being the largest single item. Exports of textiles, clothing, steel and machinery were negligible or nonexistent, while imports provided over one-fourth of the domestic consumption of manufactured goods and exceeded exports ten times.

Between 1949 and 1966, the exports of manufactured goods increased more than twelvefold. Chemicals and engineering products each now account for nearly one-fourth of the exports of manufactured goods; exports of steel products, ships, electrical machinery, textiles and wood products also assumed importance. As regards the share of exports in the increment of output, steel products lead with a marginal export-production ratio of 56 percent for the period 1949-66; the corresponding ratio for textiles and rubber products is two-fifths and for all manufactured goods, taken together, nearly one-fourth. Exports of manufactures also cover an increasing proportion of imports: 10 percent in 1949, 23 percent in 1958 and 30 percent in 1966.

These developments reflect the changes that occurred in the structure of Norwegian industry. There has been a shift from commodities of low to

those of high labor skill requirement, as well as from lower to higher levels of processing. Moreover, industries characterized by product differentiation have assumed importance and there has been a tendency towards intraindustry specialization. In Norway's case this specialization involves, in addition to concentrating on narrow ranges of products, the production of parts and components for assembly elsewhere.

The shift towards products with a high labor skill requirement is explained by the wage situation in Norway and the high educational level of the Norwegian labor force. As a result of the high productivity attained in the production of primary goods and intermediate products at lower levels of transformation, wages reached levels approximating those of the major European countries. Correspondingly, industries relying to a large extent on unskilled and semi-skilled labor grew at a relatively slow rate (textiles, clothing, and footwear) or even experienced a decline in output (leather and leather products), and the share of imports in the domestic consumption of these products increased substantially. In turn, the high educational level of the labor force permitted a rapid expansion in skill-intensive industries, such as engineering and electrical machinery.

The developments observed in regard to textiles, leather and clothing products are of especial interest since industrial countries often follow policies aimed at supporting these industries despite their comparative disadvantage in them. Norway, however, accepted a rise in imports to provide for the bulk of the increase in consumption, thereby freeing labor for occupations which required higher skills. At the same time, there has

been a considerable increase in exports of specialty products, such as knitwear and ski clothes; between 1949 and 1964, two-fifths of the increase in textile production was destined for exportation.

There has also been a shift in production and exports towards processed goods at higher levels of fabrication. Among wood products, the shift has been from exportation of logs to pulp, paper and simple wood products, and again to paper products, wallboard and furniture. As regards chemicals, increases in the production of fertilizer and carbide were overshadowed by the development of more advanced branches of the chemical industry, including the production of carbide-based synthetic chemicals. Correspondingly, by 1966 the exports of synthetic fibers and resins, petroleum derivatives and a variety of inorganic chemical products taken together approached the value of fertilizer and carbide exports, as against a ratio of one-fourth in 1949. Finally, among rubber products, the exports of tires and tubes assumed importance.

Due to the availability of cheap electricity, the steel industry employs mostly electrical furnaces. While this industry is of relatively recent origin, Norway has not followed some other semi-industrial countries in producing a great variety of shapes and forms of steel. Rather she has concentrated on specialty products, such as quality pig iron containing titanium and vanadium, high quality alloyed steel, as well as heavy castings for shipbuilding. Aside from heavy castings, much of the output is exported: between 1958 and 1966, two-thirds of the increment in output was sold abroad. In turn, steel ingots and many finished steel products are imported, accounting for two-thirds of the increment of domestic consumption in this period.

While the Norwegian engineering and machinery industries produced almost exclusively for the home market in 1949, foreign sales accounted for nearly one-fourth of the increment of output between 1949 and 1966. Increases came in a variety of products, including mechanical handling equipment (cranes, hoists and excavators), calculating machines, cash registers, as well as radios and tape recorders. In conjunction with the increasing importance of intraindustry specialization in these industries, the share of imports in domestic uses also increased. Nevertheless, industrial development in Norway led to a rise in the ratio of exports to imports in the engineering and machinery industries from 6 percent in 1949 to 25 percent in 1966.

Shipbuilding was already an important industry in Norway in the inter-war period. In addition to providing for domestic needs, the industry assumed increasing importance in export markets after 1958. Tankers continue to dominate shipbuilding activity, but Norway has started to export hydrofoils and pleasure boats too. Finally, in the group of miscellaneous manufactured products, exports of plastic articles and sporting goods are noteworthy.

At various points in the discussion, reference has been made to the importance of intraindustry specialization. Norwegian firms tend to specialize in narrow ranges of products for domestic use as well as exports while other product varieties are imported. Intraindustry specialization is especially characteristic of Norway's trade in steel products, machinery and equipment. Moreover, a number of firms produce parts and components of automobiles and machinery for assembly abroad, especially in Sweden. There are also cooperative arrangements with foreign producers, an example being the agreement between Norwegian and Danish manufacturers for the production of hydraulic deck fittings for ships.

Intraindustry specialization received a boost through the establishment of the European Free Trade Association, in the framework of which tariffs on nonagricultural products traded among the member countries have been abolished. The effects of the establishment of EFTA on specialization can be indicated by calculating the average ratio of net export (import) balances to the sum of exports and imports in individual industries. <sup>1/</sup> It is easy to see that the resulting ratio would approach unity in the case of interindustry specialization since a country would either export or import a commodity, while in the event of intraindustry specialization the ratio would tend to assume low values.

In the present paper, I have made calculations for the years 1961 and 1966 on the basis of data for 61 manufacturing industries in Norway. The results show average specialization ratios of 0.63 for 1961 and 0.56 for 1966. These ratios are comparable to those obtained for Italy in regard to intra-EEC trade for 1958 and 1963, <sup>2/</sup> and point to the increasing importance of intraindustry specialization.

## VII

The purpose of this paper has been to examine the strategy of industrial development followed by Norway in the postwar period. At the beginning of

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<sup>1/</sup> The following formula has been used in the calculations:

$$\frac{1}{n} \sum \frac{X_i - M_i}{X_i + M_i}$$

where  $X_i$  and  $M_i$  refer to exports and imports in the individual commodity categories, and  $n$  is the number of commodity categories considered.

<sup>2/</sup> Cf. my "Tariff Reductions and Trade in Manufactures Among the Industrial Countries", American Economic Review, June, 1966, p. 471.

the period, the Norwegian economy was characterized by the predominance of exports of primary products and intermediate goods at lower stages of transformation, chiefly fishery and forest products, and aluminum. Manufacturing industries were of less importance in Norway than in other semi-industrial countries and they were oriented towards domestic markets, with exports accounting for only 3 percent of output.

Resource limitations in fishing and forestry would not have permitted the full utilization of all productive factors and a rapid growth of the Norwegian economy in subsequent years. Accordingly, increased reliance had to be placed on manufacturing industries. This has been accomplished with moderate tariff protection; Norwegian tariffs are not only considerably lower than in other semi-industrial countries but are also below those in the major industrial nations. Moreover, Norway has joined the European Free Trade Association where tariffs on industrial products traded among the member countries have been eliminated.

Foreign competition has contributed to the efficient operation of Norwegian firms. At the same time, cost reductions obtainable in large-scale production have provided inducement for their participation in the export market, and these incentives have not been frustrated by discrimination against export activities in the form of overvalued exchange rates and high duties on imported inputs. The result has been a rapid growth of manufacturing industries, characterized by an export orientation. Between 1949 and 1966 value added in manufacturing rose at an annual rate of 5.2 percent and exports of manufactures at a rate of 15.8 percent. In the period following the establishment of EFTA, the share of exports came to account for four-fifths of the

increment of value added in manufacturing and by 1966 manufactured goods provided nearly one-third of Norwegian merchandise exports.

The expansion of the manufacturing sector has involved a shift towards industries with a high labor skill requirement, and a higher level of processing. There has also been a tendency towards intraindustry specialization. Norwegian firms specialize in narrow ranges of products for domestic use and for exports and also, they participate in the international division of the production process by manufacturing parts and components for assembly abroad.

The record of the Norwegian economy indicates the possibilities of expanding manufacturing industries behind low trade barriers. It also points to the need for concentration on skill-intensive activities by semi-industrial countries with high wage levels. Accordingly, the Norwegian example has implications for semi-industrial countries in the developing country group, such as Argentina and Chile, as well as for countries, such as Australia, Canada and New Zealand, which have reached a high living standard on the basis of primary activities.

Note should be taken, however, of the special advantages enjoyed by Norway. Norway has nearby markets for its industrial products in countries which have long followed a liberal trade policy and have been eager to participate in regional integration schemes. Also, despite its relatively high wage level, Norway has a wage advantage as compared to Sweden, and this fact has contributed to Swedish purchases of parts and components from Norwegian firms. In this way, Norway has been able to reduce the disadvantages of its small

size; yet, as long as the division of Western Europe into two trading areas continues and countries follow national economic policies <sup>1/</sup> the uncertainties associated with foreign trade will not disappear.

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<sup>1/</sup> The British surcharge on imports in the years 1964-66, the implicit subsidy to aluminum smelters, and the recent imposition of prepayment requirements on imports into Britain have especially affected Norwegian industries.

Table 2: NORWEGIAN MERCHANDISE EXPORTS, 1949 TO 1966 (1955 Prices)

	1949		1953		1958		1961		1966	
	mill. krone	%								
Primary Activities	359	13.0	567	14.6	658	12.7	697	10.9	751	7.6
Crops and livestock	29	1.1	84	2.2	132	2.5	200	3.1	308	3.1
Fishing and whaling	212	7.7	289	7.4	301	5.8	236	3.7	113	1.1
Forestry	42	1.5	50	1.3	25	0.5	29	0.5	16	0.2
Mining	76	2.7	144	3.7	200	3.9	232	3.6	314	3.2
Intermediate Products at Lower Levels of Transformation	2,144	77.8	2,863	73.4	3,555	68.4	4,224	65.6	6,090	61.3
Processed food	59	2.2	89	2.3	115	2.2	170	2.6	160	1.6
Processed fish	684	24.8	856	21.9	952	18.3	917	14.2	1,334	13.4
Pulp and paper	744	27.0	936	24.0	1,054	20.3	1,274	19.8	1,503	15.1
Non-ferrous metals	304	11.0	510	13.1	844	16.2	1,102	17.1	1,874	18.9
Ferrous alloys	150	5.4	133	4.7	243	4.7	301	4.8	443	4.5
Fertilizers and carbide	203	7.4	289	7.4	347	6.7	460	7.1	776	7.8
Manufactured Goods	255	9.2	469	12.0	980	18.9	1,520	23.5	3,093	31.1
Merchandise Exports	2,758	100.0	3,899	100.0	5,193	100.0	6,441	100.0	9,934	100.0

Source: Norwegian input-out tables.

Table 1: THE SECTORAL DISTRIBUTION OF VALUE ADDED IN THE COMMODITY PRODUCING SECTORS IN NORWAY, 1949 TO 1966 (1955 Prices)

	1949		1953		1958		1961		1966	
	mill. krone	%								
Primary Activities	3,481	41.6	3,623	37.5	3,654	33.9	3,654	29.9	3,693	24.4
Crops and livestock	1,701	20.3	1,812	16.8	1,786	16.5	1,865	15.3	1,672	11.0
Fishing and whaling	633	7.6	728	7.5	709	6.6	649	5.3	883	5.8
Forestry	818	9.8	791	8.2	839	7.8	779	6.4	631	4.2
Mining	329	3.9	292	3.0	320	3.0	361	2.9	507	3.4
Intermediate Products at Lower Levels of Transformation	1,780	21.3	2,302	23.7	2,447	22.7	2,922	24.0	4,131	27.2
Processed food	763	9.1	960	10.0	839	7.8	1,097	9.0	1,383	9.1
Processed fish	442	1.7	278	2.9	298	2.7	244	2.0	392	2.6
Pulp and paper	432	5.2	501	5.2	583	5.4	681	5.6	894	5.9
Non-ferrous metals	206	2.5	258	2.7	329	3.0	388	3.2	627	4.1
Fertilizers	44	0.5	55	0.8	115	1.2	133	1.1	171	1.1
Fertilizers and carbide	193	2.3	220	2.3	283	2.7	379	3.1	664	4.4
Manufactured Goods	<u>3,104</u>	<u>37.1</u>	<u>3,716</u>	<u>38.6</u>	<u>4,693</u>	<u>43.4</u>	<u>5,617</u>	<u>46.1</u>	<u>7,337</u>	<u>48.4</u>
Commodity Producing Sectors	8,365	100.0	7,641	100.0	10,794	100.0	12,193	100.0	15,267	100.0

Source: Norwegian input-output tables.

Table 3: SELECTED DATA ON NORWEGIAN MANUFACTURING INDUSTRIES, 1949, 1958 AND 1966 (1955 Prices)

	Production mill. krone			Exports mill. krone			Imports mill. krone			Exports/Production Percent					Imports/Consumption Percent				
	1949	1958	1966	1949	1958	1966	1949	1958	1966	average		marginal			1949	average		marginal	
										1949	1958	1949-58	1958-66	1958		1966	1949-58	1958-66	
Textiles	848	870	1,235	4	61	160	511	572	1,137	0.5	7.0	13.0	259.1	27.1	37.7	41.4	51.4	225.9	68.1
Clothing	674	928	1,172	-	11	55	32	114	377	0	1.2	4.7	4.3	18.0	4.5	11.1	25.2	25.3	56.7
Footwear	397	316	400	-	1	6	2	15	51	0	0.4	1.5	n.d.	6.0	0.5	4.5	17.1	n.d.	45.5
Leather and Leather Products	197	126	122	-	4	28	30	31	71	0	3.4	23.0	n.d.	n.d.	16.2	20.4	42.8	n.d.	285.7
Wood and Cork Products	1,214	1,386	2,154	33	87	146	54	76	253	2.7	6.3	6.8	31.4	7.7	4.4	5.7	11.2	16.8	16.4
Wallboard and Paper Products	270	422	721	13	47	89	10	31	134	4.8	11.1	12.3	22.4	14.0	3.7	7.6	17.5	15.0	26.7
Printing, Publishing	503	777	1,051	1	2	15	4	15	79	0.2	0.2	1.4	0.6	4.7	0.7	1.9	7.1	6.0	19.7
Rubber Products	165	167	302	3	19	55	33	60	141	1.8	11.4	18.2	500.0	26.7	16.9	28.8	37.3	207.7	46.8
Other Chemicals	448	949	2,445	55	159	639	563	890	2,444	12.3	16.7	26.1	20.1	32.1	58.9	55.8	57.2	52.2	58.2
Nonmetallic Mineral Products	358	591	921	17	29	109	64	124	222	4.6	4.9	11.8	5.2	24.2	15.8	18.0	21.5	21.3	28.3
Iron and Steel	157	462	975	19	136	471	433	456	733	11.4	29.4	46.3	39.7	65.3	74.5	58.3	64.9	11.4	72.8
Engineering Products	1,342	2,295	3,859	50	279	571	651	1,191	2,077	3.7	12.2	13.4	24.0	25.1	33.5	37.1	46.3	42.7	60.4
Electrical Machinery	405	720	1,537	8	74	260	202	314	727	2.0	10.2	16.9	21.0	22.8	33.7	32.7	36.3	31.0	39.5
Shipbuilding	561	1,095	1,835	49	52	282	52	123	320	0.4	4.7	15.4	0.7	31.1	7.6	10.6	17.1	14.2	27.8
Miscellaneous Manufactures	206	335	661	3	17	107	10	103	611	1.4	6.6	12.4	12.6	16.7	19.0	36.7	44.8	54.9	49.4
Manufactured Goods, Total	7,957	11,439	19,590	255	960	3,093	2,697	4,305	10,413	1.2	1.6	15.8	20.8	25.5	25.9	29.2	36.9	36.8	50.6

n.d. - not defined

Source: Norwegian input-output tables.