

Trade, Technology Transfers, and the Risks of Protectionism: The Experience of the Republic of China*

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I. EXPORT-LED INDUSTRIALIZATION IN THE REPUBLIC OF CHINA

The economic conditions of the Republic of China during the early postwar period were similar to those in many resource-poor, low-income developing countries. The ROC was overpopulated and the natural rate of growth of its population exceeded three percent per annum. The domestic market was small. The inordinate military needs competed with development projects for scarce resources. The economy suffered from chronic balance-of-payments deficits and a violent inflation.¹⁾

As can be seen in Appendix Table 1, manufacturing activity accounted for 11 percent of GDP in 1952, while 38 percent of GDP originated in the primary sectors. Exports accounted for 8 percent of GNP and the percentage share of manufactured exports in total exports was only 7.6 in 1955.

The reconstruction of the Taiwan economy began in earnest in 1949, a year which witnessed the relocation of the central government on the island. Economic development from the end of World War II through the 1950s was characterized by efforts to promote growth incentives in the agricultural sector, coupled with import-substituting industrialization. The diversification and expansion of industrial production placed primary emphasis on the domestic market. The government adopted a multiple exchange rate system and strict import controls during this period. Such measures increased the profitability of import substitution, and were partly responsible for the doubling of manufacturing production during the period 1950-58. The changes in the relative importance of the primary sector and manufacturing reflect the expected structural transformation as a concomitant of economic development. By 1960 manufacturing

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1) N.H. Jacoby, *U.S. Aid to Taiwan: A Study of Foreign Aid, Self-Help, and Development* (New York: Frederick A. Praeger, 1966), p. 118; Ching-Yuan Lin, *Industrialization in Taiwan, 1946-72; Trade and Import-Substitution Policies for Developing Countries* (New York: Praeger Publishers, 1973), pp. 30-31.

activity accounted for 17 percent of GDP. The compound annual growth rate of manufacturing employment exceeded 4 percent throughout the 1950s.

The simple and relatively easy phase of import substitution appeared, however, to reach its limit in a relatively short period in a narrow, protected domestic market. It was recognized that only an outward-looking or export-oriented industrialization strategy could sustain a high rate of economic growth in such a small island economy as Taiwan, and a series of policy reforms were undertaken during 1958-61. Taiwan's over-valued currency was devalued, and the complicated exchange rate structure was simplified and finally unified in June 1961. Laws and regulations governing investment and imports were liberalized. The emphasis of trade strategy shifted from strict import controls to export promotion. The economic indicators in Appendix Table 1 clearly reveal that economic performance in the 1960s and the early 1970s improved notably as compared with that in the 1950s.

The growth of manufactured exports, coupled with rising domestic demand, accelerated the pace of industrialization. The compound annual rate of growth in the index of manufactured output, 11 percent during the period 1955-60, accelerated to 21 percent during the period 1965-70. Underlying the acceleration of manufacturing output growth, the share of manufactured products in total exports rose from 28 percent in 1960 to 77 percent in 1970. Moreover, the rapid development of labor-intensive export industries permitted economic growth to be more labor-absorptive and equitable. Employment and real wages in manufacturing revealed the clear trend of an accelerated increase in the 1960s and the early 1970s. Manufacturing employment rose 9.4 percent a year in 1965-70, while real wages increased at a rate of 6.5 percent. Taiwan is also one of the few developing economies which achieved an impressive growth record with relative price stability in the 1960s.

Between 1952 and 1982, the volume of exports grew at an average annual rate of 15.1 percent (Appendix Table 1), accompanied by continuing shifts in the composition of exports. As shown in Table 1, in the first half of the 1950s two staples, sugar and rice, dominated Taiwan's exports, accounting for more than 70 percent of the total. The share of these commodities had fallen to less than one percent by 1982, and their place was taken by manufactured goods.

The leading manufactured exports have been electrical machinery and appliances (mainly telecommunications equipment), clothing and footwear, textiles, and plastic products. Over the years 1965-82, rapid growth was achieved in exports of nonelectrical machinery, transportation equipment, and metal products. Structural changes in the pattern of exports over this period reflect movement into higher value-added products.

Table 1. Major Export Commodities, 1953-82
(percentages)

	1953	1955	1960	1965	1970	1975	1980	1982
Agricultural products								
Rice and paddy	10.6	23.3	3.1	9.1	0.1	—	—	—
Bananas	2.4	3.1	3.7	10.8	2.2	0.4	0.1	0.2
Processed agricultural products								
Sugar	67.2	49.9	44.0	13.1	3.2	5.0	1.2	0.5
Tea	5.3	4.4	3.7	2.0	0.9	0.4	0.1	0.1
Canned pineapple	1.9	4.2	4.8	3.8	1.4	0.3	0.1	—
Canned mushrooms	—	—	—	4.3	2.2	0.9	0.5	0.3
Canned asparagus spears	—	—	—	2.3	2.4	1.5	0.7	0.4
Manufactured products								
Plywood	—	0.1	1.5	5.9	5.5	2.5	1.9	1.5
Textiles	0.1	0.9	11.6	10.3	13.0	11.5	8.2	7.0
Cement	0.7	—	0.7	1.9	0.8	0.1	0.1	0.5
Clothing and footwear	0.8	1.4	2.6	4.9	19.9	16.4	14.4	14.6
Plastic products	—	—	—	2.6	5.1	6.5	7.4	6.8
Electrical machinery and appliances	—	—	0.6	2.7	12.8	14.7	18.2	17.6
Machinery	—	—	—	1.3	3.4	3.6	3.8	3.8
Transportation equipment	—	—	—	0.4	0.9	2.2	3.2	4.9
Metal products	—	—	0.6	1.1	2.0	2.5	4.4	4.6
Basic metals	0.8	1.6	3.7	3.6	4.6	2.3	2.0	3.0
Total exports	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Inspectorate General of Customs, ROC, *The Trade of China* (various years).

In turn, the decline of traditional agricultural exports was accompanied by the emergence of new export-oriented agricultural products, of which canned mushrooms and asparagus spears are the most notable examples. The emergence of these new export crops in the early 1960s is largely explained by the provision of incentives and government support, including the availability of overseas market information as well as technical assistance.

Taiwan provides an example of an economy following its comparative advantage and reaping the gains from trade illustrated by the traditional theory of international trade. On the whole, Taiwan's exports have been of low capital and skill intensity. At the same time, factor intensities have varied considerably with differences in export markets. Thus, while exports to developed countries have been relatively labor intensive and of low skill intensity, exports to less developed countries have been relatively capital intensive as well as skill intensive. The resulting pattern of trade conforms to expectations, as Taiwan's factor endowments place it in an intermediate position

between developed and less developed countries.²⁾

A viable industrialization scheme must go beyond import substitution and gain access to markets abroad on a competitive basis. Taiwan provides an example of a highly successful export-led industrialization. The expansion of manufactured exports has contributed not only to efficient industrialization by permitting specialization according to comparative advantage and stimulating technological improvement, but also to higher living standards, as well as improved income distribution through the creation of new productive employment.

The turbulent decade of the 1970s witnessed, however, two oil shocks, one in late 1973 and the other in 1979. The recovery of the economy after the first oil shock was rapid and could be primarily attributed to the timely implementation of the economic stabilization program in early 1974, the continuing growth of manufactured exports with an increased proportion of exports being directed to the oil producing countries (see Appendix Table 2), and the high rate of gross domestic capital formation through major government investment projects in economic infrastructure and heavy and petrochemical industries.

The second oil shock unfortunately aggravated the widespread adverse effects. The growth rate of Taiwan's GNP and the volume of exports declined sharply. (See Appendix Table 1.) The slow growth of the industrialized countries reduced the demand for manufactured exports. The competitiveness of Taiwan's exports eroded as the value of the U.S. dollar, to which the NT dollar was by and large tied, appreciated. Protectionist sentiment resulted in higher and widespread trade barriers. Rising real wages threatened Taiwan's ability to compete with new exporters of labor-intensive products. Meanwhile, the prices of many products produced by the domestic heavy and petrochemical industries remained higher than world market prices. Stagnant demand for exports, high real interest rates, lower profits, low capacity utilization in many industries, and growing uncertainty have eroded business confidence in recent years. As a consequence, the ratio of gross capital formation to GDP fell in 1981 and 1982.

The economy of the Republic of China has had to adjust to changing domestic and external conditions. It is presently at a crossroads, and the current problems of structural adjustments are the result of the very success of past development efforts. Real wage rates have risen in recent years, indicating that the economy has already reached a turning point and that the era of relatively stable real wage rates and unit labor costs has terminated. Whether the economy of the Republic of China can successfully restructure its industrial sectors and attain the high rate of economic

2) Kuo-shu Liang and Ching-ing Hou Liang, "Export Expansion and Economic Development in Taiwan," a paper presented at the *Conference of the Asian Studies on the Pacific Coast* (Anaheim, California, June 9, 1978); T.H. Lee and Kuo-shu Liang, "Development Strategies in Taiwan," in B. Balassa and Associates, *Development Strategies in Semi-industrial Economies* (Baltimore: The John Hopkins University Press, 1982), pp. 310-383.

expansion that it experienced in the past will depend to a great extent on ensuing technology transfers and the easing of protectionism in the industrialized countries. The importance of technology transfers and the risks of protectionism will be discussed in the following sections.

II. THE SIGNIFICANCE OF TECHNOLOGY TRANSFERS IN EXPORT-LED INDUSTRIALIZATION

Using a modified form of the Cobb-Douglas production function, the Council for Economic Planning and Development estimated that the rate of exogenous technical progress was 4.5 percent per annum during the period 1962-78. It dropped to 2.9 percent per annum during the period 1979-81. Technical progress is an indispensable determinant of sustained economic growth. The economy has been, however, beset with difficulties due to the slowdown in the rate of technical progress in recent years.

By far the most important determinant of technical progress is the continuous inflow of foreign technology through imported capital goods. Modern technology is embodied in machinery and equipment imported from abroad. Export-led industrialization gives rise to a more rapid rate of capital formation and technical progress by financing the imports of capital goods through rapid export expansion. It also gives rise to learning effects as local entrepreneurs develop marketing and design capabilities. The pace of export-led industrialization will, in turn, be facilitated by technical progress.³⁾

Table 2 shows overseas Chinese and foreign investment during the period 1978-82. The contribution of direct foreign investment has not been of overriding importance

Table 2. Overseas Chinese and Foreign Investment, 1978-1982

Unit: US\$ million

Year	Investment in Arrival	Reinvestment of Profits	Total
1978	68	23	91
1979	69	51	120
1980	109	62	171
1981	87	60	147
1982	79	46	125

Source: Investment Commission, Ministry of Economic Affairs, *Statistics on Overseas Chinese and Foreign Investment, Technical Cooperation, Outward Investment, and Outward Technical Cooperation, Republic of China.*

3) Eddy Lee (ed.), *Export-led Industrialization and Development* (Singapore: Maruzen Asia Pte. Ltd., 1981), pp. 12-3 and p. 128.

in the Republic of China, except in a few manufacturing sectors such as electronics.⁴⁾

Export-oriented foreign firms appear to use more labor-intensive techniques than their local counterparts in the same industry.⁵⁾ Given the footloose nature of export-oriented direct foreign investment, investing firms adapt their techniques to local circumstances to take full advantage of the low labor cost. The transfers of technology normally focus on training within the firm as well as outside, extending to the suppliers of inputs and users of final products. Singer Corp.'s Taiwan subsidiary was a good example, showing how direct foreign investment helped local firms improve the quality of parts for sewing machines.

Increasing emphasis on technical transfers is both an opportunity and a necessity. The interesting feature of Appendix Table 3 is the discontinuation of past trends in changes in real wages and labor productivity. The rise in labor productivity accelerated and unit labor costs remained unchanged or even declined in the 1960s. This undoubtedly strengthened the competitive position of Taiwan's labor-intensive manufactures in the world market. However, the absolute size of the agricultural labor force began to decline in 1969 as the outflow rate accelerated in the late 1960s. The era of relatively stable real wage rates and unit labor costs terminated. Failure to recognize the dynamic nature of comparative advantage would freeze capital, labor, and other scarce resources in industries where opportunities are declining, and lead to the neglect of advantageous new export opportunities.

The present industrial policy has been striving to restructure the economy by switching the focus of industrial development from unskilled-labor-intensive manufactures and capital-and-energy-intensive heavy and chemical industries to high-technology areas. The government encourages the transfer of appropriate technology and the upgrading of manpower skills. The concept of "strategic industries" includes the following two comprehensive categories, namely: (1) machinery manufacturing and (2) information and electronics industries. These industries are skill-intensive and energy saving, and involve relatively low capital cost. They will be next in line for the achievement of a high rate of export expansion as the growth of experience and capacity in manufacturing permits the economy to move beyond simple labor-intensive types of production. Incentives to the strategic industries take the form of extending low-interest loans, the right to retain earnings of up to 200 percent of paid-in capital, and the right to defer the start of a five-year income-tax holiday for up to four years. The government is also encouraging the establishment of venture capital firms to help promote high-technology ventures and technical upgrading.

4) B. Cohen, *Multinational Firms and Asian Exports* (New Haven: Yale University Press, 1975), pp. 111-2.

5) C. Schive and R.S. Yeh, "Multinational Corporations and Host Country Technology: A Factor Proportion Approach in Taiwan," *Council for Asian Manpower Studies Discussion Paper Series No. 82-01* (Feb. 1982).

Table 3 indicates a generally increasing trend in approvals of technical cooperation projects and royalty payments in recent years. Technical cooperation provides an important channel for the transfer of technology. In order to move faster in capturing a share of the world market for high-technology products in the 1980s, the government has set the target for R&D spending by public and private enterprises at 1.2 percent of GNP by 1985 and 2 percent by 1989.⁶⁾ Even though national R&D expenditures still remain at a low level (as shown in Table 4), research and development efforts have been stepped up in recent years.

Table 3. Approved Technical Cooperation Projects and Royalty Payments: 1978-1982

Year	Approved Technical Cooperation Projects	Royalty Payments (US\$ million)
1978	110	52
1979	133	69
1980	143	86
1981	124	95
1982	144	99

Source: Investment Commission, Ministry of Economic Affairs, *Statistics on Overseas Chinese and Foreign Investment, Technical Cooperation, Outward Investment, and Outward Technical Cooperation, Republic of China.*

Table 4. National R&D Expenditures as Percentage of GNP: 1978-1981

Year	National R&D Expenditures as Percentage of GNP
1978	0.30
1979	0.42
1980	0.55
1981	0.76

Source: National Science Council, *Survey of R&D Activities in 1981, Republic of China.*

High-quality manpower with basic academic training in science and technology is Taiwan's most important and most abundant resource. Many foreign-invested firms in Taiwan have reaped substantial rewards in energy saving, materials substitution, the upgrading of manufacturing processes, and equipment design and modification resulting from research, development, and engineering work conducted by Chinese scientists, engineers, and technicians.⁷⁾

6) The Executive Yuan, *Science and Technology Development Program* (Revised and Promulgated on August 26, 1982), p. 32.

7) K.T. Li, "Development of Science and Technology in the Republic of China," *Industry of Free China*, Vol. LIX No. 1, (Jan. 1983), p. 4.

The Hsinchu Science-based Industrial Park began operations in September 1981. Its establishment is a bold step taken by the government to lead industries into the domain of high technology. The park will span 2,100 hectares centered around two national universities, technology research institutes, and research labs. Investors in the park are guaranteed a five-consecutive-year tax holiday within the first nine years of operation, import duty exemption, and freedom to structure capital and repatriate profits. The operation of the park has contributed to the return flow of overseas Chinese talent. Production facilities turning out computer components, telecommunications equipment, carbon fibers, and laser equipment are already in operation.

All these efforts are aimed at broadening the industrial base, expediting the transfers of technologies, and restructuring exports in favor of high value-added products. However, a transition away from highly labor-intensive products to skill-intensive products is not an easy process. It is very difficult to keep up with the rapid technological progress in these products and to compete in markets dominated by the oligopolistic producers of industrialized countries.

III. THE RISKS OF PROTECTIONISM

The rapid growth in world trade in the 1960s and the early 1970s has now been replaced by slow growth and increasing protectionism in industrialized countries against manufactured exports from developing countries. As growth has slowed in industrialized countries, fewer new jobs have been created. It has become more and more difficult to resist the lobbyists from those industries that have been in secular decline.

Countries facilitating structural adjustment permit a more liberalized attitude towards trade policies, while countries refusing to let their economic structures adjust are forced into protectionist actions. Perhaps the most worrisome aspect in the recent behavior of industrialized countries has been the rather casual way in which the basic GATT principle of non-discrimination has been violated. Within GATT there were various arrangements to protect the textile sector from "disruption," culminating in the Multifibre Arrangement (MFA). Increasingly, industrialized countries have resorted to various extra-GATT mechanisms such as Voluntary Export Restraints (VERS) or Orderly Marketing Arrangements (OMAS).⁸⁾ These types of restrictions have been the principal means used by the United States to limit imports of textiles and apparel products, non-rubber footwear, color television, and other products that disrupt domestic markets. VERS and OMAS can be implemented without going to Congress for new legislation.

⁸⁾ L. Turner and N. McMullen, *The Newly Industrializing Countries: Trade and Adjustment* (London: George Allen & Unwin, 1982), p. 263.

Selective protectionism is often applied arbitrarily and with rather more vigor to the diplomatically weak than their trade offences may actually justify.⁹⁾ The EC's Generalized System of Preferences (GSP) scheme excluded Taiwan, quotas were sometimes unilaterally determined, and the market access of Taiwanese products to the EC has been on terms inferior to those covering the goods from other countries. As shown in Table 5, quota restrictions are applied extensively to Taiwan's textile exports.

The policy of protectionism is both inefficient and costly to industrialized countries. The effect is threefold:¹⁰⁾

Table 5. Export Values of Taiwan's Textiles Subject to Quota Restrictions
1980-1982

Unit: US\$1,000

	1980	1981	1982
Exports to USA			
Total exports	1,267,611	1,496,820	1,636,271
Exports subject to quota restrictions	1,152,820	1,373,442	1,442,418
Quota restrictions coverage (%)	90.9	91.8	88.2
Exports to EC			
Total exports	500,037	459,651	450,852
Exports subject to quota restrictions	377,554	359,341	352,834
Quota restrictions coverage (%)	75.5	78.2	78.3
Exports to Canada			
Total exports	105,690	146,382	140,458
Exports subject to quota restrictions	100,896	131,530	116,856
Quota restrictions coverage (%)	95.5	89.9	83.2

Source: The Taiwan Textile Federation.

(1) It develops a scarcity value which is added to the cost of goods, with domestic consumers paying higher prices for imports. It also encourages bureaucratic regulation and control, and foreshadows a long-term decline in economic viability.

(2) It does somewhat cushion the domestic industry from price competition, but the domestic industry usually does not reap the anticipated benefits, because higher prices encourage the entry of unrestricted new exporters.

(3) It creates an incentive for the foreign producers to improve the quality of their products and aim for higher value added per unit exported, thus causing foreign producers to compete more directly with manufacturers in industrialized countries who traditionally produce in the higher quality ranges of these products. Hence, domestic

⁹⁾ *ibid.*, p. 264.

¹⁰⁾ G.P. Jenkins, "Costs and Consequences of the New Protectionism: The Case of Canada's Clothing Sector," in a North-South Institute - World Bank Monograph entitled *Canada in a Developing World Economy: Trade or Protection* (Oxford University Press, forthcoming); L. Turner and N. McMullen, *op. cit.*, pp. 151-2.

producers may find that they now face an increase rather than a decline in competition from imports in the higher quality ranges. Because the quota increases the relative cost of low-quality imports, there will be an incentive for domestic producers to manufacture the low quality goods previously imported.

The quotas on textiles and apparel in Taiwan are administered by the Taiwan Textile Federation under the supervision of the Board of Foreign Trade. The Federation allocates the quotas based on the past performance of the companies. A hold-back of 41-66 percent is issued as "free" quotas to either new entrants or to firms which are short of their quotas. The export permits can be bought or sold under the supervision of the Taiwan Textile Federation.

To encourage the full utilization of the available quotas, the Taiwan Textile Federation will take back any quota not utilized in a given year, to be reassigned to others the following year. The exporters who obtain the highest FOB price per unit for goods within each quota category receive priority in the assignment of "free" quotas. The assignment of free quotas is a deliberate policy to encourage exporters to restructure quality and value added upward despite the fact that the quantity exported is limited. In addition, the Taiwan Textile Federation has employed a cadre of designers to improve the design of apparel.

Given the economic losses to industrialized countries involved, a preferred policy would be to eliminate bilateral quotas and rely on tariff protection, accompanied by an adjustment program for labor.

The economic performance of the Republic of China is determined by the pace of its export growth which, in turn, depends to a great extent on market conditions in the industrialized countries. The easing of protectionism in these countries will be a welcome blessing.

It should be noted that protectionism in the Republic of China also needs to be eased up. Domestic manufactures are protected in many cases by tariff as well as nontariff restrictions. Imports are controlled mainly for protective purposes. In addition, there are restrictions on particular sources of origin or on the status of applicants.

Import controls and restrictions have been relaxed considerably in recent years.¹¹⁾ However, some new measures are designed to regulate imports under the pretext of maintaining an orderly market. These policies have been mutually offsetting in many cases. Export promotion requires a free trade regime, and discrimination against exports

11) Kuo-shu Liang and Ching-ing Hou Liang, "Trade and Incentive Policies in Taiwan," in K. T. Li and T. S. Yu (eds.), *Experiences and Lessons of Economic Development in Taiwan* (Taipei: Linking Publishing Co., Ltd., 1982), pp. 230-34.

has to be avoided in undertaking the manufacture of some intermediate products to replace imports. Exporters should have freedom to choose between domestic and imported inputs. It is also desirable to carry out the liberalization of import restrictions and the reform of the tariff structure on the basis of a program made public in advance to permit firms to make preparations. Trade liberalization will lower the cost of exports through reduced prices of imported machinery and raw materials, provide a spur for improvements in productivity, trigger off accelerated adjustment among industries that have to compete with imports, and may lead to better treatment for exports in foreign markets through bilateral negotiations to obtain mutual concessions.

Needless to say, the Pacific basin has become the most dynamic area of economic growth in the world, and the increased interdependence has given both developing and industrialized countries within the "Pacific Basin Community" a common interest in the maintenance of a framework of international and domestic economic policies within which outward-oriented growth policies can be confidently pursued. Partial integration in projects on a commodity basis may have an important role to play and may be particularly fruitful for industries with long-run decreasing cost curves. Regional cooperation in commodity marketing and research and development are also highly beneficial. More efforts must be devoted to data collection and the evaluation of gains arising from regional cooperation if successful and viable Pacific economic cooperation is to be achieved. And what is needed above all is the political will to act.

IV. SUMMARY AND CONCLUSIONS

The major findings of this study may be summarized as follows:

(1) Taiwan's postwar economic development can be divided into two periods. Its economic conditions during the early postwar period were similar to those in many resource-poor, low-income developing countries. The incentive policies pursued until the late fifties were those typically associated with a strategy of import substitution. The multiple exchange rate system and strict import controls that were adopted by the government during this period favored industrial expansion oriented toward the domestic market.

(2) The relatively easy phase of import substitution appeared to reach its limit in a relatively short period in the protected, narrow domestic market. In response to poor growth prospects associated with inward orientation, the government introduced a series of major policy reforms during the period 1958-61. The over-valued currency was devalued, and the complicated exchange rate structure was simplified and finally unified in June 1961. Laws and regulations governing investment and imports were liberalized. The emphasis of trade policy shifted from strict import controls to export

promotion. Marked changes in the commodity composition of Taiwan's exports over time provide positive evidence of a successful export-led industrialization.

(3) To a considerable extent, Taiwan's excellent economic performance during the 1960s and early 1970s can be attributed to its outward-oriented development policies. Taiwan provides an example of an economy following its comparative advantage and reaping the gains from trade illustrated by the traditional theory of international trade. The rapid expansion of labor-intensive manufactured exports contributed to efficient industrialization by permitting specialization according to comparative advantage and stimulating technological improvement. It also improved living standards as well as income distribution through the creation of new productive employment and a rapid increase in real wage rates.

(4) The prospects for sustaining economic growth became less favorable in the turbulent decade of the 1970s. The economy of the Republic of China is presently at a crossroads, and the current problems of structural adjustments are the result of the very success of past development efforts. Real wage rates have risen in recent years, indicating that the economy has reached a turning point and that the era of relatively stable real wage rates and unit labor costs has terminated. Whether the economy can successfully restructure its industrial sectors and attain the high rate of economic expansion that it experienced in the past will depend to a great extent on ensuing technology transfers and the easing of protectionism in the industrialized countries.

(5) Technical progress is an indispensable determinant of sustained economic growth. Export-led industrialization gives rise to a more rapid rate of capital formation and technical progress by financing the imports of capital goods through rapid export expansion. The pace of export-led industrialization will, in turn, be facilitated by technical progress. The contribution of direct foreign investment has not been of overriding importance in Taiwan, except in a few manufacturing sectors such as electronics.

(6) Increasing emphasis on technology transfers is both an opportunity and a necessity. Abundant high-quality manpower with basic academic training in science and technology is Taiwan's most important resource. The present industrial policy has been striving to restructure the economy by switching the focus of industrial development from unskilled-labor-intensive manufactures and capital- and energy-intensive heavy and chemical industries to high-technology areas. Approvals of technical cooperation projects and royalty payments have shown, in general, an increasing trend in recent years. Research and development efforts have been stepped up. The Hsinchu Science-based Industrial Park began operations in September 1981. All these efforts are aimed at broadening the industrial base, expediting the transfer of technologies, and restructuring exports in favor of high value-added products. However, a transition away from

highly labor-intensive products to skill-intensive products is not an easy process. It is very difficult to keep up with the rapid technological progress in these products and to compete in markets dominated by the oligopolistic producers of the industrialized countries.

(7) The rapid growth in world trade in the 1960s and the early 1970s has now been replaced by slow growth and increasing protectionism in industrialized countries against manufactured exports from developing countries. Selective protectionism is often applied arbitrarily and with rather more vigor to the diplomatically weak than their trade offences may actually justify.

(8) The policy of protectionism is both inefficient and costly to industrialized countries. The effect is threefold: it develops a scarcity value and foreshadows a long-term decline in economic viability; it encourages the entry of new producers; and it forces producers in the developing countries to improve the quality of their products and aim for higher value added per unit exported. Given the economic losses to industrialized countries involved, a preferred policy would be to eliminate bilateral quotas and rely on tariff protection, accompanied by an adjustment program for labor. The easing of protectionism will be a welcome blessing to the Republic of China and will help sustain its export-led industrialization.

(9) Protectionism in the Republic of China also needs to be eased up. Import controls and restrictions have been relaxed considerably in recent years. However, some new measures are designed to regulate imports under the pretext of maintaining an orderly market. These policies have been mutually offsetting in many cases. It should be noted that trade liberalization will lower the cost of exports through reduced prices of imported machinery and raw materials, provide a spur for improvements in productivity, trigger off accelerated adjustment among industries that have to compete with imports, and may lead to better treatment for exports in foreign markets through bilateral negotiations to obtain mutual concessions.

(10) The Pacific basin has become the most dynamic area of economic growth in the world, and the increased interdependence has given both developing and industrialized countries within the "Pacific Basin Community" a common interest in the maintenance of a framework of international and domestic economic policies within which outward-oriented growth policies can be confidently pursued. Partial integration in projects on a commodity basis may have an important role to play and may be particularly fruitful to industries with long-run decreasing cost curves. Regional cooperation in commodity marketing and research and development is also highly beneficial. More efforts must be devoted to data collection and the evaluation of gains arising from regional cooperation if successful and viable Pacific economic cooperation is to be achieved. And what is needed above all is the political will to act.

Appendix Table 1: Major Economic Indicators: 1952-1982

	1952	1955	1960	1965	1970	1975	1980	1982
A. Computation of per capita income								
GNP (NT\$ million at 1976 prices)	89,864	116,349	160,978	252,909	403,210	613,414	1,003,067	1,093,200
Population (thousand persons)	8,128	9,078	10,792	12,628	14,676	16,150	17,805	18,458
GNP per capita (NT\$1,000 at 1976 prices)	11.0	12.3	14.0	19.6	27.7	38.0	56.9	59.8
B. Percentage shares in GDP (at current prices) at factor cost by industrial origin								
Primary production	38.01	34.61	35.10	29.26	19.41	16.18	10.43	10.06
Manufacturing	10.84	13.80	16.83	20.14	26.43	29.28	34.03	33.26
Social overhead*	8.90	9.64	9.86	11.34	12.68	14.57	16.45	15.42
Services	42.25	41.95	38.21	39.26	41.48	39.97	39.09	41.26
C. Percentage shares in GNP								
Government current revenue	23.56	24.59	23.77	20.06	22.68	23.36	23.60	23.79
Government saving	5.47	5.08	4.01	2.40	3.46	7.04	6.98	5.09
Total domestic saving	15.38	14.63	17.86	20.82	25.71	26.96	32.46	30.12
Gross capital formation	15.40	13.40	20.30	22.83	25.69	30.81	34.20	24.64
Exports	8.07	8.28	11.30	18.73	29.72	39.50	53.80	52.19
Imports	14.21	12.62	18.86	21.75	29.77	42.82	55.16	46.36
D. Percentage share of manufactured exports in total exports								
Manufactured exports (NT\$ billion)**		0.14	1.69	7.78	43.60	163.53	628.08	769.49
Manufactured exports/Total exports		7.6	28.2	42.6	76.7	81.3	88.2	89.0

(Continued)

	1952-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-82	1952-82
E. Compound annual growth rates								
GNP (at 1976 prices)	9.0	6.7	9.5	9.8	8.8	10.3	4.4	8.7
GNP per capita (at 1976 prices)	3.8	2.6	7.0	7.2	6.5	8.4	2.5	5.8
Index of manufacturing output	16.3	11.1	13.8	20.6	12.7	15.8	2.5	14.0
Total exports (at 1976 prices)	4.5	11.7	21.3	22.0	15.4	16.3	5.8	15.1
Employment								
Total	2.0	2.2	2.2	4.0	3.8	3.5	2.0	2.9
Manufacturing	4.3	4.6	3.6	9.4	9.6	7.0	0.5	6.1
Agriculture	0.5	0.9	0.1	-0.8	-0.0	-5.3	0.3	-0.8
Real wages								
Manufacturing	5.7	-0.1	5.5	6.5	7.9	8.5	3.7	5.5
Prices								
GNP deflator	10.3	8.5	2.8	4.8	11.1	8.7	7.8	7.5
Wholesale price index	8.3	9.0	2.0	1.9	11.4	8.6	3.4	6.5

Sources: Directorate-General of Budget, Accounting and Statistics, *National Income of the Republic of China; Monthly Bulletin of Labor Statistics, Republic of China*; Council for Economic Planning and Development, *Taiwan Statistical Data Book*; Department of Statistics, Ministry of Finance, *Monthly Statistics of Exports and Imports, The Republic of China*; Research, Development, and Evaluation Commission, *Commodity Trade Statistics of the Republic of China (SITC Revised), 1954-74* (Aug. 1976); Overall Planning Department, Council for Economic Planning and Development, *Research Report No. (66) 120.119*. (July, 1977).

Notes: * Includes construction; electricity, gas and water; transport, storage and communications.

** Includes SITC categories 5 through 8.

Appendix Table 2. Exports to and Imports from the United States, Japan, the EEC and OPEC as Percentage of Total Exports and Imports: 1952-1982

Year	United States		Japan		EEC		OPEC	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
1952	3.45	46.98	52.59	31.02	5.17	5.88	2.59	0.03
1955	4.07	47.76	59.35	30.35	5.69	5.97	8.13	6.97
1960	11.59	38.05	37.80	35.35	6.10	8.42	10.98	6.40
1965	21.33	31.65	30.67	39.75	10.00	7.37	2.22	4.14
1970	38.08	23.88	14.58	42.85	9.52	8.33	4.52	4.79
1975	34.34	27.76	13.07	30.44	13.83	11.46	8.59	13.98
1980	34.12	23.69	10.97	27.13	14.16	8.06	9.52	23.61
1981	36.10	22.48	10.96	27.97	11.46	7.50	8.82	23.40
1982	39.45	24.16	10.73	25.31	10.77	9.68	9.18	20.79

Source: Inspectorate General of Customs, ROC, *The Trade of China* (various years).

Notes: EEC (European Economic Community) comprises Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, Netherlands and United Kingdom. OPEC (The Organization of Petroleum Exporting Countries) comprises Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

Appendix Table 3. Average Annual Percentage Changes in Wages, Labor Productivity, and Unit Labor Costs in Manufacturing, 1952-1982

	1952-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-82	1952-82
Money wages	16.11	9.42	8.04	11.19	21.01	17.95	14.06	13.72
Consumer prices	9.90	9.52	2.39	4.36	12.20	8.67	9.98	7.79
Real wages*	5.65	- 0.07	5.52	6.54	7.85	8.54	3.72	5.50
Labor productivity	11.51	6.26	9.89	10.37	2.73	8.25	1.98	7.48
Unit labor costs**	4.60	3.16	- 1.85	0.82	18.28	9.70	12.08	6.24

Sources: Council for Economic Planning and Development, *Taiwan Statistical Data Book; Adjusted Statistics of Manufacturing in Taiwan Area* (1st Quarter 1952-4th Quarter 1976); *Adjustment of Labor Force, Unemployment and Employment by Sectors in Taiwan Area* (1952-77); Ministry of Economic Affairs, *Taiwan Industrial Production Statistics Monthly*; DGBAS, *Commodity-Price Statistics Monthly*; *Monthly Bulletin of Labor Statistics*.

Notes: * Money wages divided by the index of urban consumer prices.

**Difference between rate of change of money wage and rate of change of labor productivity. Labor productivity is calculated by dividing output index by employment index.