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CHUNG-HUA INSTITUTION FOR ECONOMIC RESEARCH

DOES TAIWAN'S INDUSTRIALIZATION HAVE ITS OWN PARADIGM?

TZONG-SHAN YU

OCCASIONAL PAPER SERIES No. 9404

June 1994

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Does Taiwan's Industrialization Have Its Own Paradigm?

by

Tzong-shian Yu

President

Chung-Hua Institution for Economic Research

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TZONG-SHIAN YU*

Does Taiwan's Industrialization Have Its Own Paradigm? **

Abstract

The goal of economic development is first to raise the standard of living and then to improve the quality of life, both of which can be achieved through the process of industrialization. In many developing countries, industrialization is not only a popular slogan, but the engine of modern economic growth. As far as Taiwan's economic development is concerned, economic growth with equitable income distribution has been the main guiding doctrine. Generally speaking, from 1952 to 1980, raising the standard of living was of paramount importance, while since 1980, improvement of the quality of living has been increasingly emphasized. Before 1988, economic development meant growth with equity, while from that time on, sustainable development has been gradually of more concern in Taiwan.

This paper attempts not only to examine the evolution of Taiwan's industrialization, but also to explore the achievement of Taiwan's paradigm for industrialization. Since industrialization is embodied in the process of industrial development, government policies have also played a positive role in assisting the realization of the goal of industrialization.

* President, Chung-Hua Institution for Economic Research.

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I. Introduction

The goal of economic development is first to raise the standard of living and then to improve the quality of life, both of which can be achieved through the process of industrialization. In some sense, industrialization is considered a synonym for modernization. In fact, if there is no industrialization, modernization cannot materialize. To most people, the term "modernization" is more attractive, but it is more ambiguous as well. In many developing countries, industrialization is not only a popular slogan, but the engine of modern economic growth. Does a particular country's industrialization have a paradigm? The answer seems to be "yes."

As far as Taiwan's economic development is concerned, economic growth with equitable income distribution has been the main guiding doctrine. From 1952 to 1962, economic growth was mainly achieved through rapid development of the agricultural sector, while from 1963 to 1988, economic growth was due mostly to rapid development of the industrial sector. From 1952 to 1980, income distribution tended to be equitable. Generally speaking, before 1980, raising the standard of living was of paramount importance while since 1980, improvement of the quality of living has been increasingly emphasized. Before 1988, economic development meant growth with equity, while from that time on, sustainable development has been gradually of more concern in Taiwan.

The main purpose of this paper is not only to examine the evolution of Taiwan's industrialization, but also to explore the achievement of Taiwan's paradigm for industrialization. Since industrialization is embodied in the process of industrial development, government policies have also played a positive role in assisting the realization of the goal of industrialization.

II. The Paradigm of Preindustrialization (Before 1963)

Preindustrialization in Taiwan is defined as the period when the share of the agricultural sector in GDP was larger than that of the industrial sector.

Before 1962, Taiwan's economy was predominated by the agricultural sector. For instance, the agricultural sector accounted for 28.54 percent of GDP, while the industrial sector accounted for 23.97 percent of GDP in the period 1952 to 1962. From 1962 on, the share of the industrial sector in GDP has been larger than that of the agricultural sector (see Table 1).

The strategy of economic development was to foster industrial development by virtue of agricultural development in the period 1952 to 1962. Obviously, then, development of the agricultural sector was the foundation for economic development. Land reform was an effective measure in achieving rapid economic growth through the development of the agricultural sector since it was helpful in stimulating farmers' willingness to work and thus to raise their productivity on the one hand, and to increase their income, thus promoting the equalization of income distribution on the other.¹ For instance, during the period 1952 to 1962, the average growth rate of the agricultural sector was 6.2 percent, and farmers' living conditions were substantially improved.

In order to foster industrial development, the agricultural sector provided foreign exchange by means of the export of agricultural products and processed agricultural products. Industrial producers used this foreign exchange to import raw materials and machinery equipment for industrial production. It would have been very difficult for Taiwan to foster industrial development without sufficient foreign exchange (see Table 2).²

From the structural change in exports, it can be seen that the export of agricultural products and processed agricultural products was larger than that of industrial products. By 1962, however, it is obvious that the total export of agricultural products and processed agricultural products was smaller than the export of industrial products for the first time; the former was 49.5 percent while the latter was 50.5 percent. As for imports, the government adopted effective measures to control the import of consumer products in order to protect domestic industries.

¹ The Land Reform Program included three steps: (a) rent reduction to 37.5 percent of the annual yield of the major crop; (b) the sale of public land to cultivators and tenants; and (c) the land-to-the-tiller program, which limited the land ownership of current landlords.

² U.S. aid to Taiwan was resumed in 1950 and was helpful in Taiwan's reconstruction. Most U.S. aid was made in the form of the import of agricultural products such as wheat and raw materials such as cotton which were used for the development of the textile industry. From 1950 to 1965, the total amount of U.S. aid to Taiwan amounted to US\$1.5 billion.

Table 1 Structural Change in Sectors of Taiwan, R.O.C.

(at 1986 Price)

Year	Growth Rate of GDP	Agricultural Sector			Industrial Sector			Service Sector		
		Percent-age	Growth Rate	Contri-bution	Percent-age	Growth Rate	Contri-bution	Percent-age	Growth Rate	Contri-bution
1952	11.98	32.22	11.75	3.7920	19.69	3.33	0.7096	48.10	16.11	7.4728
1953	9.33	34.45	16.92	5.4512	19.39	7.71	1.5185	46.15	4.91	2.3621
1954	9.54	28.03	-10.89	-3.7532	23.92	35.13	6.8128	48.05	14.04	6.4807
1955	8.11	29.09	12.19	3.4152	23.23	4.99	1.1931	47.68	7.28	3.4968
1956	5.50	27.45	-0.42	-0.1229	24.41	10.86	2.5234	48.13	6.51	3.1032
1957	7.36	27.32	6.86	1.8844	25.26	11.07	2.7031	47.42	5.76	2.7736
1958	6.71	26.76	4.52	1.2364	24.83	4.88	1.2330	48.41	8.94	4.2410
1959	7.65	26.35	5.97	1.5992	27.10	17.50	4.3442	46.56	3.53	1.7071
1960	6.31	28.54	15.14	3.9899	26.87	5.42	1.4692	44.59	1.83	0.8497
1961	6.88	27.50	3.00	0.8547	24.21	-3.70	-0.9947	48.29	15.74	7.0183
1962	7.90	26.25	3.01	0.8271	24.74	10.25	2.4818	49.01	9.51	4.5943
1963	9.35	24.59	2.41	0.6321	25.43	12.41	3.0701	49.99	11.53	5.6521
1964	12.20	24.70	12.74	3.1325	26.53	17.05	4.3363	48.77	9.46	4.7308
1965	11.13	23.87	7.38	1.8232	26.95	12.90	3.4220	49.18	12.08	5.8894
1966	8.91	22.52	2.77	0.6603	28.33	14.47	3.8995	49.15	8.85	4.3526
1967	10.71	21.37	5.06	1.1388	29.48	15.23	4.3126	49.15	10.70	5.2601
1968	9.17	20.46	4.49	0.9596	31.07	15.07	4.4434	48.47	7.67	3.7681
1969	8.95	18.03	-3.99	-0.8171	33.62	17.88	5.5567	48.35	8.68	4.2086
1970	11.37	16.86	4.15	0.7485	35.48	17.51	5.8876	47.67	9.79	4.7348
1971	12.90	15.04	0.74	0.1243	37.63	19.76	7.0113	47.32	12.08	5.7596
1972	13.32	13.62	2.61	0.3926	39.64	19.35	7.2817	46.74	11.92	5.6431
1973	12.83	12.41	2.83	0.3853	40.70	15.86	6.2876	46.89	13.18	6.1596
1974	1.16	12.52	2.00	0.2486	39.38	-2.13	-0.8663	48.11	3.80	1.7797
1975	4.93	11.49	-3.68	-0.4604	39.97	6.50	2.5599	48.54	5.88	2.8290
1976	13.86	10.91	8.10	0.9306	42.61	21.39	8.5495	46.48	9.02	4.3807
1977	10.19	10.27	3.70	0.4038	43.43	12.30	5.2422	46.31	9.78	4.5436
1978	13.59	8.91	-1.45	-0.1493	45.14	18.08	7.8535	45.95	12.72	5.8896
1979	8.17	8.62	4.65	0.4140	44.90	7.59	3.4267	46.48	9.43	4.3333
1980	7.30	7.91	-1.49	-0.1281	45.98	9.87	4.4307	46.12	6.45	2.9987
1981	6.16	7.41	-0.51	-0.0402	46.36	7.05	3.2415	46.23	6.42	2.9614
1982	3.55	7.35	2.74	0.2028	45.52	1.68	0.7787	47.12	5.56	2.5698
1983	8.45	6.89	1.55	0.1141	46.00	9.58	4.3624	47.11	8.43	3.9704
1984	10.60	6.37	2.22	0.1532	46.93	12.84	5.9069	46.70	9.64	4.5395
1985	4.95	6.22	2.57	0.1637	46.53	4.07	1.9081	47.24	6.17	2.8807
1986	11.64	5.54	-0.55	-0.0343	47.64	14.29	6.6513	46.82	10.64	5.0248
1987	12.34	5.16	4.65	0.2578	47.61	12.27	5.8456	47.23	13.31	6.2321
1988	7.34	4.82	0.24	0.0126	46.46	4.75	2.2603	48.72	10.73	5.0677
1989	7.57	4.42	-1.40	-0.0675	45.12	4.46	2.0738	50.46	11.42	5.5629
1990	4.87	4.26	1.05	0.0464	43.59	1.32	0.5936	52.15	8.38	4.2264
1991	7.23	3.98	0.23	0.0099	43.35	6.64	2.8948	52.67	8.30	4.3300
1992	6.54	3.64	-2.66	-0.1058	42.47	4.37	1.8961	53.90	9.03	4.7583
1993	6.15	3.45	0.73	0.0265	41.70	4.25	1.8048	54.84	8.02	4.3226
Average										
1952-1962	7.93	28.54	6.19	1.7431	23.97	9.77	2.1813	47.49	8.56	4.0091
1963-1980	10.00	15.78	2.94	0.5800	36.46	13.95	4.8169	47.76	9.61	4.6063
1981-1993	7.49	5.35	0.84	0.0569	45.33	6.74	3.0937	49.32	8.93	4.3421

Note: (Rate of contribution)_t = (growth rate)_t x (percentage distribution)_{t-1}

Source: The National Income of the Republic of China, Prepared by the Directorate-General of Budget,

Accounting and Statistics.

**Table 2 Structural Change in the Exports
of Taiwan (1952-1962)**

Unit: %

Year	Total Export of Goods	Agricultural Products	Processed Agricultural Products	Industrial Products
1952	100.0	22.1	69.8	8.1
1953	100.0	13.8	77.8	8.4
1954	100.0	13.3	76.1	10.6
1955	100.0	28.1	61.5	10.4
1956	100.0	18.5	64.5	17.0
1957	100.0	15.9	71.5	12.6
1958	100.0	23.7	62.3	14.0
1959	100.0	23.6	52.8	23.6
1960	100.0	12.0	55.7	32.3
1961	100.0	14.8	44.3	40.9
1962	100.0	11.9	37.6	50.5

Source: *Taiwan Statistical Data Book*, 1981, Council for Economic Planning and Development, ROC.

During this period of time, the government in Taiwan also emphasized industrial development. The top priority of government policies was the recovery of industries destroyed by the war.³ Private enterprises concentrated their efforts on industries which were easy to operate, such as the textile, cement, paper, sulfuric acid and calcium superphosphate industries, all of which were mainly aimed at meeting domestic demand.

The average growth rate of GDP during this period was 7.93 percent; as for the contribution of each sector to economic growth, the contribution of the agricultural sector was 1.74 (or a share of 22%), that of the industrial sector was 2.18 (or 27%), and that of the service sector was 4.01 (or 51%). Though the share of the agricultural sector was larger than that of the industrial sector, the growth rate of the former was smaller than the latter. In fact, 6.19 percent was a very high growth rate for the agricultural sector. In addition, the inflation rate was high, and the unemployment rate was low. The average inflation rate in terms of the rate of change in the consumer price index was 8.9 percent, while the average unemployment rate was 2.5 percent, respectively (see Table 3).

³ During the final stages of World War II, Taiwan was seriously bombed by U.S. air forces because Taiwan was a military base for the Japanese military. Many harbors, railways and public buildings were destroyed.

Table 3. Main Economic Indicators of Taiwan

Year	Inflation rate*	Unemployment rate	Gini coefficient
1952		4.36	
1953	18.80	4.13	
1954	1.70	4.02	
1955	9.90	3.73	
1956	10.50	3.65	
1957	7.50	3.66	
1958	1.30	3.80	
1959	10.60	3.82	
1960	18.50	4.01	
1961	7.80	4.21	
1962	2.40	4.11	
Average	8.90	3.95	
1963	2.20	4.33	
1964	-0.20	4.22	0.321
1965	-0.10	3.30	
1966	2.00	3.00	0.323
1967	3.40	2.29	
1968	7.93	1.72	0.326
1969	5.05	1.88	
1970	3.55	1.70	0.294
1971	2.83	1.66	
1972	3.01	1.49	0.291
1973	8.19	1.26	
1974	47.47	1.53	0.287
1975	5.22	2.40	
1976	2.50	1.78	0.280
1977	7.04	1.76	0.284
1978	5.76	1.67	0.287
1979	9.76	1.28	0.285
1980	19.00	1.23	0.277
Average	7.48	2.14	
1981	16.33	1.36	0.281
1982	2.72	2.14	0.283
1983	1.59	2.71	0.287
1984	-0.22	2.44	0.287
1985	-0.40	2.91	0.290
1986	0.70	2.66	0.296
1987	0.52	1.97	0.299
1988	1.29	1.69	0.303
1989	4.40	1.57	0.303
1990	4.13	1.67	0.312
1991	3.62	1.51	0.308
1992	4.47	1.51	0.312
1993	2.94	1.45	
Average	3.24	1.97	

Sources: 1. Statistical Abstract of National Income, Taiwan Area, Republic of China, 1951-1992, Directorate-General of Budget, Accounting and Statistics, Executive Yuan.

2. Report on the Survey of Personal Income Distribution in Taiwan Area, R. O. C.

*The Rate of Change in Consumer Price Index.

III. The Paradigm of the Industrialization Process

1. The First Phase (1963 to 1980)

In the first phase (1963-1980), how to accelerate economic growth became the central theme, and achieving this goal was based mainly on the rapid development of the industrial sector. The promotion of an equitable income distribution was also still emphasized. In order to accelerate industrial development, the government played a positive role by providing the necessary infrastructure and public utilities. It also set up capital-intensive industries, such as the expansion of the power system, the development of the petroleum industry and the steel mill industry since it had the ability to make use of foreign loans and U.S. aid to develop these industries. These industries were also fundamental in assisting the development of private industries. Actually, private enterprises not only didn't have the money to undertake the development of heavy industries, but they were also not interested in long-term investment. In any event, the government did not intervene to develop industries which the private sector had the prerogative and ability to manage.

The Nature of Industrial Development

The development of heavy and capital-intensive industries was handled by the government as subject to assignment specifically set by economic development plans, while the development of light and labor-intensive industries was undertaken by the private sector and was subject to market forces. However, during the period 1952 to 1980, the distribution of industrial production by ownership rapidly changed. The public sector declined from 56.6 percent in 1952 to 20.9 percent in 1980 while the private sector rapidly increased from 43.4 percent in 1952 to 79.1 percent in 1980. The private sector increased by 87 times while the public sector increased by just 14 times during the period in question.

In the first phase, the industrial sector achieved its highest growth. The average growth rate was 13.95 percent, which was closely related to the rapid growth of foreign trade. Since Taiwan lacks natural resources, it was very natural to adopt an open-door policy and develop foreign trade. Before 1962, more than 50 percent of Taiwan's exports were agricultural

products and processed agricultural products; from that time on, however, the export of industrial products increased dramatically. For instance, in 1980, the export of industrial products accounted for 90.8 percent of total exports. The United States was the largest export partner while Japan was the major supplier of imports.

It is interesting to note that large-sized enterprises focused on the domestic market while small- and medium-sized enterprises focused on the foreign market. In Taiwan, most enterprises in the industrial sector were small businesses, which played a pioneering role in developing foreign trade. These small businesses were mainly labor-intensive enterprises which effectively utilized the principle of comparative advantage. During the first phase, cheap labor had a comparative advantage in Taiwan. Small businesses enjoyed this comparative advantage and possessed high competitiveness in the world market. This is why foreign trade was so rapidly developed.

From 1963 to 1980, the average growth rate of GDP was 10 percent the maximum growth rate achieved by Taiwan's economy. As for the contribution to high growth by each sector, 0.58 (or a share of 5.8%) came from the agricultural sector, 4.82 (or 48.2%) from the industrial sector, and 4.61 (or 46.1%) from the service sector, respectively. Obviously, the industrial sector made the largest contribution to Taiwan's economic growth. More important was that the industrial sector had also created more job opportunities than the other two sectors. In 1962, employment in the agricultural sector accounted for 56.1 percent of total employment, the industrial sector accounted for 16.9 percent and the service sector accounted for 27.0 percent. By 1980, they were 19.5 percent, 42.2 percent and 38.1 percent, respectively. It should be noted that the share of employment in the industrial sector reached its maximum in 1987, and then gradually declined, indicating that the industrial sector no longer has the best ability to absorb the surplus labor released from the agricultural sector. The process of industrialization helped Taiwan to achieve two goals: one was to accelerate economic growth, and the other was to raise the standard of living. The rapid development of labor-intensive industry absorbed a large amount of surplus labor which was very helpful in equalizing income distribution. The Gini coefficient for measuring income distribution reached its lowest level in 1980. In other words, from that year on, income distribution has become worse. During this period, the inflation rate was very low if the years of the oil crises are not included; unemployment was also low. On average, the former was 3.58 percent while the latter was

2.14 percent, respectively (see Table 3).⁴

The Role of Government

In the process of industrialization, the government in Taiwan introduced many policy measures. Many of these were very effective in the early stage, but then their effectiveness was reduced or even brought about drawbacks in the latter stage. The most important measures for fostering private industries can be traced back to 1960 when the government promulgated the "19-point Financial and Economic Reform Program" to serve as a guideline for Taiwan's economic development. The program called for the government to continue to transfer state-owned enterprises to private ownership and also to accord protection or assistance to private firms, including tax relief, the provision of foreign exchange and the extension of credits.

Also promulgated in 1960 and of equal importance to the promotion of industrial development was the "Statute for Encouragement of Investment" which was intended primarily to encourage the channeling of private savings into investment by productive enterprises. The statute provided tax and other benefits and also facilitated the acquisition of land for industrial use.⁵ In addition, the government set up Export Processing Zones in 1965 to attract foreign investment in order to strengthen exports and create job opportunities. It also set up the China External Trade Development Council in 1970 to help extend foreign trade. The government also pursued several other policy directions equally beneficial to the growth of private industry, such as (1) providing guidance and assistance to small- and medium-sized enterprises; (2) diagnosing management problems and promoting industrial productivity; (3) promoting foreign trade, and (4) facilitating the introduction and diffusion of technology.

Generally speaking, these policy measures were effective to some extent in accelerating industrial development and raising the standard of living. However, it cannot be denied that some of them have caused many socioeconomic problems and have inflicted a heavy social cost.

⁴ From 1963 to 1980, the average rate of change in the consumer price index was 7.48 percent.

⁵ Refer to K. T. Li (1981). "The Experience of Dynamic Economic Growth in Taiwan," Meiya Publications, Inc.

The Price Paid for Accelerating Industrial Development

By the late 1970s, the growth rate of GDP was high (more than 10 percent), as was the growth rate of the industrial sector (about 14 percent). The result of rapid industrial development was prosperity on the one hand and pollution on the other. In Taiwan, all big cities are choking with air pollution produced not only by factories but by cars and motorcycles. Water pollution is very serious, and no fish can survive in the major rivers and nearby sea. Odor pollution and soil pollution caused by factories are also serious. All of this pollution has deteriorated the living environment. These are the result of ignorance in the choice of policy measures for encouraging industrial development. To be specific: (1) There was no choice of industries: When Taiwan was in its early stages of economic development, there really wasn't any choice about which types of industries to develop. So long as the industry could create jobs, the industry was encouraged, even if it was an industry that resulted in high levels of pollution. (2) There was no choice of location of factories: This choice is closely related to environmental protection and the living environment. Due to people's ignorance and the lack of long-term city planning, many factories located in urban areas produced not only commodities, but also air, water and noise pollution. (3) There was abuse of farmland: Many factories which are located in rural areas have spoiled substantial amounts of farmland through their pollution. Furthermore, many rivers have already been seriously damaged, and fertile soil has deteriorated.⁶

2. The Second Phase (1981 to 1993)

In view of the seriousness of pollution problems that took place in the 1970s, the government emphasized not only a sustained economic growth rate but also a better quality of life since without sustained economic growth, there is no capacity to improve the quality of life. As for income distribution, the concept of reasonable income distribution seems to have replaced the goal of equitable income distribution since people in Taiwan are no longer poor. When most people in the country were poor, equalization of income distribution may have been necessary. However, as the country becomes richer and richer, the equalization of income distribution may harm hard-working people, with the risk of destroying the

⁶ Refer to Yu (1994).

entrepreneurial spirit.

The Growth of the Industrial Sector

In the second phase of industrial development (1981 to 1993), Taiwan experienced unusual disturbances. Though the average growth rate was still high at 7.49 percent, it tended to decline after 1988. Correspondingly, the average growth rate of the agricultural sector was only 0.84 percent and its contribution to economic growth was 0.0569 (or a share of 0.75%). The average growth rate of the industrial sector was 6.74 percent, much lower than the previous stage, with a contribution to economic growth of 3.0937 (or 41.30%). The average growth rate of the service sector was 8.93 percent, also lower than the previous stage, and its contribution to economic growth was 4.3421 (or 57.97%), indicating that only the service sector made a significant contribution to economic growth in the second phase. Noticeably, in 1988 the share of the service sector began to exceed that of the industrial sector.

The decline in the growth rate of the industrial sector was mainly the result of the slowdown in exports that began in 1988 due to the rapid appreciation of the N.T. dollar against the U.S. dollar. During the last six years (1988 to 1993), the average growth rate of exports was 6.39 percent, which was a little lower than the average growth rate of GDP at 6.61 percent and higher than that of the industrial sector at 4.30 percent. Whether the decline of industrial growth was due to the sluggishness of investment because of deterioration of the investment climate, or whether it was due to the weakened competitiveness of Taiwan's products because of high prices, or both, has been widely discussed recently.

Features of Industrial Development

The second phase of industrial development was no doubt a significant era in Taiwan's economy, in which industrial development was characterized by the following facts:

- (1) The industrial structure was being transformed from labor-intensive to technology-intensive and knowledge-intensive. The traditional industries, with the introduction of technological improvement, have been faced with crisis. Many of them have had to move to the ASEAN countries, mainland China or Indochina for survival.
- (2) Taiwan started to make direct investment in foreign countries. In the early 1980s, a few large-sized enterprises made direct investment in

North America and West European countries in order to penetrate the local market, whereas in the late 1980s, many small- and medium-sized enterprises made direct investment in developing countries either to utilize cheap labor and cheap land or to secure local markets. However, the so-called "hollowing-out" problem of Taiwan's industry has worried many people. So far, however, there is not yet concrete evidence indicating the appearance of this phenomenon.

- (3) Before 1988, the industrial sector predominated in the economic development of Taiwan, but from that year on, the service sector started to have the largest share of GDP. In 1993, the service sector accounted for 54.84 percent of GDP, indicating its importance more than ever before. Even so, the service sector is closely related to the industrial sector. Without growth in the industrial sector, growth in the service sector is greatly limited.
- (4) The problem of the shortage of labor appeared in the 1980s. Many industries such as construction, fishing, domestic help, handicrafts, etc., have run into this problem. Whether Taiwan should import foreign labor from neighboring countries has been a big issue of debate. Nevertheless, in the last decade, many foreign workers have been employed in Taiwan.
- (5) The diversification of Taiwan's exports away from the United States toward European and East Asian countries, so far, has been successful. It has resulted in two effects: one is to reduce the trade surplus with the United States and the other is to set up a vertical division of industrial production with trade partners in East Asian countries, which is helpful for the sustained development of Taiwan's foreign trade.

Changes in Policy Measures for Encouraging Industrial Development

In the second stage of industrial development, the government continued to play a positive role in affecting the direction of industrial development by means of encouragement measures. Since the 1980s, competition in the world market has become very keen and protectionism has become a major issue in many developed countries. In response to these challenges, the government in Taiwan has selected certain strategic industries and given them various financial and tax incentives according to

established criteria. The big question regarding this policy is: Can the strategic industries create demand? If there is no effective demand, what will happen to these industries?

At the end of the 1980s, the "Statute for the Encouragement of Investment" expired. In view of the drawbacks resulting from its long-run implementation and the necessity to upgrade industries, the government proposed an alternative policy, i.e., "the Statute for Upgrading Industries", which is aimed not at encouraging investment for particular industries through the use of loans, tax reductions or tax exemptions, but by encouraging firms to enhance research and development, introduce new technology into their operations and install antipollution devices through the use of monetary or fiscal encouragement.

To attract foreign investment, the government established Export Processing Zones in the 1960s. Though they performed well in increasing exports and providing job opportunities, the introduction of new technology did not prove to be as effective as expected.⁷ Therefore, the government decided to set up the Hsinchu Science-Based Industrial Park in the early 1980s. By the end of the decade, it was found that the park had made a great contribution to the introduction of new technology and transformation of the industrial structure. The government is planning to establish more science-based parks like Hsinchu in Taiwan.

By the end of the 1980s, Taiwan's industrialization reached its mature stage, and Taiwan's economy had been transformed from a developing to a mature one. Though Taiwan's economic growth rate was still high from a Western point of view, it has tended to decline. Due to the sharp rise of land prices and financial fever,⁸ Taiwan's income distribution has become worse. Environmental conditions have had some improvement, but not noticeably. However, on average the inflation rate was moderate at 3.24 percent, lower than in the first phase, and the unemployment rate was 1.97 percent, also lower than in the first phase.

It should be noted that upgrading the quality of life has become more

⁷ In the late 1970s, the function of Export Processing Zones became unimportant, and many enterprises did not want to set up their factories in the zones, indicating that their form of preferential treatment was no longer attractive.

⁸ Since there are no appropriate channels for excess savings, Taiwan has suffered from financial "fever" since 1986; that is to say, there are illegal investment activities and speculative activities in both the real estate and stock markets.

important than ever before, not only because pollution problems have not yet been solved, but also because the people have become rich enough that they prefer to enjoy a comfortable life just like people in Western countries. By the end of the 1980s, the idea of sustainable development had been introduced to Taiwan and discussed by academics. They have realized the seriousness of the shortage of underground water, the destruction of woodlands and the deterioration of ecological conditions which have caused many natural disasters. However, this issue has not yet drawn the great attention of policymakers.⁹

IV. Evaluation of Policy Measures for Accelerating Industrial Development

In the process of industrialization, the government has adopted many policy measures to foster industrial development. It is generally recognized that the purpose of each policy is justifiable, but the consequence of its implementation may not be so effective as expected in the long run because of changing societal and political conditions.¹⁰

1. The Protection of Infant Industry

Many policymakers believed that infant industries should be protected until they matured. The automobile industry, for example, though, was regarded as a locomotive industry and has been protected by high tariff and nontariff barriers for more than 35 years in Taiwan. As a result of protection, eight automobile companies have been established on this small island. They produce various types of vehicles and so far not one of them has achieved economies of scale, the prices of their products are high and the quality is low compared with foreign automobiles.

⁹ From 1990 on, there have been conferences to deal with the issue of sustainable development in Taiwan. However, policymakers have not paid much attention to them. It will probably take a long time for this to become a burning issue.

¹⁰ No policy measures can last very long. Changes in social, political and economic conditions are the key element. For instance, the Land Reform Program was an effective policy not only in stimulating productivity but in improving farmers' living conditions. However, this policy became a bottleneck to the effective use of farmland. This section mainly cites Yu's paper (1994).

2. Negative Effect of Long-run Subsidy Policy

To stimulate the willingness of investors to undertake projects and thus accelerate industrial growth, the government promulgated the "Statute for Encouragement of Investment". The statute was effective during its first two decades, and then became ineffective in attracting investment. Many firms have also taken advantage of the subsidy measures to make money from tax deductions or tax exemptions. For instance, many firms enjoy tax refunds by making false exports. In particular, tax deductions, tax exemptions and loans with low interest rates have been criticized as unfair trade conditions by trade partners. This is why the above statute was allowed to expire and not extended.

3. Drawbacks of the High Trade Surplus Accumulation

"All is for promoting exports" has been a slogan in Taiwan. Under this strategy, the establishment of any industry for export is encouraged. In fact, the rapid development of the industrial sector has supported the rapid growth of foreign trade. From 1976 and lasting all the way through 1993, Taiwan started to enjoy a trade surplus. It should be noted that the trade surplus accounted for more than 19 percent of GDP in 1986. Though the huge trade surplus represents a national strength, it began to cause many problems in the late 1980s. The most important are: (a) the rapid appreciation of the N.T. dollar against the U.S. dollar has deteriorated the competitiveness of Taiwan's products in the world market, and (b) because there are no appropriate channels for excess saving, the price of real estate has skyrocketed, which in turn has increased the cost of production and the cost of living, both of which are harmful for income distribution.

V. Concluding Remarks

Human knowledge is limited and people know little about the future. For any developing country, the paradigm of industrialization is subject to evolution and depends on the stage of economic development. In the early stage, how to achieve high economic growth is the most important goal and all economic policies are aimed at achieving that goal. The equalization of income distribution is usually neglected. Once the country becomes rich, policymakers begin to take care of the problem of income distribution, and environmental protection is also increasingly taken into

consideration.

As far as the case of Taiwan is concerned, even in the early stage of economic development, the government emphasized the equal importance of growth and equity. This was because of the bitter experience in the Chinese Mainland in the 1940s when the Chinese Communist Party defeated the ruling Nationalist Party by utilizing the slogan of equality for the rich and the poor, and also due to the doctrine of Dr. Sun Yet-sen, founding father of the Republic of China, who stressed the equalization of wealth.

The evolution of the paradigm of one country's industrialization is consistent with its actual demands. It is natural and reasonable to state that raising the standard of living depends on economic growth, and upgrading the quality of life also relies on economic growth. As for income distribution, this also is based on sustained economic growth. In the early stage of economic development, some degree of equal income distribution is essential and then when the economy reaches its mature stage, reasonable income distribution is more important. If this order is reversed, it is very difficult to achieve sustained economic growth and many social problems will take place instead.

However, industrialization should not be implemented at the expense of the living environment. Otherwise, the price paid for accelerating industrialization will be very high. As a good example, Taiwan is currently paying the cost for its ignorance of environmental protection in the process of industrialization.

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