# The 'Asian Tigers' and the end of full-set industry

by Kathy Wolfe

As "globalization" and "outsourcing" one's national industries to death have grown fashionable, the buzzwords "Asian tiger" and "East Asia model," as used in the 1990s, have come to convey nonsense. The original reference, however, to Taiwan and South Korea's growth since 1970, a true industrialization similar to that of Japan in the nineteenth-century Meiji Era, is worth study. All three nations based themselves on the American System of Alexander Hamilton and Friedrich List, as Tokyo, Seoul, and Taipei officials will freely attest.

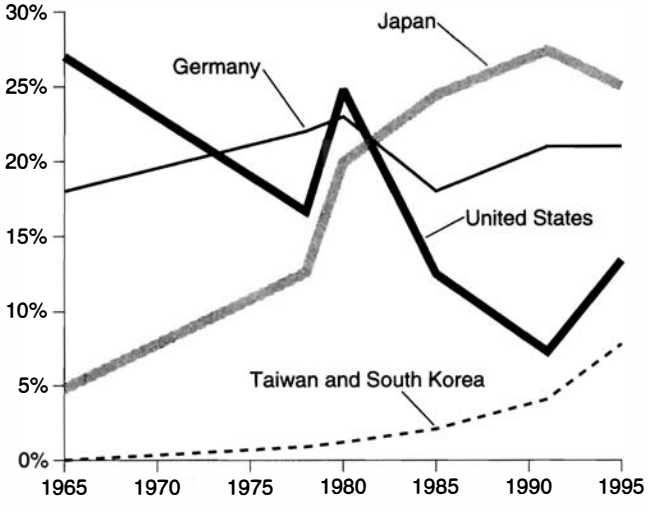
In particular, Taiwan and South Korea enraged London and Wall Street, as had Japan earlier, by developing their own machine-tool sectors and the small-business/engineering complexes, similar to the high-density Tokyo-Yokohama corridor, which design and produce such tools. By 1991, Taiwan and South Korea, with a combined population of 63 million people, began to rival the United States (population 250 million) for its share of world machine-tool output (**Figure 1**). By 1995, Taiwan and Korea combined, with 7.8% of world output, had surpassed the U.S. level in 1991, of 7.3%. In 1995, Taiwan and Korea were in the top eight of world machine-tool-producing nations, ahead of Her Majesty's Great Britain, and France.

Japan, a more familiar case, since 1983 has been the world's largest machine-tool producer, surpassing the United States and Germany (Figure 1 combines the output of East Germany and West Germany before 1989).

As Taiwan President Chiang Kai-shek is said to have announced in the mid-1960s: "We're not going to produce toys anymore. We're going to produce the real thing," referring to the difference between producing a supertanker, and producing plastic toy ships.

Japanese followers of List referred to this as a "full-set industrial structure," in which one nation "possessed within its borders all industrial sectors, at a reasonably high level of development," necessary for national sovereignty, as did the nineteenth-century United States. They contrasted it to the "comparative costs" model of David Ricardo, imposed by the British Empire in Europe, in which Germany produced fine steel the most cheaply for others, but depended on Britain for shipbuilding, or upon France and Italy for textiles, and so on.[1]

FIGURE 1
**Percent share of world machine tool production**




Source: Association for Manufacturing Technology (formerly the U.S. National Machine Tool Builders Association).

Since 1985, when former Merrill Lynch chief and then-U.S. Treasury Secretary Donald Regan demanded the Plaza Accord with Tokyo, however, globalization has imposed increasing deindustrialization upon Japan. The free traders at the Bank of England and the Bank for International Settlements (BIS), in particular, have focussed heavy pressure in an attempt to force Japanese banks to abandon their long-standing policy of providing cheap loans for their affiliated industrial corporations. It is through these *keiretsu* ties between Sumitomo Bank and Sumitomo Heavy Industry, for example, that Japanese industry has gotten plentiful investment credit to develop new technologies.

Speaking of the resultant Japanese bank crisis, Japanese Prime Minister Ryutaro Hashimoto told the Japanese Diet on Jan. 22: "The current world monetary system is a danger to the existence of the physical economy of the entire world."

With recent "deregulation," Taiwan and South Korea are threatening to follow Japan downhill.

1. Mitsuhiro Seki, *Beyond the Full-set Industrial Structure* (Tokyo: Long-Term Credit Bank, 1994), p. 35-6.

## The 'Four Tigers' is an Orwellian label

Meanwhile, the British have permuted the label "Asian tiger" to mean the opposite of the original, in an effort to stop nations in Africa and elsewhere from studying industrial history. Today's Anglophile media use "tigers" to denote the British model of free-trade sweatshops in Hongkong and Singapore. Neither of these two, however, nor their followers in Malaysia, Thailand, and the rest of Southeast Asia, has ever produced even a half-set industrial base, or a *sovereign nation-state.*

Indonesia and Singapore have some small machine-tool production, but their combined 1995 output (0.4% of world output) would not be visible on the scale of Figure 1. Nor would that of Hongkong, or of the rest of Southeast Asia.

Rather, the Hongkong-Singapore model relies upon London-style "financial invisibles," such as real estate, banking, and insurance, and production of what Chiang Kai-shek called "toys," i.e., low-wage consumer goods and electronics, made of cheap materials, or of parts produced in the West and assembled in sweatshops.

Indeed, lumping Hongkong and Singapore together with Korea and Taiwan, as the "Four Tigers," was the Orwellian work of a 1993 report issued by the World Bank, entitled *The East Asian Miracle.* This 389-page tome is a typical British attempt to squash a process—to stop other nations from understanding the real engine of growth in Korea and Taiwan—by officially announcing a twisted definition of it. The World Bank classifies the four together as "tigers," based on similarities of monetary Gross National Product (GNP) per capita. It never asks whether the monetary GNP comes from machinery production, or casino gambling[2] (see p. 39).

## The 'full-set' and the nation-state

The "full-set" concept was a direct product of the American Revolution, specifically the 1791 *Report on Manufactures* by America's first treasury secretary, Alexander Hamilton. He wrote that it is impossible to found a lasting and free nation-state, without government protection and fostering of industry, and especially of new scientific invention. The German-American economist Friedrich List elaborated this in his 1841 book, *The National System of Political Economy.* Returning to Germany after 1830, List was instrumental in founding the German state and industrial economy.

The writings of Hamilton, List, and their collaborators were fully adopted by Japanese founding father Ōkubo Toshimichi, and Japan's first finance minister, Ōkuma Shigenobu, during the 1870s, and, after World War II, by Taiwan's first economics minister, Yin Chung-yung (a.k.a. K.Y. Yin), and by South Korea's early finance ministers, such as Dr. Chang Ki-young.

2. John Page et al., *East Asian Miracle* (New York: World Bank, Oxford University Press, 1993), p. xvi.

After World War II and the Korean War, instead of allowing foreigners to buy them up, the Japanese, Korean, and Taiwanese mobilized government credit, which they called "policy credit," to invest in the most advanced new technologies. They founded government development banks (such as the Japan Development Bank and the Korea Development Bank), which were directed to create a backbone of modern infrastructure from the rubble. Their central banks used "window guidance" to direct commercial banks to loan specifically to these projects, and to private companies set up to create entire new industries, into which the private sector could not afford to invest alone.

As each new industry, such as Japan's high-speed bullet trains, came on line, the government sold its share to a private firm to develop. This partnership, which has nothing to do with either Adam Smith's laissez-faire or Marx's equally debilitating communism, has been described as a public sector skeleton, made complete by private sector flesh and blood. It has created some of the largest and most vibrant private companies in the world.

Japan, Taiwan, and Korea are all cut off from the mainland, poor in raw materials, and dependent on foreign fossil fuels. They chose to meet their postwar security needs by developing industrial independence.

## Indicators of industrialization

There are several basic measures which show that Taiwan and Korea were joining Japan by the 1990s as full-set industrial nations (**Table 1**). These indicators show the *labor-power* level of the economy—in G.W. Leibniz's term, the extent to which "one man may do the work of a hundred" by use of powered machinery.

In 1992, in percentage of workforce employed in manufacturing (Table 1, line a), Taiwan, at 32%, had surpassed Japan (24%); and, the United States at its height in the 1960s, when the U.S. ratio was 27%. Taiwan's figure compares with Germany (31%). South Korea, at 22% by 1992, had surpassed the United States that year (18%), and reached the general level of Japan.

Non-industrialized countries typically exhibit single-digit or only slightly higher manufacturing employment ratios, such as Indonesia (8%) and Thailand (6%).

Production of electricity per capita (Table 1, line b) is another indicator, showing the power available to the average individual in the economy. In 1992, Taiwan, at 5,000 kilowatt-hours per capita, was already at German and Japanese levels; Korea, at 2,600 kwh, was at the same level reached by Germany in the 1970s. Non-industrial countries such as Indonesia and Thailand exhibit lower levels, of 200 and 1,000 kwh, respectively.

Figures on nuclear electricity generation give a more precise sense of the *technological* level of manufacturing labor skills, and of labor power more generally. Korea, Taiwan,

TABLE 1
**Industrial indicators, 1992**

| | Japan | Taiwan | South Korea | United States | Germany | Indonesia | Thailand |
|---|---|---|---|---|---|---|---|
| a. Percent of employed in manufacturing | 24% | 32% | 22% | 18% | 31% | 8% | 6% |
| b. Elecricity production (thousand kwh per capita) | 7.4 | 5 | 2.6 | 11 | 5.7 | 0.2 | 1 |
| c. Nuclear-generated electricity as percent of total electricity generation | 29% | 36% | 44% | 10% | 15% | 0% | 0% |
| d. Ship production (dwt per thousand population) | 81 | 62 | 91 | 0.8 | 20 | 0 | 0 |
| e. Automobile production (units per thousand population) | 81 | 24 | 46 | 24 | 62 | – | – |

Sources: National embassies, U.S. Department of Energy, IAEA, Shipbuilders Council of America, MITI.

and Japan have some of the highest percentages of electricity generated by nuclear plants in the world (Table 1, line c), exceeded only by France, Belgium, and Hungary, and far higher than that of Germany and the United States, thanks to the disease of environmentalism in those two nations. Indonesia and Thailand have no nuclear electricity, although plants are planned for the year 2003.

Other indicators of the development of full-set heavy industry are shipbuilding and machinery production. South Korea and Taiwan are now the world's leading shipbuilding nations, producing 91 deadweight tons per 1,000 people and 62 dwt per 1,000, respectively (Table 1, line d), compared to Japan at 81 dwt per 1,000. The United States has almost completely shut down shipbuilding.

After World War II, Japan depended heavily on shipbuilding to rebuild the market for its postwar machinery industries and raise worker skills. In the 1970s, Japan was the world leader, producing in 1975 as much as 136 dwt per 1,000, before Britain's manufactured "oil shock" induced Tokyo to phase out shipbuilding. Investment by relocating Japanese builders played a large part in Korea and Taiwan's development of this sector.

Despite their major ports, Hongkong, Singapore, Indonesia, and other Southeast Asian "toothless tigers" do not have shipbuilding industries, but do only repairs.

Similarly, machinery production in Korea and Taiwan has been led by demand from the shipbuilding and automobile industries. Taiwan's per-capita auto production, at 24 units per 1,000 people, has now equalled that of the United States, and Korea is on its way to overtaking Japan (Table 1, line e). While Indonesia is now developing a national automobile model, up to this point, Southeast Asian nations have negligible production, consisting largely of labor-intensive assembly of parts produced elsewhere.

Taiwan and Korea are also fast becoming exporters of general heavy machinery, such as turbines for power plants, construction machinery, and electrical machinery, such as computers and advanced microprocessors. Korean construction firms are involved in hundreds of billions of dollars of large construction projects around the world, using Korean equipment.

South Korea is already self-sufficient in the production of all components and machinery for nuclear power plants. There are six new nuclear plants now under construction in South Korea, using entirely domestic technology, and South Korean industry will be building the lion's share of the two large nuclear plants planned by the U.S.-led international consortium in North Korea.

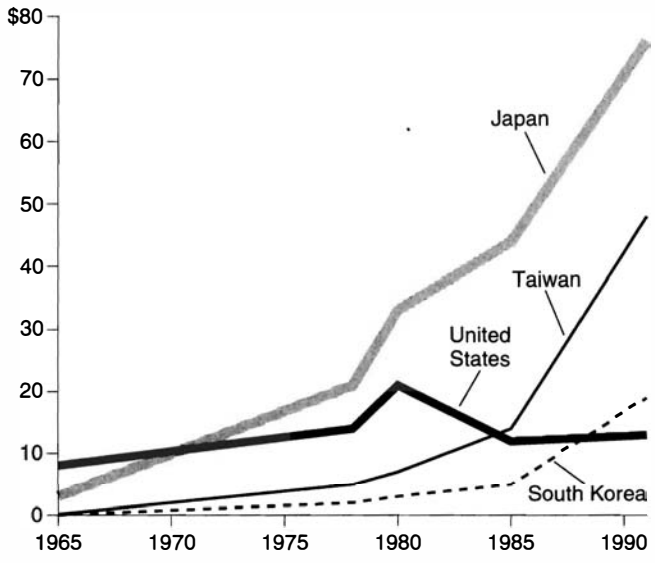
## Machine tools and the 'Mittelstand'

Without the machine tools to feed them, Japan, Korea, and Taiwan could never have built world-class shipbuilding and construction industries. **Figure 2** shows production of machine tools in dollars per capita of population, which indicates the relative labor power of the individual to produce, in each economy. By 1985, Japan's output, of $44 of machine tools per capita, was almost four times U.S. output ($12). Taiwan, at $14 per capita, had surpassed the United States. By 1991, South Korea, at $19 output per capita, had also surpassed the United States.

Japan's data in Figure 2 have been deflated to remove the speculative rise in the number of dollars a Japanese yen will buy since the 1985 Plaza Accords, or Japan's figures would have been even higher. (Taiwan and Korea's currencies are loosely tied to the dollar and have not fluctuated enough to affect Figure 2.)

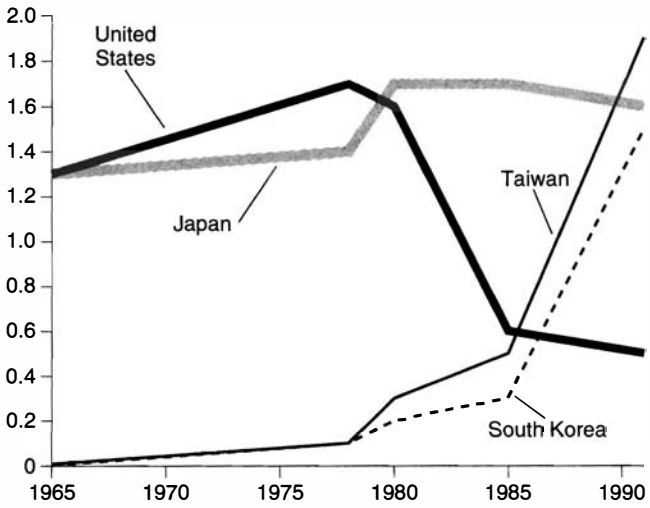
How was this possible? At its height around 1990, the Tokyo-Yokohama machine tool district in Ota, Shinagawa, and a few other wards, was described as very similar in character to the *Mittelstand* areas of Germany, where the world's finest machine tools are produced. As discussed by Lothar Komp, the *Mittelstand,* or mid-sized industrial firms, are small businesses run by innovative entrepreneurs who design and build machines which have never existed before.

FIGURE 2
**Per-capita machine tool production**
(U.S. dollar equivalent* per capita)




* Deflated for foreign exchange speculation in Asian currencies.
Source: Association for Manufacturing Technology.

FIGURE 3
**Machine tool production,* units per capita**
(units per 1,000 population)




* Not including parts and reassembly.
Source: Association for Manufacturing Technology.

Japan's giants, such as Mitsubishi Heavy Industries, located their "mother plants," those charged with developing new production processes for their dozens of plants around the world, in Tokyo's southern wards, to take advantage of the city's many research institutes, government agencies, and newly graduated engineers. These "mother plants," as Mitsuhiro Seki describes it in *Beyond the Full-Set Industrial Structure,* "intent on creating new businesses and technologies, must maintain basic research, production research, and also trial mass production facilities. . . . The equipment required for experimenting and testing is unique and varied, and vast combinations of work processes are required to build ever-newer prototypes. . . .

"It is unrealistic to expect even the biggest firms to equip mother plants or research institutes with all which is needed. . . . The cost would be staggering. The further technology advances, the truer this becomes."

In response, there grew up in Ota Ward, one of Tokyo's southern suburbs on the Tama River, a dense concentration of small machine tool shops, each usually owned by one family, dedicated to meeting the demand for ever-newer machinery. In 1990, Ota Ward was home to 7,860 small plants, employing 77,367 workers, an average of 10 per plant. The typical shop founder was a blue-collar worker in Japan's World War I or World War II munitions machining industries, who left to start his own business, manned primarily by members of the family.

While a large percentage of shops have some 20 workers, Ota has over 2,000 highly specialized shops with only two to four operatives, each operating machinery not found anywhere else in Tokyo, and providing services to a very large number of bigger companies. These mini-shops share larger orders with each other, delivering parts among themselves by bicycle, all within a two-kilometer radius.

Yet, in 1990, Ota Ward's shipments were valued at nearly $10 billion—7.6% of total industrial shipments in Tokyo. "It is said," Seki writes, "that any kind of industrial process can be undertaken in Ota Ward. . . .

"Many tenants of the high-rise condominiums which have appeared in the center of Ota Ward are small systems planning and design firms," Seki points out. " 'Within the radius of one and a half hours travel from here are located all the development divisions of Japan's leading companies,' says one systems designer. 'I can make a paper airplane of my blueprint, toss it out the window, and in a few days the finished product will be ready.' "[3]

## Taiwan and Korea expand

Another aspect, of Taiwan and South Korea's machine tool sectors, is seen by viewing production in terms of *physical units,* instead of in monetary terms. In **Figure 3,** Taiwanese and Korean production have skyrocketed to 1.5 machine

3. Mitsuhiro Seki, op. cit., p. 55-67.

tool units produced per 1,000 population, and almost 2 units per 1,000, respectively. Japan's production of units per capita, however, has remained almost flat.

There are two sides to this. One is that Taiwan and Korea have heavily targetted their machine tool sectors, not only for expansion for domestic consumption, but also to export to less-developed countries. These days, that includes Southeast Asia, and also the United States.

Taiwan, especially since 1989, has had a large excess of exports of machine tools over its internal consumption of machine tools. In 1995, Taiwan produced $1.6 billion of machine tools, and exported $1.1 billion worth. Taiwan's consumption came from $636 million of more sophisticated imported machine tools, which it cannot yet produce but which it wants to replicate, plus $500 million from domestic production.

The other side is that Japan, since 1980, has gone from making larger numbers of basic machine tools, such as Taiwan and Korea now make, to become a world leader, second only to Germany, in production of "high end" numerically controlled (NC) computerized machine tools, robotics, and other extremely sophisticated devices. Since 1990, some 30% of Japan's units have been of this quality.

The highly skilled operator of each of these is a computer specialist, doing the work formerly done by several hundred. The leading edge of the industry is in NC machine tools; those countries producing large numbers of NC and robotics tools, such as Germany and Japan, are those which are designing *new* machine tools.

An NC lathe may multiply the labor of one operator by an order of magnitude over an ordinary lathe, which is a nineteenth-century technology. It may also cost ten times as much. The multiplication of labor power, however, is the important factor, which is reflected in the fact that a smaller number of sophisticated units bring a higher monetary price. It is this, and not inflation, overhead, or other negative effects of monetary figures which explains Japan's higher output in dollar terms (see Figure 2).

The most sophisticated NC machine tools are produced not for shipbuilding or other basic heavy industry, where a part may be several feet across, but for higher-end industries requiring high-precision tolerances for parts which may be smaller in size by a factor of ten, such in as the aerospace, military, auto, or computer industries.

While arming heavily, Taiwan and Korea did not, until the 1990s, produce more than 10% of their own military goods. They bought most of these from the United States. Their machine tool sectors were geared rather to basic heavy industry, and only recently reached the high tolerances needed for sophisticated aerospace and weapons systems.

## 'No new Japans'

The British have always hated the industrial potential of the United States, Germany, Japan, Taiwan, and South Korea.

*Former Merrill Lynch chief and U.S. Treasury Secretary Donald Regan. Since 1985, when Regan demanded the Plaza Accord with Tokyo, globalization has imposed increasing deindustrialization upon Japan.*

However, as long as the nuclear balance of power between Moscow and NATO persisted, the industrial potential of our Asian allies was tolerated, for strategic reasons. But, since the dissolution of the Warsaw Pact, London has had no further use for industry in Asia, or in the United States or Germany, for that matter.

Korea and Taiwan, the "tigers with teeth," in particular committed the sin against which London-trained U.S. National Security Adviser Zbigniew Brzezinski warned in 1978, when he told Tokyo officials, "We will permit no new Japans." The meaning was clear: The racist bankers of London and the BIS would allow no more non-white nations to achieve industrialization.

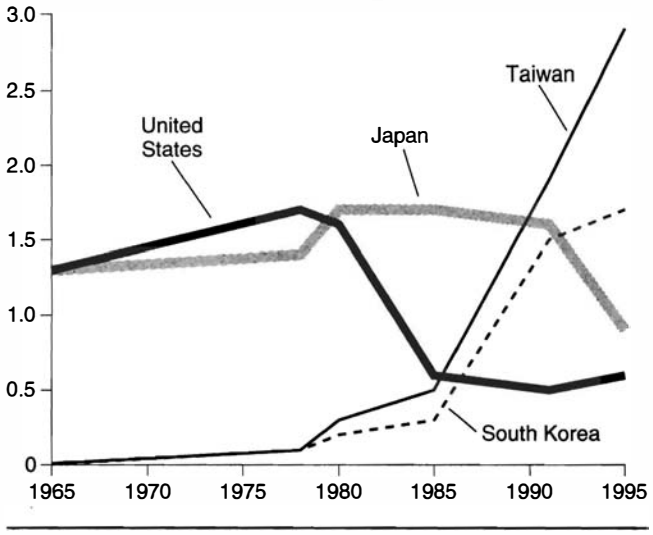
The British increased the pressure with the 1985 Plaza Accord, under which U.S. and BIS monetary authorities deliberately created a huge speculative bubble in Japan, by driving the price of the yen up, in order to knock Japan's physical economy for a loop. Japan's exports collapsed, and prices, led by land prices (the "Tokyo bubble") went sky high. Banks, meanwhile, shifted from lending to the production sector, to lending to the speculative real estate sector, which, like today's U.S. stock market, looked like a sure bet for the infinite doubling of your money (see *EIR*, Nov. 24, 1995, "How London, Kissinger, and Don Regan Caused Japan's Bank Crisis").

The result was that industrial firms went out of business

FIGURE 4

**After the Plaza Accords: machine tool production,* units per capita**

(units per 1,000 population)




* Not including parts and reassembly.

Source: Association for Manufacturing Technology.

or relocated overseas in droves. Japan's machine tool industry was dealt a vital blow (**Figure 4**). Starting especially in 1991, the number of machine tools produced in Japan began to collapse, the first fall since the end of World War II.

"Japan's economy entered a recession induced by the Plaza Accord of 1985," Seki writes. "The accompanying abnormal spiral in land prices affected Ota, Kawasaki, and other wards profoundly. Larger factories were replaced by high-rise apartment buildings, parking lots, and office buildings, causing the industrial fabric of the areas to disintegrate."

Japan's *consumption* of machine tools also collapsed during this period, indicating a serious weakening of investment in its industrial base. Japan's annual machine tool consumption (that is, its annual investment in the most critical part of heavy industry), has fallen steadily every year since 1991, from a peak of $6.7 billion in 1991, to under $2 billion in 1995 (after foreign exchange speculation is discounted).

Since 1991, "Immense concentrations of small factories responsible for the fundamental technologies are gradually disappearing," Seki writes. "The casting, forging, plating, and machinery sectors are thought of as three-K industries (*kitsui, kiken, kitanai* [difficult, dangerous, and dirty]), so young people eschew working in them, and many shops have workforces averaging over 50 years of age. The work done cannot be completely mechanized, and is heavily dependent upon skilled workmanship. . . . Japan's industry is losing its most precious asset, the veteran craftsman who, holding a finished component in hand, states with pride: 'We're the only ones who can do a job like this!' "[4]

This is why the title of Seki's book includes the word "beyond" in *Beyond the Full-Set Industrial Structure.* Despite decades of work in the machine tool industry, Seki, like many Japanese, has with heavy heart, accepted the overwhelming Anglo-American propaganda which daily repeats its mantra: "Globalization" makes the end of Japan's industrial economy inevitable. Japan, he says, will be "hollowed out," and must somehow go "beyond" industry. Most of his book describes the need to relocate Japanese machine tool plants overseas, to China and elsewhere in Asia.

Korea and Taiwan were not subject to the Plaza Accord per se; Figure 4 shows that, as of 1995, they had not yet reduced their rapid rate of machine tool output. Indeed, their consumption of machine tools also continued to rise rapidly, especially in Korea, whose annual consumption rose from $1.6 billion in 1991, to $2.3 billion in 1995, surpassing Japan's consumption investment.

Yet, today, Korea and Taiwan are being induced by the International Monetary Fund, BIS, and the international globalist mafia to follow the same route to globalization as Japan, and become "toothless tigers." This is the significance of Korean President Kim Young-sam's Dec. 26 labor and national security laws, which were demanded by economists of the IMF and Paris-based Organization for Economic Cooperation and Development, specifically to force Korean unions and industry into layoffs and relocation of large parts of industry overseas, at Hongkong-style slave-labor wages.

*EIR* Founding Editor Lyndon H. LaRouche made clear recently,[5] what Japan, and, indeed, Korea and Taiwan, must do instead, if they wish to survive as nations. "Japan can survive only by concentrating on the frontiers of scientific and related progress in productive technologies," he wrote, "and on a growing role as a 'knowledge-industry' exporter: a supplier of highest technology machine-tools and related goods to a vast and expanding market for such goods, especially to the actual, and potential future markets throughout Asia. . . .

"Thus, Japan has no sane alternative, but to reorient to producing for a knowledge-intensive export program. Therefore, Japan has no true friends anywhere in the world, but those nations which are committed to return the world, away from the suicidal delusions of 'post-industrial' utopianism, to a policy of fostering general increase of the physical productive powers of labor, a development which can occur only through the combination of large-scale development of basic economic infrastructure, and protectionist policies for fostering high rates of investment in scientific and technological progress for agriculture and industry."

4. Mitsuhiro Seki, Ibid.

5. Lyndon LaRouche, "Ring Around China: Britain Seeks War" (*EIR,* Nov. 22, 1996).