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ORGWARE: THE KEY OF JAPANESE SUCCESS

by
GIANNI FODELLA *

After the decline of the economic power of the British Empire the economic system economic theory used to refer to became that of the United States. The most powerful economic system of the world had no threats from without and its only problem was to protect itself from within through the rules of the game inherited from Britain. These rules regarded essentially the mechanisms of competition within a free-trade framework and were aimed at protecting both citizens (as consumers) and entrepreneurs (as producers) from the power of domestic monopolies.

Being the institutions, rules and behaviours (which we call *orgware* or *structural organization*) almost identical in the British and American economic systems, there was no reason to consider *orgware* as an element deserving a special interest when dealing with competitivity or other aspects peculiar to the economic system. In other words, all companies were and are considered to be competing on an equal footing since each economic system is considered to be based more or less on the same type of structural organization. In fact, it is thought that even the external diseconomies of less developed countries are fully offset by the advantage of lower labour costs and local availability of raw materials.

However, the poor performance of companies of the LDCs and the outstanding performance of companies of Eastasian origin, particularly evident in the case of Japan, may prove that competitivity of companies is not unrelated to the economic system of the particular countries to which they belong. Economic theory has failed so far to recognize the importance and even the existence of structural organization as the basis for the competitivity of an economic system as a whole.

Just as any economic system needs *hardware* (material and human resources) and *software* (technology or know-how), it needs *orgware*. And it is the latter which makes the difference allowing the system to function more (or less) efficiently in the world economic arena. Furthermore, while *hardware* and

* University of Milan, Institute of Economics.

software may easily be imported, *orgware* can neither be imported nor easily modified.

Institutions of all types, large and small, together with the rules that define and regulate them, are an important part of *orgware* that however, is fully defined only if we take into account the actual behaviours peculiar to the economic system under consideration. If these behaviours are inconsistent with the institutions and laws of the economic system, the latter may be disrupted and this lack of consistency leads to a failure in satisfying its actual needs so that its efficiency decreases in terms of less-than-potential rates of growth, or in terms of bottlenecks or imbalances.

For example, if an economic system is characterized by private property there must be laws (rules) protecting it as well as limits to its use which, however, must not be harmful to the development of other economic agents of the economic system concerned. The actual behaviours of the people must conform to the nature of the institutions and to the laws that regulate them. If behaviours contradict rules, the institutions themselves are endangered and the agents who belong to the economic system try to leave it. This is what happened, for example, in many Latin American countries where the power of the landowners was based more on force than on legality. By the use of force or personal ties with the government and the military everything could become legal. Legality *de facto* ceased to exist and was replaced by a substantial anarchy that prevented any land reform. This created an atmosphere of insecurity and caused corruption as well as the flight of capital most needed for development. The most educated left those countries causing a brain drain.

Due to a lack of *orgware*, countries well-endowed with natural resources, labour and capital transferred their wealth to the rest of the world and could not develop. In 1913 Argentina was, with Australia, among the ten top countries in terms of per capita income. Today Argentina ranks about 40th and the prospects of Argentinian economic growth are not encouraging (0.1% average annual growth rate of GNP per capita in the period 1965-87). Even if one may think that the wealth possessed by Argentinians in the world (but outside the country) might be as great as before, the economic system is losing ground and may eventually go bankrupt.

A different example of the importance of being law-abiding is offered by the different behaviours in the international money market showed by Japan and Italy after WW II. In Italy speculation against the Lira (in violation of the existing rules) led to a devaluation of the currency that increased production costs due to higher import prices. This set the habit of temporarily regaining international competitivity through devaluation of the Lira and helped the survival of industries with a declining importance in highly developed countries, but also discouraged innovation and prevented the development of high technology industries.

Japan had a trade and current account balance constantly in deficit from the end of the war to the mid-1960s, but still never devalued the yen knowing

too well that the relief would be temporary, and leave afterwards an even worse situation. The result is that Japan, which until the mid-70s had the same average rate of inflation since the war, defeated it completely (1980-87: 1.4%), while Italy is still struggling with it with little success (1980-87: 11.5%). The financial intermediation costs will thus be smaller in Japan than in Italy where, incidentally, absolute levels of interest are higher due to inflation and to the huge budget deficit. If interests were not high in Italy savings would take other paths instead of financing the budget deficit, for example going abroad even violating existing laws. In more law-abiding Japan it was possible to finance an increasingly growing budget deficit without increasing interest rates, with no inflationary effects on the economy.

If in a planned economy administered prices have been devised to discourage the consumption of certain goods but at the same time the existing purchasing power does not find desirable items, smuggling takes place. This is to be considered a signal that the government has to acknowledge and act accordingly by changing its policy. This change may not imply the import or the domestic production of the desired item. It may simply imply directing towards other items the portion of income saved for that purpose.

In many planned economies housing policies are often weak, and although the most desired item may be a better house, there is no hope of obtaining one through normal savings that are, in the existing conditions, insufficient to buy a house in a reasonable span of time (in those socialist systems that allow the private property of one's house). Should however the *orgware* of the economic system be efficient enough to devise a housing policy able to take advantage of the portion of income that can increasingly be saved and supplemented by special funds devoted to this purpose, housing may become one of the leading sectors of the economy. This move would re-direct savings and would not give rise to unwanted imports and parallel exchange-rate market leading to a waste of resources and to a loss of credibility of the government.

A second-best type of approach would be to supply through legal channels the demanded goods, by increasing domestic production in joint-ventures with foreign producers that would create *ad hoc* plants for the domestic market and would be re-paid through local sales. Imports of foreign-produced goods should be avoided as a waste of foreign currency.

On the contrary, to try to resist through administrative and law-enforcing measures the sale of those durable goods smuggled in the country is a policy that has little chances of being implemented and may only lead to a further disruption of the *orgware* of the economic system.

In Japan, after the defeat in the Pacific War, a Fair Trade Commission was established in order to prevent the resurgence of monopolies. The protection of producers was preferred to that of consumers with the result that Japan was able to establish the most efficient economic system of the world: one that does not need protection from without any longer, and can now fully adopt and practice free trade. Whereas the U.S.A. should adopt a more matter-of-fact

attitude towards monopolies and free trade in order to cope with the challenge coming from Japan.

As we said above, at the beginning of the century the United States needed protection from within: from the overwhelming power of monopolies in industry, trade, services that would penalize new initiatives and the citizens seen as consumers. The antimonopolistic legislation which started in 1890 is still in force, while the situation at world level has dramatically changed. Now the U.S.A. needs protection from without, since it has by far ceased to be the most important industrial country of the world.

This explains why the US-Japan trade disputes have become increasingly bitter since the Americans feel exploited and invaded and the Japanese do not understand on what ground the Americans are complaining. In their view Japan has done nothing else but apply the rules of the game that were set by the West. In 1985 (after the Plaza agreement of September 22) they agreed to a revaluation of the yen, they increased domestic demand, foreign aid and foreign direct investments.

After four years the Americans have discovered that a revaluation of the yen does not mean a reduced competitivity of Japanese exports (since companies could reduce costs, innovate and rationalize production thanks to cheaper imports) and the increased domestic demand mainly benefited Japanese domestic producers. Foreign aid turned out to be an export subsidy in disguise, and direct investments in Europe and the United States gave the impression that Japan was "buying the world", whereas those acquisitions were made, of course, with the consent of the parties concerned and approved of by the U.S. and Europe alike as useful to a desirable increased integration of the world economy.

The fact that in the Euro-American world a contractual type of relationship prevails among companies, while in Eastasia relations between companies are often based on mutual trust, on confidence rather than on contract, has led us to suspect that this may change the horizon and the time perspective of the company to such an extent as to become a serious factor of differentiation also in terms of competing ability [1].

Defeated Japan was allowed to pay war reparations in goods made in Japan and with Japanese currency, thus helping the reconstruction of its economy. Thanks to this policy of the SCAP (Supreme Command of the Allied Powers) led by the USA and to a careful management of the economy aimed at easing the trade and current account deficit by a comprehensive industrial policy, and to a foreign trade policy that did not allow any import of goods and

[1] R. Dore (*Taking Japan Seriously*, Stanford University Press, 1987, pp. 174-192) points out that mutual trust, sincerity and goodwill are the basis for *relational contracting* that prevails in Japan, rather than for *spot-contracting* that prevails in the West. "There are some good reasons – writes Dore – for thinking that it might be *because of*, and not *in spite of* relational contracting that Japan has a better growth performance than the rest of us".

services that were not absolutely necessary for the economic effort in that direction, Japan succeeded in 20 years to bridge the gap and balance its foreign account.

But the *orgware* that had allowed this result had created an economic machine so efficient as to create another type of imbalance. From the mid-1960s Japan faced a chronic trade surplus that led to various revaluations of the yen, but allowed Japan not only to easily absorb the first and the second so-called "energy crisis" (1973 and 1979), but also manage the exchange rate of the yen in such a way as to be able to make huge investments in the developing and the developed countries (when the yen was high) and gain in all major industries a competitive edge through exports (when the yen was low). Not only did the economy grow at high rates but its market world power grew in the wake of the rising yen, showing that overshooting of the exchange rate was only a partial explanation. Since certain economic phenomena take place as a self-fulfilling prophecy, the fame of Japan as a reliable economic system attracted investors and speculators and contributed to make both the yen and the Japanese economy stronger.

Moreover, *orgware* is paramount in permitting the *diffusion of technology* in the most important sectors of the economy. One might even venture to say that the very key to economic success is to be found in equipping with the most efficient technologies the greatest part of the productive units belonging to the most important industries of the economic system under consideration.

The use of high yielding varieties (HYV) in agriculture, a better rotation of crops, a blend of natural-biological and artificial-chemical pest control, improved methods of storage and transportation are all examples of technologies that become economically important only when they are thoroughly diffused, not when they are merely experimentally introduced or invented.

In certain cases the diffusion requires *hardware*, material and financial resources, or more skilled labour that has to be formed (again using resources and precious time). In other cases the increase in efficiency may come solely or almost exclusively from a better *orgware*, a better way of making things happen following a pattern devised to increase efficiency.

If in an economic system, like for example that of Japan, communication networks (from rail to mail, from telex to fax) work well, it is easier for companies to be punctual in their deliveries. If all companies are punctual it is not necessary to stock spare parts in large numbers or may not be necessary at all, as it happens with the JIT (just-in-time) system of production.

Take another element of competitivity, the cost of capital: here *orgware* plays an important role too. Borrowing and lending rates may have huge differentials (as in Italy) or small ones (as in Japan). Thus, costs are reduced and, *ceteris paribus*, competitivity is enhanced.

Although one type of *orgware* may be better than another one in terms of efficiency, it is not always possible "to adopt" it. The type of *orgware* of a country is the product of its history, the outcome of innumerable variables that

policies can only partially control, and however with uncertain results. Therefore it is necessary to know well the characteristics of the *orgware* of the economic system we want to manage, in order to devise policies that are compatible and not contradictory with that type of *orgware*. This is an important and often overlooked point. Many problems of several African economic systems originate from the transfer or adoption of institutions or rules that are in contrast with prevailing behaviours. The economic success of Japan comes from the fact that only apparently Japan adopted or accepted certain Western institutions or rules. In fact, under this formal acceptance does survive an entirely different set of behaviours reflecting the peculiar Japanese historical background. When old institutions were replaced by new ones, the adopted (Western) institutions were filled with contents that did not contradict the older behaviours and rules, but rather were favourable to the smooth operating of the economic system. Failure to understand this leads to thinking that the Japanese economic system may not be observing the rules of the game set at world level by the West, but so far all efforts to prove this inequivocably have failed.

ORGWARE: IL SEGRETO DEL SUCCESSO GIAPPONESE

L'A. suggerisce che l'*orgware* (l'insieme delle istituzioni, norme e comportamenti e il loro reciproco interagire) che caratterizza ciascun sistema economico, non è mai stato considerato dagli economisti come un elemento di spiegazione della capacità competitiva delle imprese appartenenti al sistema economico in esame. Le differenze tra i sistemi economici sono sempre state ricondotte alle semplici economie e diseconomie esterne, non in grado di influenzare in modo determinante la competitività del sistema e delle sue imprese. La presenza del Giappone sulla scena economica, la sua performance e i suoi comportamenti, hanno stimolato a pensare nella direzione indicata da questa nota, anche se un dibattito in proposito non è ancora stato avviato.

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FEATURES OF THE JAPANESE STOCK MARKET

by
HIROSHI OKUMURA *

I. JAPANESE COMPANIES

There are 3 million companies in Japan, including 1.12 million joint stock companies. Most of these are small. Large companies with a share capital of over 1 billion yen number about 3,000. Roughly, 2,000 companies are listed on Japan's eight stock exchanges. In 1981 companies whose share capital exceeded 1 billion yen owned 41% of the total assets of all companies excluding financial and insurance companies.

II. SHARE OWNERSHIP

1. *Corporations - The Largest Shareholders*

As Table 1 shows, the financial and industrial companies are the largest shareholders in Japan. This is the most conspicuous feature of Japanese share ownership in contrast with that of the USA and the UK. In the USA commercial banks are forbidden to own shares by the Bank Act. In the UK banks do own shares, but not as many as Japanese banks. According to the Japanese Antimonopoly Act, share ownership of banks is restricted to

* Ryukoku University.

This paper was presented at the workshop of the CNR funded research group Italy-Japan on "*A long run perspective on structural change and industrial organization: a comparative study of Italy and Japan*" organized by the Department of Political Economy, Università di Siena, Italy, on October 11th and 12th, 1988. Other papers on Japan were presented by R. Dore (Harvard University), G. Fodella (Milan University), R. Komiya (Tokyo University), M. Morishima (London School of Economics), M. Saito and K. Shinjo (Kobe University).

5% of the outstanding shares of other companies but they can have many companies' shares.

In Japan the main-bank system is also the main financial organisation. All Japanese companies have a main bank which leads the company's management policy and also has many shares. In many cases the main bank is the largest shareowner. For example, Toyota Motor's largest shareowners are the Mitsui Bank and the Tokai Bank, while Nissan Motor's is the Industrial Bank of Japan.

TABLE 1

RATIOS OF SHAREOWNERSHIP BY TYPES OF OWNERS

FY	Government & Local Public Bodies	Financial Institution (ex. Investment Trusts)	Investment Trusts	Securities Companies	Business Corp. etc.	Individual	Foreign Corporations and Individuals
1950	3.1%	12.6%	-	11.9%	11.0%	61.3%	-
1955	0.4	19.5	4.1	7.9	13.2	53.1	1.8
1960	0.2	23.1	7.5	3.7	17.8	46.3	1.4
1965	0.2	23.4	5.6	5.8	18.4	44.8	1.8
1970	0.3	30.9	1.4	1.2	23.1	39.9	3.2
1975	0.2	34.5	1.6	1.4	26.3	33.5	2.6
1976	0.2	35.1	1.4	1.4	26.5	32.9	2.6
1977	0.2	35.9	2.0	1.5	26.2	32.0	2.3
1978	0.2	36.6	2.2	1.8	26.3	30.8	2.1
1979	0.2	36.9	1.9	2.0	26.1	30.4	2.5
1980	0.2	37.3	1.5	1.7	26.0	29.2	4.0
1981	0.2	37.3	1.3	1.7	26.3	28.4	4.6
1982	0.2	37.7	1.2	1.8	26.0	28.0	5.1
1983	0.2	38.0	1.0	1.9	25.9	26.8	6.3
1984	0.2	38.5	1.1	1.9	25.9	26.3	6.1
1985	0.2	39.3	1.4	2.1	25.6	25.4	6.0
1985 (by unit shares)	0.8	40.9	1.3	2.0	24.1	25.2	5.7
1986 (by unit shares)	0.9	41.7	1.8	2.5	24.5	23.9	4.7

Industrial companies also have many shares of the companies with which they have business relations. For example, Toyota Motor has many shares of banks and affiliated companies. General trading companies in particular have a lot of shares. A general trading company is a special type of firm – which is called operating holding company. The Antimonopoly

Act revised in 1977 attempted to restrict shareownership of these general trading companies, but with little effect.

Banks' industrial and trading companies' shareownership can be called corporate ownership, which amounts to about 70% of all listed shares. There have been trends towards institutionalization of share ownership in the US and UK, but in Japan the trend has not been towards institutionalization but corporatization.

2. *Forms of Shareownership*

a) *Vertical ownership.* – Every big company has its own *keiretsu* companies which include not only subsidiaries or affiliates but also transaction-connected companies. Parent companies have shares of these keiretsu companies and send directors to them. Business relations between parent and keiretsu companies are stable and long-term, which is a feature of Japanese company system. In this connection, the parent company owns shares of keiretsu companies unilaterally – a vertical relationship.

b) *Horizontal ownership.* – Big companies with many *keiretsu* companies' shares also own shares of other big companies. This form of share ownership is called "mutual shareownership", because the companies own each other's shares. This can be seen most commonly in enterprise groups. The *Zaibatsu* (family holding) conglomerates dominated the pre-war economy in Japan.

In this system the Zaibatsu family owned the holding company's shares and the holding company owned many financial and business company's shares. The form was pyramidal. After the second world war the Zaibatsu holding companies were dissolved and Zaibatsu families were forbidden to control their old companies by the SCAP (Supreme Commander of the Allied Powers).

After the Korean war (1950) many companies which once belonged to Zaibatsu owned each other's shares. The Antimonopoly Act of 1947 had prohibited business companies from owning shares of other companies but the Act was revised in 1949 and 1953. After 1953 especially, many companies bought a lot of shares of other companies. There are now six major enterprise groups in Japan and in these groups many companies own each other's shares – "mutual shareownership".

Companies in the Mitsubishi group own 20-30% of each other's shares. The presidents of Mitsubishi group companies form a club – the "Friday Club" – which is de facto the large shareowners' meeting since each

president represents his company which owns many shares in the other companies.

This type of "mutual shareownership" cannot be found in the US or the UK and many European governments prohibit or restrict "mutual shareownership". In West Germany there is something like it among insurance companies, but such cases are very rare. Some scholars, for example Dr. Kenichiro Osumi, former judge of the Supreme Court insist that "mutual shareownership" will destroy the company system. If company A owns company B's shares and company B owns company A's shares, each company's share capital could grow indefinitely without money. This is a mere "paper exchange", but not capital increase. It is contrary to the principle of company law. So in 1981 the Japanese Commercial Code was revised, restrictions to "mutual shareownership" were introduced, but the revision had no real effect.

3. *Companies Normally Do not Sell the Shares They Own*

Financial companies, (banks, insurance companies etc.) and business companies are "stable" shareowners, that is to say, they usually do not sell their shares. After the dissolution of the Zaibatsu some company's shares were bought by speculators and these companies afraid of being taken over bought back the shares and asked member companies of their group to buy the shares. They called this "stabilization of shareownership". Because of this "stabilization", the corporate ownership of shares proceeded, and the vertical and horizontal shareownership by the corporations increased.

In 1964 Japan joined the OECD and the government began gradually to liberalize capital transactions with foreign countries. The managers of many big companies were afraid of being taken over by foreign capital, so they tried to "stabilize" their company's shares. The most famous case was that of Toyota Motor whose chairman (then) Mr Taizo Ishida said "We must defend our castle by ourselves". This was achieved by the purchase of Toyota's shares by banks, part-makers, steel makers, trading companies and so on.

In this "stabilization of shareownership", companies which were asked to buy shares were also asked not to sell them without first consulting the company which contributes to "stabilize" those shares. The aim of "stabilization of shareownership" was, as mentioned, to prevent take-overs but after 1970 another aim appeared, namely, to raise share prices, the so-called "high share price management" which I will explain later.

4. *Take-over*

Although take-overs are common in the UK and USA, they are rare in Japan. There are many mergers in Japan, but these mergers are normally based on consent of the presidents involved, which implies a share exchange and no money. Take-Over Bids (TOB) are very familiar in the UK and the USA; with the Securities Transaction Act revised in 1972 the Japanese Government has allowed them too, but to date there have only been two minor cases. The main reason why TOBs are rare is the above-mentioned "stabilization of shareownership". Many companies have in fact stabilized over 50% of their shares, making take-overs impossible. The second reason is the ideology of "corporate capitalism". Many Japanese managers and employees think the company is a "castle" which cannot be sold for money, and is to be defend to death. Or they think the company is a "family" and they cannot sell their family for money. This ideology has a strong influence on Japanese management. Thirdly, the Japanese Government while liberalizing capital transactions officially, intervenes tacitly, which has raised criticism by the US and the EC.

Instead of take-overs in Japan, there are many cases of green-mail speculators who buy shares with the expectation that they will be bought back by the company. Japanese Commercial Code prohibits the companies from owning their shares, but many companies buy back these shares and "stabilize" them with related companies. This is why there are so many green-mailers in Japan. It is said that there are over 100 companies to date which have been green-mailed.

5. *Institutional Investors vs Corporate Investors*

In the US and UK we can see the institutionalization of share ownership. Pension funds, investment trusts and life insurance companies own many shares – about 70% of listed shares in the UK and 30-40% in the US. These institutional investors buy and sell the shares for the profit of their customers.

They are the agents of their customers (their employees in the case of pension funds, their trust holders in the case of investment trusts, their policy holders in that of life insurance companies).

In contrast with these institutional investors, in Japan corporations – banks, industrial companies, trading companies and so on – own shares for their own sake. These corporations are the principals, not the agents.

In Japan there are pension funds and investment trusts but they own only a percentage of all listed shares. Life insurance companies own more shares, but they cannot be said to be institutional investors; they are not agents but principals.

Institutional investors buy and sell shares, so their turnover ratio is very high, but corporations usually do not sell their shares, so their turnover ratio is very low. The aim of shareownership is different. Institutional investors invest in shares for dividends or capital gains, while corporations do so for the control of the companies. Thus I argue that in US and UK there is a problem of institutionalization, but in Japan the problem is "corporatization".

III. Corporate Finance

1. *Sources of Corporate Funds*

A main feature of Japanese corporate finance is the dominant weight of indirect financing i.e. borrowing from the banks. After the first oil shock in 1973 the Japanese economy entered a phase of low growth, and corporate finance changed from indirect to direct financing. The percentage of bank borrowings has decreased, while financing from bonds and share offerings has increased. But the percentage of direct financing is still lower than the US. With this transformation of corporate financing – from indirect to direct, from bank borrowing to security market financing – net worth ratios of the companies have increased.

Table 2

SOURCES OF CORPORATE FINANCING

	Equity and debt offering	Bank borrowing	Other sources
1934-36	80.9	17.9	1.2
1960	25.3	69.6	5.1
1965	10.7	89.7	– 0.4
1970	11.6	85.1	3.3
1975	15.6	86.3	– 1.9
1980	11.9	87.1	1.0
1984	16.8	81.7	1.5
1985	15.0	83.1	1.9
1986	18.8	78.4	2.8

After the second world war the net worth ratios of Japanese companies were very low because of bank borrowing but, as can be seen in Table 2, this changed after 1973. The increase is particularly obvious for large companies. The reasons for these changes are the increase of share offerings that is capital increase. Again, however, the figures are low compared with the US and UK.

2. *Equity Finance*

Before 1969, the main method of equity finance was rights offering at par value. According to this method Company A whose share price was 1000 yen and Company B whose share price was 100 yen would make offerings at the same par price of 50 yen. The ministry of finance claimed that this method was contrary to the market mechanism and promoted public offerings at market prices. Listed companies welcomed this. In 1969 Nippon Gakki (now Yamaha) made the first public offerings at market price, and many companies soon followed.

Recently the percentage of public offerings at market price is about 70-80% of all share offerings. With this type of financing the company which offers shares gets much money if its share prices go up, so it tries to raise its share prices. As mentioned, during the 1960's and 1970's many companies stabilized their shares to defend themselves from take-overs. In this process they found that the more they stabilized their shares, the more their share prices went up, because stabilization of shareownership means buying shares from the securities market which causes a supply shortage. So they then tried to raise their share prices by stabilization of shareownership. That is called "high share price management"; getting profit from controlling or manipulating the demand and supply of one's shares. The most famous company using this "high share price management" was Sanko Shipping Line whose president was the famous politician Mr Komoto; but Sanko was not alone; many companies used this method. Because of this control or manipulation, Japanese share prices have continued to rise, so many foreign investors claim that Japanese share prices are too high.

3. *Convertible Bonds and Warrant Bonds*

Convertible bonds (CB) are corporate bonds which can be converted from bonds into shares at a certain price. Investors buy CB with the expecta-

tion of high share prices. Warrant bonds (WB) are corporate bonds granting the holder the right to subscribe for new shares issued by the company at a certain price. The investor also buys WB with the expectation of high share prices. After 1980 these CBs and WBs were dominant in bond issues. Because these are pseudo shares as share prices go up, so do prices of CBs and WBs and vice versa. Thus many companies applied "high share price management" through the control of the supply and demand of their shares.

IV. Stock Market

The trading volume of the Tokyo Stock Exchange is second to New York's, exceeding London's, while the market value of listed shares of the Tokyo Stock Exchange surpasses New York's. The turnover ratio (the year's trading volume divided by the average number of listed stocks) of the Tokyo Stock Exchange was 25% in 1986, which implies that the stock market in Japan is very active and prosperous. But this is a very rough picture and we have to investigate more in detail. The corporate shareownership is very large and these corporations usually don't sell the shares they own which means that about 70-80% of all listed shares are not traded in the stock market. The turnover ratio of shares that are actually traded, then, is very high, so we can say that the Tokyo Stock Market is very speculative.

Looking at the trading volumes of each Exchange we find that the Tokyo Stock Exchange accounted for over 80%, the Osaka Stock Exchange about 10%, the Nagoya Stock Exchange about 5%, and five other stock exchanges below 1%; so the concentration in Tokyo is very high.

Stock exchange membership is limited by regulations and foreign securities firms have had considerable difficulties in acquiring a seat in the Tokyo Stock Exchange. The US and UK governments have pushed the Japanese government to expand the membership of the Tokyo Stock Exchange, which resulted in an increase in membership from 83 to 114. Membership, however, is still closed and limited compared with that of the New York or London Stock Exchanges. Therefore we can say that the Tokyo Stock Market is a closed system, a kind of guild society.

The commission ratio of stock trading was liberalized in the USA in 1975 and in the UK in 1986. So called "deregulation" has been a world wide trend since the 1970's, but only in Japan the commission rate is not yet liberalized and strictly regulated by law. In other words, there is a compulsory cartel rate.

Inasmuch as high barriers to new entry and cartels are proof of oligopoly, the Japanese stock market is oligopolistic in character.

In Japan there were 1,152 securities companies in 1949, but 221 in 1987. The Japanese stockmarket has "crashed" twice, first in 1953 – the "Stalin crash" caused by the death of the Soviet leader Stalin – and second, in 1965 – the "stock crisis" when Yamaichi, one of the big four securities companies was in effect bankrupt.

After these crashes many security companies disappeared as the result of bankruptcy or mergers. The "big four" – Nomura, Daiwa, Nikko and Yamaichi – have dominated the Japanese stock market. The big four's market share of stock trading is about 50%. On top of this they have many affiliated investment trust (unit trust) companies. Also in this sense the Japanese stock market is oligopolistic. The Japanese Securities Transaction Act prohibits banks from having securities branches (the Japanese Glass – Steagall), but some banks have affiliated securities companies and send directors to them. The Industrial Bank of Japan, for example, controls Shin Nippon, Wako and Okasan securities companies.

The sale system of stocks is peculiar; the "big four" have many salesmen engaged in mass sales, which is a reason for the high turnover ratio. Every salesman is obliged to meet a "noruma" that is a certain number of sales which is not related to a commission (the word "noruma" was imported from Soviet Russia by Japanese prisoners interned after World War II, but is now very popular in Japanese securities companies. Many Japanese call Nomura Securities "Noruma Securities"). American and British securities companies have also many salesmen, but they do not have a "noruma" system. The "big four" promote mass sales, so if Nomura buys stocks and its salesmen sell them, the stock prices go up. The stock prices are controlled by the power of an oligopoly.

As I said before, "high share price management" means the company tries to raise its share prices. Securities companies have the same goal, and their cooperation is aimed at achieving the control of share prices.

V. Share Prices

Share prices in Japan are very high, and every foreign investors wonder why. Average dividend yields are below 0.5% compared with 3-4% in the US and UK and the price earning ratio (PER) is around 70-80 compared with 10-20 in the US and UK. Some Japanese analysts say that this is because of the high economic growth but during the high economic

growth of the 1960's Japanese share prices were not so high and during the low economic growth after 1973 share prices have soared. Therefore this explanation is not valid. Another explanation focuses on Japanese accounting policies. Japanese companies' balance sheets express real estates and shares at the prices they were bought, but since the actual prices have subsequently risen, the companies have considerable hidden profits. If these hidden profits were expressed in the balance sheets, the price earning ratio (PER) would not be so high.

To some extent this explanation is valid, but while it was applicable before 1980, since then, even considering these hidden profits, share prices are still too high. A third explanation is that high share prices are the result of an oversupply of money buying shares. This explanation is very common, but not reasonable. Why is money invested in shares instead of in bonds or real estate? This question is unanswered.

My explanation derives from the theory of corporate capitalism. First, about 70% of all listed shares are owned by corporations which normally don't sell them. Second, many listed companies have adopted a "high share price management" to raise capital, in order to control the supply of share capital. Third, the Japanese stock market is oligopolistic, since the market is controlled by the "big four". They adopted a system of mass sales and try to raise share prices with the cooperation of the listed companies. Fourth, some institutional investors – eg. investment trusts, fund trusts, special funds (*tokkin*) – buy and sell shares very rapidly, utilizing the control of demand and supply of shares.

This is speculation on the basis of the control system. Many individual speculators also make use of this. This is a reason for the extremely high turnover ratio of shares. Usually, a speculator buys and sells shares whose price is uncertain, but speculation making use of control – speculation under corporate capitalism – is different.

VI. The Spirit of Corporate Capitalism and Potential Crisis

Corporate capitalism is capitalism organized by big corporations, which have a "company comes first" ideology. The so called "Japanese management" is based on this spirit or ideology. Many Japanese employees work very hard for the sake of their company, but they don't work so hard for their homes. They work for the profit of their company, not their own.

Speculation destroys this spirit. If the company makes profits from speculation – from "*Zaitech*" – many employees may lose the motivation to

work harder. Each fiscal year, many big companies manipulate their annual reports in order to hide profits from share speculation, and on top of this many have used "tokkins" and fund trusts to obtain capital gains. This shows a tendency from corporate capitalism towards speculative capitalism.

Speculative capitalism may change organized capitalism into disorganized capitalism. Max Weber argued that the ethos of Protestantism – working for God's sake – paved the road to modern capitalism. I argue that the spirit of working for the company's sake paved the road to corporate capitalism in Japan, but that speculation could destroy this system.

There is much "underground money" in Japan, money owned by rich people who speculate very actively on the stock market. This is a shadow on the side of corporate capitalism in which the ordinary man works for the company, but the men who have "underground money" work for their own sake. In corporate capitalism "underground money" usually remains submerged. But nowadays speculative tendencies have pushed "underground money" to the forefront.

This destroys and disorganizes corporate capitalism. The Japanese government, also, has actually promoted this tendency. We can see this example in the process of NTT's privatization in which the government promoted speculation to obtain money.

Also the government intends to promote the introduction of stock futures and options, which will promote speculation. This road, I think, will lead to the end of corporate capitalism.

ASPETTI DEL MERCATO AZIONARIO GIAPPONESE

L'autore mette in rilievo come le partecipazioni incrociate fra imprese appartenenti allo stesso *Keiretsu* (allineamento di imprese) siano accettate in Giappone a differenza di quanto accade nella maggioranza degli altri paesi OCSE, Italia inclusa, e come ciò si risolva in Giappone in un elemento di stabilità. Infatti, poiché le imprese non vendono normalmente le azioni di cui sono proprietarie, è come se tali azioni fossero sottratte per sempre al mercato. Il fatto che oltre il 50% del capitale azionario sia distribuito fra imprese che non vendono le azioni rende le acquisizioni praticamente impossibili. Questa situazione è gradita ai giapponesi che tendono a vedere nella propria impresa la loro dimora, un po' come gli inglesi vedono la loro casa o il loro « castello ». Tuttavia, la stabilità di cui gode il mercato azionario giapponese potrebbe essere compromessa se vi sarà un numero crescente di persone desiderose di trarre rapidi guadagni da questo mercato speculando senza preoccuparsi delle conseguenze.

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DOLLAR-YEN EXCHANGE RATE EFFECTS ON TRADE

by
DARWIN WASSINK * and ROBERT CARBAUGH **

Over the past decade there have been important changes in economic relationships between the U.S. and Japan. As seen in Table 1, the U.S. dollar significantly appreciated in value against the yen during the late seventies and early eighties. From a level of 190 yen per dollar in late 1978, the dollar's exchange rate peaked at over 260 yen per dollar in early 1985. Although the annual average exchange rates of Table 1 do not show these extremes of variability, they peak in 1985 and show significant depreciation of the dollar in the past two years. In this period the dollar fell to 123.5 yen by the end of 1987 and remained at approximately that level through the first half of 1988.

This era also witnessed a rising U.S. trade deficit with Japan that reached $ 54.4 billion by 1986 (Table 1). This trade imbalance led to pressures in the mid-80's for Washington to drive the value of the dollar down and thus make U.S. goods more competitive in international trade, especially with Japan. In spite of the dollar's rapid depreciation against the yen, people expressed concern and disappointment with the lingering U.S. trade deficit with Japan. The deficit increased to $56.97 billion in 1987 but was beginning to show some reduction in the first half of 1988. These large trade deficits have led to pressures for import restrictions in the U.S. and for trade policies that would pressure foreign countries such as Japan to change their trade practices. Critics of protectionism have counseled patience in anticipation that the dollar depreciation would soon promote significant reductions in the U.S. trade deficit. A major concern, however, has been the

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* University of Wisconsin, Eau Claire, Wis. (U.S.A.).
** Central Washington University, Department of Economics, Ellensburg, Wash. (USA).
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failure of U.S. prices of Japanese goods to reflect the dollar depreciation against the yen.

Theory of Trade Adjustment [1]

There has been much written about the expected impact of the dollar-yen exchange rate on the balances of the United States and Japan. Traditional theory maintains that changes in exchange rates are reflected in changing prices that lead to changes in trade flows. Recognizing that a lag in trade flows occurs in response to exchange rate changes, traditional theory maintains that the trade balance responds fully to exchange rate changes over the long run. The simple model that has provided theoretical support for this view is based on an elasticities approach to trade adjustment with exchange rate changes. While there have been concerns about the supply effects of exchange rate changes, the simple Marshall-Lerner conditions have been based on the assumption that exchange rate changes are reflected in the foreign currency prices of exports – in current terminology, complete currency pass-through. The price elasticities of demand for imports then determine the response of trade flows as buyers respond to the price changes caused by the change in exchange rates.

In a simple profit maximization model of optimal pricing behaviour by exporting firms, the process by which a dollar depreciation affects the U.S. prices of imported goods becomes more understandable. If a Japanese exporter follows an optimal pricing strategy, the dollar price of Japanese goods in the U.S. ($P_{\$}$) will be based on marginal cost ($MC_{\$}$) in dollar terms and the price elasticity of demand ($E_{U.S.}$) for the product in the U.S. market,

$$P_{\$} = MC_{\$}\left(\frac{E_{U.S.}}{E_{U.S.}-1}\right) \tag{1}$$

However, the marginal cost of the product in dollar terms will be dependent on the exchange rate $\left(\frac{\$}{Y}\right)$ and the level of marginal cost in yen terms (MC_Y).

[1] Responses to changes in exchange rate changes are not always undertaken in a free market context envisioned in economic theory. Actions by government can often be taken to enable firms to remain competitive. In other cases, firms may be more interested in long-run market share than short-run profit maximization. This paper ignores such issues and considers traditional profit-maximizing behavior.

$$(2) \qquad MC_{\$} = \left(\frac{\$}{Y}\right) MC_Y$$

In U.S. markets where the Japanese firms face a great deal of competition from U.S. and other foreign producers, and they act as price takers, there will be no pass-through of exchange rate changes into price changes. In this case, Japanese producers adjust output and costs to meet competition. Only in the case where the exchange rate change has no influence on marginal costs and the firm faces a constant price elasticity of demand as U.S. prices change, would the complete pass-through of the Marshall-Lerner elasticities approach occur. If elasticities increase as prices rise (as in the traditional linear demand curve), profit-optimizing behaviour leads to partial pass-through of marginal cost changes resulting from exchange rate changes. Exporters can thus be expected to charge different prices in different countries based on demand elasticities [2].

In addition, the effect of the exchange rate change applies only to the domestic value added of the exporting country. For Japan, with an economy that has long been recognized as highly dependent on imported raw materials, the marginal costs of production are likely to be influenced by the exchange rate as well. This will also reduce the effect of exchange rate changes on export prices.

In those markets where firms have the market power to set prices, one further element that must be kept in consideration is the appropriate exchange rate for the firm's pricing decision. While observers note that daily changes in the value of the dollar oscillated from 190 yen to 260 yen and back to 125 yen over the last decade, the annual average exchange rates (Table 1) have seen much smaller fluctuations. In U.S. markets for Japanese manufactured products, price changes can be made at intervals within which exchange rates could fluctuate significantly. As a result, it would be expected that price would be based on some expected average exchange rate, and annual averages may be more appropriate as indicators of expectations than the more variable daily or even monthly rates that show a more spectacular appreciation and later depreciation of the dollar. A review of exchange rate and pricing changes over the past decade provides a context for considering the importance of these factors.

Dollar Appreciation: 1978-1985

In the period from 1978 to early 1985 the dollar appreciated by nearly

[2] Empirical evidence of this behavior for German and U.S. exporters is provided in KNETTER (1987).

TABLE 1

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
[1] Yen/U.S. $ Average Rate	268.51	210.44	219.14	226.74	220.54	249.08	237.51	237.52	238.54	168.52	144.64
[1] *U.S.-Japan Merchandise Trade Balance	− 8.00	− 11.58	− 8.63	10.41	− 15.80	− 16.99	− 21.06	− 36.97	− 43.51	− 54.40	56.97
[1] U.S. Wage Rate (Mfg.)	78.0 (100)	84.9 (108.8)	92.1 (118.1)	100.0 (128.2)	109.9 (140.9)	116.9 (149.9)	121.4 (155.6)	126.4 (162.1)	131.1 (168.1)	133.8 (171.5)	Oct. 136.3 (174.7)
[2] U.S. Labor Productivity	100	101.5	101.4	101.4	103.6	105.9	112.0	116.6	121.7	126.0	
[1] Japan Wage Rate	83.5 (100)	89.4 (107.1)	94.6 (113.3)	100.0 (119.8)	105.1 (125.9)	110.6 (132.5)	115.0 (137.7)	119.8 (143.5)	124.6 (149.2)	129.2 (154.7)	May 130.3
[2] Japan Labor Productivity	100	108.0	114.8	122.7	127.2	135.0	142.3	152.5	163.7	168.7	
[1] Japan Import Unit Values	67.4	55.3	72.0	100.0	100.5	104.9	95.2	92.6	89.3	54.7	March 51.9

* Billion U.S. $
[1] IMF, *International Financial Statistics*.
[2] U.S. Department of Labor, *Monthly Labor Review*.
[3] U.S. Department of Commerce, *Survey of Current Business*.

40% against the yen, from its low to its peak, but only by 13-1/2% in terms of annual average rates. Most of this appreciation occurred during 1979-1982, with annual average rates remaining relatively constant from 1982-1985. Although average annual exchange rate changes were not as large as often seems to be implied in the popular press, there were other changes that contributed to a growing U.S. trade deficit with Japan. As the dollar was appreciating in value, Japanese wage rates were growing more slowly than Japanese labor productivity, while in the United States wage rates were increasing much more rapidly than U.S. labor productivity (Table 1). While costs and prices were rising in the United States, the combination of the fall in the labor share of yen-denominated costs and the appreciating dollar led to falling dollar-valued marginal costs for Japanese exports.

Consideration of the dollar prices of a limited sample of Japanese exports to the United States finds rather different behavior in different industries (Table 2). In the automobile industry it appears that Japanese auto prices continued to rise in the United States even though the exchange rate $\left(\frac{\$}{Y}\right)$ had fallen and Japanese domestic labor costs were falling (MC_Y). This result could be explained, in part, by the voluntary export quotas on autos to the United States accepted by the Japanese producers. This gave Japanese firms a position in the U.S. market similar to competitive fringe to the U.S. firms that were allowed to take the role of pricing leaders. The unit values of imported Japanese autos rose as they upgraded the models exported to the United States and as profit margins increased. This is reinforced by the observation of one of the authors while in Japan in early 1985, that the retail prices of Japanese autos in Japan were much lower, at the exchange rate at the time, than similar models in the U.S. While dollar valued marginal costs had fallen, and this was reflected in domestic Japanese prices, the U.S. market prices were allowed to rise.

This is in stark contrast to what occurred in the import values of still cameras imported from Japan. Over the period from 1979 to 1985 there was a significant decline in camera prices. For the third product sampled, a specific size of ball bearings, there was a smaller decrease in unit import values but again not the increase seen in the highly visible automobile market.

Empirical evidence suggests that currency pass-through tends to be partial, with significant time lags. Concerning the United States, past estimates suggest that for every 10 percent change in the value of the dollar, both import and export prices have changed about 6 percent. What's more,

exchange rate changes are reflected in price changes to that extent after two years or more [3]. These lags depend on the length of time before dollar-denominated contracts expire and the extent to which firms view the exchange rate changes to be of a permanent nature, rather than transitory. Empirical evidence also indicates a smaller currency pass-through for the United States in the 1980's. This could be explained by a trend toward worldwide purchasing by American and Japanese multinationals, newly established distributor networks in the United States creating more competitive U.S. markets, and a greater ability to hedge foreign currency exposure in international credit markets [4]. In terms of our model, this means the exchange rate considered appropriate for pricing decisions was a more stable average exchange rate, such as the annual average shown in Table 1. In addition, the Japanese marginal cost used in the pricing decision was affected by exchange rate changes as Japanese inputs were purchased in worldwide markets.

Dollar Depreciation: 1985-1988

This latter factor also plays an important role in understanding the partial pass-through of the dollar devaluation from early 1985 to the present as well. When the dollar began to depreciate in 1985, Japanese exporters did not increase their export prices in proportion to the dollar depreciation (Table 2). Despite a 52 percent strengthening of the yen against the dollar from February, 1985, to November, 1987, Japanese auto firms did not fully pass through the increased value of the yen into higher export prices. Honda, with the highest unit sales of any foreign car brand in the United States, passed along eight price increases in those three years, amounting to an average 26.4 percent. (One reason Honda could maintain price competitiveness is that about half the vehicles it sells in the Unites States are assembled in Ohio [5]). This example seems representative of experiences of many Japanese exporters. As auto and truck prices have not responded in full proportion to the yen's appreciation against the dollar, there have been questions raised whether Japanese firms are guilty of "dumping" in the export of some vehicles to the United States. It appears that the abnormally sharp appreciation of the dollar in the early eighties allowed an increase in Japanese profit margins which allowed Japanese producers to refrain from raising prices in proportion to the increases in the yen's value. The result

[3] FELDMAN (1982, p. 5).
[4] MANN (1980, p. 378).
[5] *Business Week* (1987, p. 34).

TABLE 2

UNITED STATES' UNIT IMPORT VALUES OF JAPANESE GOODS [1]
(dollar value and index based on 1979 = 100)

Year	Automobiles	Ball Bearings	Still Cameras
1979	$3965	$.89	$149.55
	(100)	(100)	(100)
1980	4099	.90	116.22
	(103.4)	(101.1)	(77.7)
1981	4894	.94	117.38
	(123.4)	(105.6)	(78.5)
1982	5279	.95	117.70
	(133.1)	(106.7)	(78.7)
1983	5660	.91	102.96
	(142.7)	(102.2)	(68.8)
1984	6248	.85	104.29
	(157.6)	(95.5)	(69.7)
1985	6343	.77	96.43
	(160.0)	(86.5)	(64.5)
1986	7916	.84	107.92
	(199.6)	(94.4)	(72.2)
1987[a]	8738		
	(220.4)		

[1] Computed from Value and Quantity of Imports in *U.S. General Imports Schedule A: Commodity by Country*, various issues.

[a] Through September 1987.

was a smaller pass-through throughout 1986 and 1987 than would be suggested by historical experience.

Comparisons can be made of the dollar prices of Japanese exports to the United States and similar American produced goods. In the auto industry, it appears that U.S. auto prices have risen along with the prices of Japanese autos sold in the United States since the depreciation of the dollar in 1985. Since the advent of the dollar depreciation against the yen, the Japanese have increased list (base-sticker) prices of some models as much as one-third to reflect the dollar's drop. Immediately recognizing an opportunity to bolster unit profit margins, Detroit raised most published prices though staying behind Japanese rivals' list price increases.

Although the list prices of U.S. and Japanese autos have increased in the past three years, the transaction prices (what buyers actually pay for autos) reveal a differing impact on buyers. A portion of the rise in the base-

sticker price on Japanese autos was offset as dealers reduced the premiums they had enjoyed since the days of the Japanese export quotas on U.S. auto sales. Detroit, on the other hand, never enjoyed premiums; so its recent price increases have landed squarely on consumer pocketbooks. It has been reported that from 1985 to mid-1987, American consumers paid (transaction prices) 11.8 percent more for domestic models and 9.3 percent more for Japanese models. That includes the effect of Detroit's "incentive discounts" [6]. Critics of Detroit's price hikes maintain that the Big Three have been unable to break away from the traditional obsession with short-term profits rather than boosting market share. In 1987, Detroit's Big Three's profits soared to a near-record $9.5 billion.

In the context of the profit optimizing model used in this paper, there are several factors that can help explain the pricing pattern of Japanese goods in the U.S. market. The role of exchange rates in this process was undoubtedly influenced by the experience of relatively stable average rates over the 1982-1985 period. As a result, the firms would not have responded to the peak dollar appreciation in early 1985 and would be likely to respond to the following dollar depreciation of 1985-1987 with some lag.

In considering the effects of the dollar depreciation on costs of Japanese goods, there are two factors to recognize. Over the period 1984-1986 Japanese labor costs increased slightly less rapidly than Japanese labor productivity (Table 1); this provides some decrease in yen costs while the exchange rate change tends to increase the dollar equivalent.

But the Japanese economy has long been recognized as highly dependent on imported raw materials. As a densely populated country with limited natural resources, Japan's economic development has revolved around international trade. As seen in Table 3, nearly two-thirds of the value of Japanese imports during 1981-84 was composed of raw materials and basic inputs.

In the case of these raw materials and basic inputs, prices are determined in relatively competitive world markets. Unlike international trade in manufactured goods that typically comprise Japanese exports, – where patents, copyrights, and product differentiation have limited market competition – the prices of raw materials are outside the control of individual market participants. In internationally competitive markets, one would expect a relatively speedy and complete pass-through of exchange rate fluctuations into domestic prices of these imported goods.

In the period from the beginning of 1985 to late 1987 the dollar

[6] *Wall Street Journal* (1988, p. 1).

depreciated by 52 percent against the yen. This led to reductions in the yen prices of commodities imported by the Japanese. The result is a fall in MC_y that partially offsets the increase in the value of the yen $\left(\frac{\$}{Y}\right)$ from the

TABLE 3

Import Commodity	Column 1 Percent of Total Value of[1] Imports, 1981-4	Column 2 % Change in[2] U.S. $ Prices, 1984-7	Column 3 Potential Impact on Value of Imports: Cost Reduction/Increase
Coal	4.00%	− 17.7%	− 1.068%
Petroleum & Products	37.51	− 47.4[2a]	− 26.821
Natural Gas	6.44	− 18.4*[2b]	− 1.788
Crude Rubber	.43	+ 6.6	+ .043
Sawn Wood	2.47	− 10.8	− .402
Pulp	.69	+26.7	+ .278
Cotton	.96	+ 2.8	+ .041
Wool	.55	+31.9	+ .265
Iron Ore	2.50	− 6.5	− .245
Iron & Steel	1.03	+ 6.3[2c]	+ .098
Copper Ore & Copper	1.54	+16.5*	+ .383
Aluminum	1.49	+32.1	+ .722
Tin	.29	− 46.1	− .202
Beef	1.30	− 14.6	− .286
Wheat	.86	− 23.3*	− .302
Maize	1.62	− 32.3	− .789
Sorghum	.39	− 38.9	− .229
Sugar	.35	+ 2.8	+ .015
Coffee	.48	− 23.2	− .168
Tobacco	.39	− 16.6	− .098
Soybeans	1.00	− 20.9	− .315
Share of Total Imports	66.29%		
Weighted Average Change in Imported Input Costs			− 30.868

1, UN, *Yearbook of International Trade Statistics*, 1984, pp. 721-2.
2, IMF, *International Financial Statistics*, September, 1987, pp. 78-81.
2a, DOE, *Monthly Energy Review*, May, 1987, p. 92.
2b, DOE, *Annual Energy Review*, 1986, p. 157.
2c, BLS, *U.S. Import Price Indexes*, various issues.
* 1984-86.

dollar depreciation. What's more, the dollar prices of these inputs to production fell in conjunction with the world deflation of commodity prices during this period. As a result, the yen price of commodity input prices imported by Japanese producers fell even more rapidly than the fall caused by the dollar depreciation. As seen in Table 3, this was especially true of petroleum products, which constitute a large share of the value of Japan's total imports.

Table 3 shows the share of the total value of Japanese imports consisting of commodity inputs whose prices are determined in relatively competitive international markets. The second column shows how the world prices of these goods have changed over the period when the dollar was also declining in value relative to the yen. The third column shows the impact these price changes would have on the dollar cost of purchasing the same quantity of these imported inputs as had been purchased in the earlier years. The sum of column three shows the weighted average change in the dollar prices of these imported commodity inputs [7].

In the determination of the U.S. dollar prices of Japanese manufactured goods shipped to the United States, there were several factors at work. The MC_y is composed of both domestic and imported inputs. As the dollar depreciated, the yen cost of dollar-denominated inputs was decreased. The fall in world market dollar prices for those inputs causes an even larger fall in yen-denominated costs of production. This fall in MC_y partially offset the increased value of the yen $\left(\frac{\$}{y}\right)$ in the determination of dollar prices. The greater the dollar-denominated imported content of the good manufactured and exported by the Japanese, the smaller the influence the dollar depreciation will have on the export price of the good.

The import content of exports may understate the impact of falling prices of commodity imports on export prices of manufactured goods from Japan. Because the large trading companies in Japan manage a large share of both export and import trade, it has been hypothesized that they have used falling import prices to cushion the effects of the appreciation of the yen on export prices [8]. During 1985-86, Japanese prices of imports fell significantly while wholesale prices in Japan responded more slowly, resulting in increased profit margins on sales of these imported commodities in Japan for these firms. This lag has been attributed, in part, to the influence over prices that Japanese trading companies have in imperfectly competitive Japanese

[7] The weighted average price change is based on the values in column 1 divided by the sum of column 1 times the change in price shown in column 2. The sum of these values in column 3 is the average price change of imported inputs measured in dollar terms.

[8] Caplan (1987, p. 53).

markets. With the added profit gained from domestic sales of imports at relatively constant yen prices, and with lower costs of imported inputs in their own production, it was possible for Japanese trading companies to minimize dollar price increases on exports of goods to the United States in conjunction with the depreciation of the dollar against the yen.

The combination of differences in price elasticities of demand for different products in the U.S. market and differences in the imported content of Japanese manufacturing of these products has influenced the price responses to the dollar depreciation from 1985-87. As seen in Table 2, the unit import values have risen but by less than the amount of the dollar depreciation and by greatly different proportions for different products.

Pass-through of Exchange Rate Changes

The above account of the recent exchange rate fluctuations and pricing behavior of Japanese firms supports a view that the limited impact of the dollar depreciation on the U.S.-Japan trade balance is quite rational. The combination of the relatively competitive U.S. markets where Japanese firms are willing to act as price takers, or where rising prices face increasingly elastic demand, and the decline in yen-denominated marginal costs greatly reduces the optimal pass-through of the dollar depreciation to the dollar prices of Japanese exports to the U.S.

It is interesting to note that models of exchange rate determination have increasingly recognized a declining importance for the role of trade flows (i.e., the balance of payments approach to exchange rates) and a more important role for capital flows. Recognition of the role of international asset markets on exchange rates creates more uncertainty for exporters about future exchange rates. This would also reduce short run adjustments in export prices in response to exchange rate changes. Especially in cases where the foreign producer has some cushion, as some Japanese firms seem to have had in terms of a significant profit margin or the ability to adjust costs, it is likely that a pass-through of exchange rate changes will have a significant lag and be partial.

J-curve Effects

Not only do the price effects of a currency depreciation occur with a lag, but there also occurs a lagged response in the volume of merchandise

trade to exchange rate changes. Several lags affect the behavior of merchandise trade flows after price changes resulting from exchange rate changes. For buyers of goods, altering sources of supply creates adjustment costs. Buyers may not be willing to absorb these costs unless they feel the price advantage resulting from the exchange rate change is greater than the costs and will be long lasting. What's more, there are lags in delivery time and replacement of inventories. Once buyers decide to change their suppliers, it may take time before their demands can be met, unless new suppliers have sufficient inventories on hand or output can be easily expanded. From a supplier's perspective, it takes time to construct plants and buy new equipment in an attempt to pursue new trade opportunities resulting from exchange rate changes. The data suggest that there are distributed lags of two years or more in the response of both import and export volumes to price changes, reflecting both the recognition-response lags and the order-delivery lags [9].

The result of the lags, in the effects of price changes on trade volume, is that the impact of a currency depreciation on a country suffering a trade deficit is to worsen its deficit temporarily. This is because the prices of its imports are the first to rise, during the currency pass-through period, while its import volume takes time to slow and for its export volume to pick up steam. This process is the well-known "J-curve" effect for a country that has had a currency depreciation [10]. As a result of these many factors economists should have cautioned the public not to expect any large immediate impact from the dollar depreciation.

Conclusion

In response to the dollar depreciation from early 1985 through 1987 it appears that the U.S.-Japan trade balance responded according to the predictions of the currency pass-through and J-curve analysis. However, those observers who expect the U.S. trade balance to rapidly move up the stem of the "J" may be disappointed. The partial pass-through of the dollar depreciation is likely to significantly reduce the resulting trade volume adjustments in Japanese-U.S. trade.

It is important to recognize that there are many elements of the international economy that influence trade flows in addition to foreign

[9] Helkie and Hooper (1987).

[10] See Magee (1973) and also Wilson and Takacs (1980).

exchange rate fluctuations. Changes in labor productivity and wage rates influence international trade flows, as do the forces that determine the prices of raw materials and other inputs in world markets. The gradual recovery in dollar-denominated commodity prices that has taken place since 1987 may contribute to rising U.S. prices for Japanese goods even if exchange rates are stable. As a result of the experience with floating exchange rates over this decade, it is apparent that we must consider a much wider range of elements that influence both trade flows and exchange rates. As the world economy becomes increasingly integrated, the effects of exchange rate changes on trade will be further reduced and the simple assumption of complete currency pass-through less tenable.

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GLI EFFETTI DEL CAMBIO DOLLARO-YEN SULLA BILANCIA COMMERCIALE

L'articolo discute gli aggiustamenti della bilancia commerciale americana e giapponese alle variazioni del tasso del cambio dollaro-yen. Si riconosce che oltre

alle fluttuazioni del cambio vi sono molti altri elementi economici che influenzano il commercio: ad esempio le variazioni della produttività del lavoro e dei saggi salariali e le forze che determinano nei mercati mondiali i prezzi delle materie prime e di altri input di produzione. Inoltre, le fluttuazioni dei cambi influenzano i prezzi degli input che a loro volta influenzano le rispettive posizioni concorrenziali. Poiché l'economia mondiale diventa sempre piú integrata, gli effetti delle variazioni dei cambi sul commercio si ridurranno sempre di piú e la semplice assunzione di un completo "attraversamento" monetario diventa meno difendibile.

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DEVELOPMENT PROCESS OF ROBOT INDUSTRIES IN JAPAN

by
TOSHIHIRO HORIUCHI *

The purpose of this paper is to review the robotization process from the viewpoint of the industrial organization of robot industries in Japan. The number of industrial robots in operation at the end of 1987 is estimated to have reached 141 thousand units [1], and Japan has a share of about 67.3 per cent of the total number of robots in operation in the world. This share increased from 60.7 per cent at the end of 1980, when the share of the U.S., which invented the basic technology of industrial robots, was only 20.0 per cent. In 1980, Japan produced 4,213 units of industrial robots and had already started to export industrial robots. Japan has become a leading country in the use of industrial robots since the 1980's.

This paper provides a factual analysis of the development process of robot industries in Japan. It covers both the supply and demand structures of robot markets. The supply market structure is shown in Section I which deals with the entry behaviour of firms, their relationship with robot parts markets, and their R & D activities. Section II deals briefly with the demand market structure. Robots have been demanded by many firms of all sizes in every industry for their different process needs. This demand diffusion has been accompanied by a change in quality and price. In Section III, we show the incentive policies in Japan aimed at expanding robot industries. Section IV is a summary of the paper.

I. *Supply*

Firstly, we discuss firms' entry into robot industries. Secondly, we

* Japan Center for Economic Research, 2–6–1, Nihonbashi-Kayabacho, Chuo-Ku, Tokyo.

[1] This number does not include manual manipulations and fixed sequence robots. See JAPAN INDUSTRIAL ROBOT ASSOCIATION (1987, p. 27). This source covers many statistics including those concerning production activities or policy frameworks in Japan and international aspects of robot industries organization.

analyze the industrial relationship among firms as far as robot parts are concerned. Thirdly, their strategies of R & D and marketing investment are illustrated.

1) *Entry*. – There were less than ten firms in robot industries in 1968 when robots were starting to be produced in Japan. However, only two years later, in 1970, the number of robot firms, including related part makers, was more than fifty. This further increased to about 140 in 1980. The number is estimated to have reached nearly 300 in 1987. They were surveyed by the Japan Industrial Robot Association (JIRA) which was founded on March 1971 with the introduction of the Temporary Act for the Promotion of the Designated Electrical and Machinery Industries [2].

According to the survey, the percentage of big firms with more than 3 billion yen paid-in capital was only 17 percent of total robot firms in fiscal year 1976. This share was more than 30 per cent by 1985. Recently, however, the number of big firms as a percentage of total robot firms has increased to more than 40 per cent. Table 1 shows the distribution of firms by number of employees and amount of paid-in capital. There are two types

TABLE 1

DISTRIBUTION OF ROBOT FIRMS BY NUMBER OF EMPLOYEES AND AMOUNT OF PAID-IN CAPITAL (1987 SURVEY)

Numbers of employees (persons) / Size of paid-in capital (million yen)	Less than 10	10 to 100	100 to 500	500 to 2,000	More than 2,000
less than 50	35	28			
51 to 500	6	62	28	8	3
501 to 1,000		2	8	4	7
1,001 to 5,000		2	3	9	29
more than 5,001					50

NOTES:

1. Figures in the table show the survey on robot firms in 1987. The size of the sample is 563 factories or 559 companies, of which 480 factories (477 companies) answered the survey.

2. The above result is of robot producing factories. Total number of factories is 284, which is equal to the number of companies.

SOURCE: JAPAN INDUSTRIAL ROBOT ASSOCIATION (1988).

[2] After the founding of JIRA, many organizations with the same purposes were founded in foreign countries, such as in the U.S. (1974), Italy (1975) and the U.K. (1977). Now there are 14 organizations in the world formed by industrial robot firms.

of firms in robot industries; big firms, and small and medium-sized (S-M) firms. This dual distribution of firms, which may be found in every manufacturing industry in Japan, means the increasing entry of both sized firms into robot industries.

Big firms, for example in the electric machinery industries, have been entering into robot industries. Indeed, robot business is seen to have become strategically important to some big firms in the industries, for example, FUNAC, Daihen and Yasukawa Electric Mfg. There are other big firms with similar strategies entering into robot industries from general machinery (Toyoda Machine Works), transportation machinery (Kawasaki Heavy Industries) and other manufacturing industries (Sailor Pen). There were 34 big firms listed on the Tokyo Stock Exchange in 1987 which had the production capacity of industrial robots.

Table 2 shows the entry behaviour of these 34 big firms into robot industries categorized by six types of robots as follows: operation robots, fixed sequence control robots, variable sequence control robots, playback robots, numerically controlled (NC) robots, and intelligent robots [3]. The percentage share of electric machinery in these 34 big robot firms is just 50 per cent. They have entered mainly into playback or NC robots industries. As will be shown later, these two groups of robots have become most popular in robot industries in Japan. In 1987, more than 60 per cent of robot production in nominal terms was in these two groups. The share of production in number terms was 53.5 per cent. Therefore, we can conclude that more than half of industrial robots are supplied by big electric machinery firms in Japan.

The next group of big firms is that of those involved in general machinery. However, their entry behaviour is different from that of electric machinery firms. They have diversified into several groups of robots depending on their marketing abilities and production technologies. Other firms, from automobiles, transportation machinery, or precision machinery industries tend to specialize in their own differentiated robots.

[3] Operation robots are the ones which have controllers and actuators for mobility and/or manipulation, remotely and manually controlled. Sequence control robots are those that operate sequentially in compliance with present information. Some of these are fixed so that the present information cannot be easily changed, while in others it can be easily changed. Playback robots can repeat an operation on the basis of instructions concerning sequence, condition, position and other information imparted by moving the robots under operation control. NC robots can execute the commanded operation in compliance with information on sequence, conditions and position, loaded numerically or by program, without being moved. Intelligent robots can determine their own actions through artificial intelligence, and be categorized into three types: sensory, adaptive, and learning controlled robots.

TABLE 2

THE ENTRY PATTERN INTO SIX GROUPS OF ROBOTS

Industrial category of firms	No. of firms	OR	FS	VS	PB	NC	IN
Iron & steel	2	1			2		1
General machinery	6		3	1	4	2	2
Electrical machinery	17			2	11	11	1
Automobiles	1				1		
Transportation machinery	4				4		
Precision machinery	2					2	
Miscellaneous industries	2	1		1			
Total	37	2	3	4	22	15	4
Other non-listed companies	23	0	3	8	12	1	1

NOTE: I. Robots are grouped into six types, as follows: OR = operating robots; FS = fixed sequence control robots; VS = variable sequence control robots; PB = playback robots; NC = NC robots; IN = intelligent robots.

SOURCE: JAPAN INDUSTRIAL ROBOT ASSOCIATION (1987).

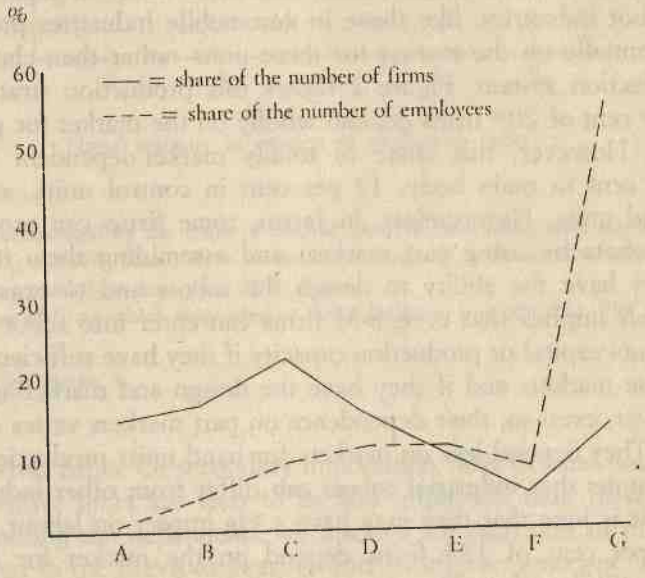
On the other hand, there are also S-M firms or unlisted firms in robot industries. According to the Handbook of Industrial Robots by JIRA (1987), the number of these firms with production capacity reached 23 in 1987. Some of them are either big firms' affiliated companies or independent S-M firms with their specialities. They have entered heavily into three robot industries: variable sequence control, playback, and NC robots.

For example, of the total of 23 firms, there were eight firms in variable sequence control robots industries, compared to 4 of 34 firms of big listed firms.

In summary, there are three groups of firms in robot industries in Japan; S-M or big firms' affiliated companies, big companies entering mainly from electric machinery industries, and S-Ms producing robot parts. Indeed, in Table 1 there are 131 firms with paid-in capital of less than 100 million yen in 1987.

Figure 1 shows the distribution of 258 firms by size of robot departments, 131 of which are S-M firms. They are categorized into seven groups by total number of employees in their robot departments. This number reached 11,565 in 1987, about 55 per cent of which were in 35 big firms

FIGURE 1. Distribution of robot firms in 1987



NOTES:

1. Firms are categorized as follows by the number of employees in robot departments. A = 1 to 5; B = 6 to 10; C = 11 to 20; D = 21 to 40; E = 41 to 60; F = 61 to 99; G = more than 100.
2. Total number of firms is 258 and they have 11,565 employees in robot departments.

SOURCE: JAPAN INDUSTRIAL ROBOT ASSOCIATION (1988).

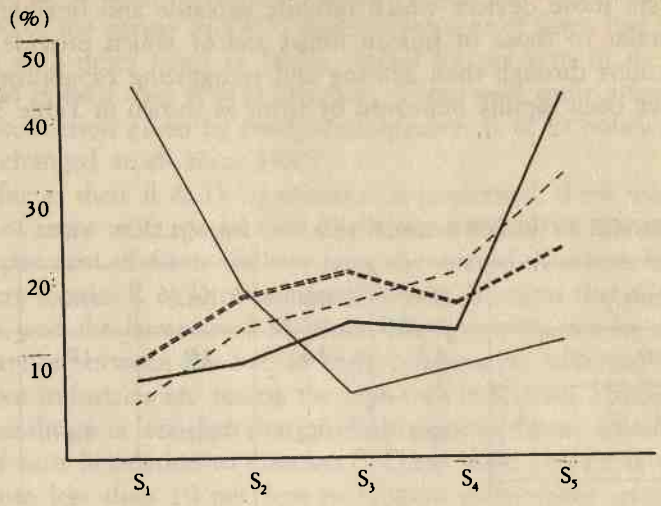
categorized as G group in Figure 1. The average number of employees, 185, in this group covers those in sales or R & D as well as production departments for industrial robots. This implies that the average size of robot businesses is not big at all compared to that of their total businesses, although there are some big speciality firms in robot industries. In other words, the average size of 50 firms with total employees of more than 5001 in Table 1 is similar to that of average medium-sized firms in Japan as a whole. However they have been entering into robot industries with the help of their R & D, marketing, and fund raising abilities. On the other hand, there are many S-M firms as shown in Figure 1 or Table 1. For example, there were 142 firms in 1987 with less than 20 employees in robot departments. Therefore, we can conclude that S-M or venture type firms have been developing the robot markets in Japan.

2) *Production.* – Industrial robots are produced to assemble four units; power units, main body, control units, and hand units. In Japan, even big firms in robot industries, like those in automobile industries prefer to depend substantially on the market for these units rather than choose an in-house production system. Figure 2 shows this production strategy. More than 46 per cent of 209 firms depend wholly on the market for power unit production. However, this share of totally market-dependent firms was only 7 per cent in main body, 12 per cent in control units, and 10 per cent in hand units. Nevertheless, in Japan, some firms can produce their industrial robots by using part markets and assembling them in-house as long as they have the ability to design the robots and to organize these markets. This implies that even S-M firms can enter into robot industries with minimum capital or production capacity if they have sufficient information on these markets and if they have the design and marketing abilities.

However, even so, their dependence on part markets varies among the four units. They depend less on markets for hand units production. It is in these hand units that industrial robots can differ from other industrial machines and it is here that they may have a big impact on labour markets [4]. About 45 per cent of 184 firms depend on the market for hand unit production, with less than 25 per cent of their total production value. These units are seen as being key parts for robot firms, enabling them to differen-

[4] The following vision is quoted from YONEMOTO (1987, p. 12) the executive director of JIRA; industrial robot introduction changes a "man-machine system" into a "man-robot-machine system" in which robots serve the conveyer directly in the place of human operators. This change will eliminate the dehumanization of individual operators made slave by the conveyer system, thereby turning this system into an effective means of improving productivity without producing any dehumanizing effects.

FIGURE 2. Production Order Activity of Robot Firms in Four Main Parts; Power Unit (——), Main Body (– – –), Control Unit (=), and Hand Unit (——).



NOTES:

1. Firms are categorized by the share of ordered parts in their robot sales into five groups as follows: $S_1 = 100\%$ share; $S_2 = 75$ to 100% share; $S_3 = 50$ to 75% share; $S_4 = 25$ to 50% share, and $S_5 =$ less than 25% share.
2. The number of firms which responded to these questions was 209, 214, 214 or 184 in each unit.

SOURCE: As for Figure 1.

tiate with rival firms. Of secondary importance, next to hand units, are main bodies. Control units are seen to be less important than these two units.

Comparing the dependence on markets for each unit of production in 1987 to that in the previous year, an interesting fact emerges. The share of firms depending on markets with less than 25 per cent in total firms increased, though only slightly, from 43 to 45 per cent for hand units and from 34 to 35 per cent for main bodies. However, that in either power units or control units decreased from 17 to 14 per cent and from 27 to 26 per cent respectively. Both power and control units have become more standardized, while main bodies or hands have become more customized and differentiated in the last two years.

This change in their production strategy has a close relationship to

their R & D and marketing policies. Before discussing this, we review the expansion process of robot production by its size and composition in Table 3. According to the definition of industrial robots by JIRA (1987), industrial robots are those devices which provide versatile and flexible moving functions similar to those of human limbs and/or which provide flexible moving functions through their sensing and recognizing capabilities. Their functions have been rapidly improved by firms as shown in Table 3. In the

TABLE 3

PRODUCT CHANGE IN ROBOTS SINCE 1978 (%, 100 MILLION YEN)

Types		1978	1980	1982	1985	1987
Operating robots		4.7	3.6	1.9	1.0	1.1
Fixed sequence control robots		40.6	30.2	13.0	9.8	7.3
Variable sequence control robots		20.2	11.7	13.2	7.8	6.2
Playback robots		14.9	19.4	34.8	30.6	24.6
NC robots		1.0	28.4	17.6	31.9	35.9
Intelligent robots		12.0	2.8	13.0	8.9	10.0
Total production	units	9166	19409	23990	47820	44508
	100 million yen	266	769	1439	3024	3033

NOTES: 1. Total includes robot parts and export of robots is included.

SOURCE: Same as for Figure 1.

late 1970's, fixed sequence control robots, which cannot be applied flexibly in production lines, were most popular in Japan. However, in the 1980's, NC robots, which can be operated more flexibly by numerical control and have become more similar to human limbs, have replaced them. In 1987,

this type of robots had a nominal share of 35.9 per cent of total robot production mainly by firms in electric machinery industries.

3) *R & D and Marketing Policies.* – Of the total 261 firms who responded to the survey in 1987, only 14 per cent of firms had joint R & D activities with other firms in Japan. About 82 per cent of the total firms specialized in their own R & D activities. There were quite a few firms with licence production given by foreign companies. R & D policy distribution had not changed at all since 1985.

As far as their R & D organization is concerned, there were about 40 per cent of firms with special R & D divisions as well as researchers. More than 47 per cent of firms did not have the special divisions but did have researchers for the R & D of industrial robots. It seems that the former are big firms, and the latter are S-M firms. This grouping can be compared to the difference between the two in their comparative advantage in R & D.

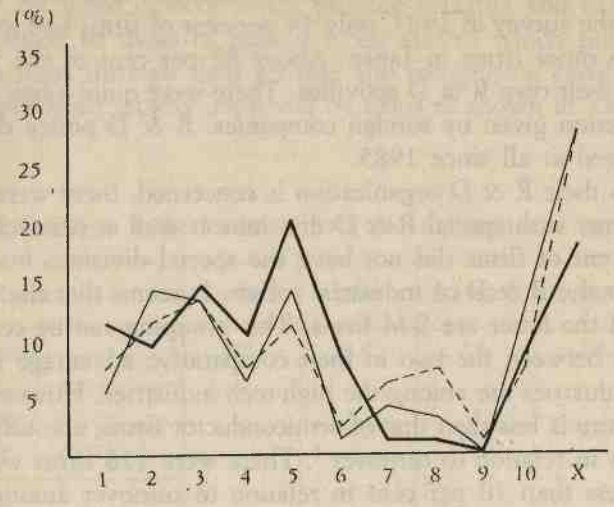
Robot industries are among the high-tech industries. However, their R & D expenditure is less than that of semiconductor firms, accounting for 10 to 20 per cent in relation to turnover [5]. There were 116 firms with R & D expenditure less than 10 per cent in relation to turnover among the total 150 firms who responded to the relevant question in the 1987 survey. Also, the scale of R & D activities in terms of the number of researchers is seen to be small. Figure 3 shows the distribution of robot firms viewed from their number of researchers as well as of employees in sales and maintenance departments.

The three distributions of robot firms have a common pattern in Japan as shown in Figure 3. This means that there is quite a small difference between all sized firms in their human resource allocation policies measured by the number of employees in each division. What is the mechanism causing them to depend on the same policies and why do they need to correlate these two activities?

Industrial robots are designed and produced to meet the needs of each user following its production order. Therefore, these two activities need to be correlated. Robot firms need to organize their total system of marketing, R & D, and production activities in order to satisfy each need. Their business is seen to be similar to that of engineering firms. Generally, the first stage in their business is to identify the needs of clients and to derive some design concepts from their needs. Following this, a basic design specifying customized robots is made. Then, this basic design is made more detailed by the cooperation between engineering and R & D divisions. The

[5] See HORIUCHI (1989).

FIGURE 3. Distribution of Firms in Robot Industries by employee in three divisions: R & D (——), Sales (– – –), and Maintenance (——).



NOTES:
1. X shows the group of firms with more than 11 employees in each division.
2. Total number of firms with sales divisions is 123, and that with maintenance divisions is 103. Both shares are based on these firms.

SOURCE: As for Figure 1.

detailed design shows the total production system covering all steps including production order plans for some units and experiment plans of the production system.

Next is the acquisition and maintenance process. The production system is organized and every part is assembled into differentiated robots. The operation guidance to clients is started after the final experiment of robots, and the operation and maintenance manual is made by robot firms. Furthermore, they always support their customers in any operation troubles after the introduction of the robots by providing maintenance services. The manual is made more complete and customized through these follow-up maintenance activities, and enables even S-M firms customers to efficiently operate their robots. These co-operative activities between marketing, R & D, production, and maintenance departments is the essential factor determining the competitiveness of each firms. Thus, the market competition will create a result like that in Figure 3.

II. *Demand*

Industrial robots are now being demanded more and more by many firms in Japan, stretching over all-sized firms and many industries for various purposes. Robot firms have been flexibly adjusting their businesses to the changing need and are promoting the robot market in Japan. Tables 4 to 6 show the recent change in demand structure for industrial robots with emphasis on the industrial structure and the diffusion pattern of application processes.

Robot demand was created by a few industries in Japan. In the 1970's, automobile firms were the largest users; however, they have been decreasing their share. On the other hand, electric machinery firms have been steadily increasing their share of total domestic demand in nominal terms since the late 1970's, and have become the largest users in Japan since the 1980's. Recently, industrial robots have been produced by electric machinery firms to meet the demand of their own firms or other firms in the electric machinery industries. This can be seen typically in big electric machinery companies, for example, Matsushita Electric Industrial Co., Ltd [6].

However, even though the demand of automobile firms had a decreased share, it still had more than a 25 per cent share in 1987, next to that of electric machinery firms. They are seen to have improved their production efficiency by heavily installing industrial robots, mainly for spot welding in their production line during the period from the late 1970's to the early 1980's. This success has encouraged many firms in other industries to install industrial robots in their different production line processes.

Secondly, industrial robots have been diffused in many industries since the early 1980's. In 1987, firms in either lumber, rubber, other manufacturing, or non-manufacturing industries demanded far more robots than in the late 1970's. The increased demand has been accompanied by a corresponding change in quality of robots and their application process [7].

This third change in the diffusion structure can be seen in Tables 3 and 5. As discussed in Section I, the share of NC robots reached more than 35 per cent of total demand in 1987. The quality improvement of NC robots as well as of other types of robots has led to their increased application in various production processes. Automobile firms, as one of the major users of robots in Japan, have installed them mainly in their spot welding process. This share of total application processes in terms of nominal value was

[6] Matsushita is one of top in-house robot makers in Japan.

[7] However, the average price has been increasing since 1978.

TABLE 4

DIFFUSION OF ROBOT DEMAND (%, 100 MILLION YEN)

Industry		1978	1980	1982	1985	1987
Foods & beverages		0.4	0.0	0.5	1.3	1.5
Textiles		0.3	0.7	0.3	0.1	0.1
Lumber		0.0	0.3	0.2	0.3	2.2
Paper & pulp		0.0	0.0	0.2	0.4	0.1
Chemicals		0.2	0.5	0.7	1.2	1.1
Petroleum & coal products		0.0	0.5	0.0	0.2	0.1
Rubber products		0.1	0.0	0.2	0.1	2.9
Ceramics, stone & clay		0.2	0.6	0.5	0.6	0.7
Iron & steel		3.3	1.3	1.6	0.8	1.2
Non ferrous metals		2.0	3.4	1.3	0.9	0.5
Fabricated metals		7.5	5.1	5.2	3.1	2.5
General machinery		6.1	6.3	8.1	8.2	8.3
Electric machinery		24.4	37.0	35.0	43.2	40.3
Automobiles		40.5	29.7	31.9	20.5	25.4
Other transportation machinery		1.2	0.4	0.6	1.1	0.5
Precision machinery		1.4	2.3	1.9	4.1	1.5
Plastic moulding		10.3	9.7	9.0	7.5	6.4
Other manufacturing industries		0.2	0.9	1.5	0.7	3.1
Other industries		1.8	1.3	1.1	5.6	4.0
Domestic demand total	units	8865	18239	21502	39292	36250
	100 million yen	259	749	1233	2424	2384

NOTES: 1. Total includes robot parts.

SOURCE: As for Figure 1.

TABLE 5

CHANGE IN DEMAND WITH DIFFERENT APPLICATION (%)

Application process	1978	1980	1982	1985	1987
Casting	0.8	1.1	0.5	0.2	0.1
Die casting	3.4	3.4	1.3	1.0	1.0
Plastic moulding	14.0	10.3	7.9	7.2	6.9
Heat treatment	0.3	0.1	0.0	0.1	0.1
Forging	2.3	0.6	0.2	0.2	0.5
Press processing	19.5	10.7	6.8	1.9	2.6
Arc welding	3.9	7.6	15.5	9.6	7.5
Spot welding	14.3	10.4	8.7	10.3	10.7
Gas welding	—	—	—	0.0	0.0
Painting	2.4	2.0	4.7	2.4	1.8
Plating	0.2	0.1	1.0	0.6	0.1
Machine loading	—	—	—	—	6.3
Cutting, griding & deburring	17.1	12.2	10.6	6.3	2.6
Assembly	16.0	32.5	33.0	42.9	48.1
Depositing & shipping	1.1	0.2	1.6	3.1	1.6
Inspection & measurement	0.8	1.0	0.7	2.0	2.4
Others	2.6	7.3	6.8	8.5	4.4
Other special processes	1.2	0.6	0.7	3.7	3.1

NOTES:

1. The assembly process was sub-grouped into four categories in 1987; Inserting & mounting (29.8%), Bonding (4.8%), Sealing & grueing (0.5%), and others (13.0%).
2. Figures include exports.
3. Other special processes cover those for ocean development, nuclear power, or civil engineering.

about 10 per cent in 1987. Electric machinery firms also have been using robots, mainly in their assembly lines and the share of robots operating in assembly lines in all industries was nearly 50 per cent in 1987. This process

TABLE 6

SURVEY ON ROBOTIZATION IN JAPAN

Industry	Total demand during 1978 to 1987	1987 demand (unit)	1987 demand (100 million yen)	Main demand in 1987 by type	Type	Main demand in 1987 by process	Main application process	Share of small firms' demand
Foods & beverages	1192	229	36.4	13.0	IN	15.9	IM	7.2
Textiles	746	22	3.0	1.3	NC	1.6	OT	69.0
Lumber	500	275	51.6	49.1	NC	49.0	CG	91.0
Paper & pulp	329	35	3.5	1.7	VS	1.9	AS	17.0
Chemicals	1707	258	28.2	10.3	OT	12.2	OT	4.0
Petroleum & coal products	356	11	2.9	2.3	FS	2.3	AS	0.0
Rubber products	315	40	7.0	2.5	PB	3.4	IM	8.2
Ceramics, stone & clay	1172	137	15.9	4.1	PB	7.2	IM	9.3
Iron & steel	1795	288	29.2	11.2	OT	12.0	FG	5.2
Non ferrous metals	4535	306	12.5	4.8	FS	7.7	DC	70.0
Fabricated metals	9789	1253	59.3	20.9	PB	17.5	AW	50.9
General machinery	24392	5013	199.0	91.3	NC	50.5	AS	10.3
Electric machinery	66764	9754	960.5	551.1	NC	847.8	AS	15.0

Industry	Total demand during 1978 to 1987	1987 demand (unit)	1987 demand (100 million yen)	Main demand in 1987 by type	Type	Main demand in 1987 by process	Main application process	Share of small firms' demand
Automobiles	50950	8306	605.0	312.2	PB	230.9	SW	13.5
Other transportation machinery	1663	230	11.7	6.1	PB	3.5	AW	5.3
Precision machinery	9788	520	36.5	5.2	VS	25.3	AS	8.1
Plastic moulding	69900	7970	153.3	56.9	VS	148.6	PM	70.6
Other manufacturing industries	3686	1394	73.4	46.9	PB	15.3	AW	16.9
Other industries	1888	209	95.4	26.3	OP	76.5	NP	0.0
Total	251467 (unit)	36250 (unit)	2384.1 (100 million yen)	816.1 (100 million yen)	NC	1459.2 (100 million yen)	AS	20.0 (%)

NOTES:
1. All figures exclude export demand. Share of small firms' demand is defined as the percentage of those in total demand (nominal) in each industry.
2. The type of robots is as follows: OR = operating robots; FS = fixed sequence control robots; VS = variable sequence control robots; PB = playback robots; NC = NC robots; IN = intelligent robots; OT = others.
3. The application process is categorized as follows: DC = die casting; PM = plastic moulding; FG = forging; AW = arc welding; SW = spot welding; CG = cutting, griding and deburring; AS = assembly; IM = inspection & measurement; OT = others; NP = nuclear power.

SOURCE: As for Figure 1.

of assembly covers a wide range of functions from inserting and mounting, bonding, sealing and grueing, as well as many others.

The demand diffusion into various production processes can also be seen typically in Table 6. This gives the distribution of demand for industrial robots in 1987 by industry, and then shows the main type of robot demand and main process applications in each industry. There are five groups of industry operating robots mainly in assembly lines. On the other hand, there are also many industries with special production processes. For example, many inspection or measurement robots are operating in food and beverage, rubber products, and ceramics, stone and clay industries. Each firm in every industry can flexibly apply industrial robots to their own process need with the help of wide ranging services, especially engineering services of robot firms. This customization in robot markets is supported by their market oriented R & D activities. Therefore, each industry can install different types of robots reflecting its different needs, for example, variable sequence control robots in petroleum and coal products and precision machinery, and NC robots in general and electric machinery industries.

Lastly, industrial robots are also diffused into S-M firms in Japan because of the market oriented R & D and engineering activities of robot firms. Indeed, they had a 20 per cent nominal share in total domestic demand in 1987. In particular, this share became more than fifty per cent in some industries; a 91 per cent share in lumber industries, a 70.6 per cent share in non-ferrous industries, and a 69 per cent share in textile industries in 1987. These industries are seen to be typical declining industries in Japan. Their investment in robots installment may have helped them maintain their businesses and adjust to changing economic conditions.

III. *Policy Discussion*

We will review the policy framework of S-M firms aimed at promoting robot installation in their production lines and have a brief discussion on related labour market policy problems.

There are two types of industrial policies for robot industries in Japan; demand-oriented and supply-oriented policies. The latter policies can be categorized into two types; direct ones through MITI in order to improve R & D efficiency in industrial robots and indirect ones through preferential tax and finance for firms' R & D activities. As for direct policies, MITI, for example, has been organizing two R & D projects of industrial robots funded by the government budget under monitoring by its research division

– the Agency of Industrial Science and Technology (AIST); the R & D projects of the Advanced Robots Operating in Extreme Situations and the Flexible Manufacturing System for Apparel Industries. The former project started in fiscal year 1983 (to end in f.y. 1991) with a government budget of about 20 billion yen for the development of advanced robots for nuclear plants or petroleum ocean exploitation, etc. The latter project started in fiscal year 1982 with an eight year life and a government budget of about 13 billion yen in order to improve the production efficiency in the apparel industry – a typically declining industry in Japan. This project has co-operatively involved more than fifty firms from big to S-M in various industries including textile, chemical, general machinery, electric machinery, and apparel industries. They have set up a special organization – a Technology Research Association (TRA) – for their co-operative R & D [8].

The demand-oriented policies provide some incentives to S-M firms aiming at expanding the installation of industrial robots in their production lines. They are offered preferential finance and tax treatment. For example, the Small Business Finance Corporation can lend money (to a maximum of 400 million yen per firm) to firms introducing robots for the purpose of ensuring workers' safety. The maximum maturity is a 15 year period with an interest rate 4.6 per cent during the first three years and thereafter 5.1 per cent (as at August 1987). S-M firms can also use more preferential finance supplied by their local governments for introducing industrial robots which cost less than 60 million yen. The maximum supply of credit is half the cost, i.e. 30 million yen with maximum maturity of a five year period. However, they can use this credit service without any interest payments. This preferential finance is funded equally by both local governments and central government. Both preferential finances are rationed to special S-M firms regulated by their installation purposes and industries as well as the fund limits.

S-M firms can also have the cost of leasing robots subsidized to a maximum of 1.2 million yen a year for a maximum of five years. This facility is provided for special firms located in specific regions (Tokyo, Kanagawa, Saitama, and Chifa prefectures) and installing robots made by member firms of JIRA. Alternatively, these specified small firms can have the interest costs of borrowing money for installing robots subsidized under the same conditions.

Both facilities are provided by the special organization made by S-M

[8] Their TRA is one of the exceptions. TRA's have been generally formed by a small number of big firms. See HORIUCHI (1989).

firms with the help of credit associations in these regions and credit unions in Tokyo and Saitama [9].

The third indirect policy is preferential tax treatment to S-M firms. They can use either the accelerated depreciation measure (30 per cent of installment costs in the first year) or the tax exemption (7 per cent of the costs) if they invest in advanced electronics equipment such as NC machines or industrial robots. This policy is called the Mechatronics Investment Promotion Tax System which is applied to S-M firms regulated by their industry with the monitoring help of JIRA and the Small and Medium Enterprise Agency.

Next, we will briefly discuss some related labour market problems. The introduction of industrial robots is seen as a solution to the shortage of skilled work force. According to the survey by the Ministry of Labour, the shortage was estimated to reach about 570 thousand in 1985, 93.9 percent of which was in small firms with less than 300 employees [10]. This tendency has been accelerated by the social change that Japan is experiencing, tending toward a highly educated society.

At present, industrial robots are gradually taking over dangerous, severe, trying, or monotonously repetitive tasks. This tendency will go a long way toward preventing industrial injuries and occupational diseases resulting from such unfavourable jobs. Eventually, they will enable automation of multi-product and small-batch or multi-product mixed flow-line production. Firms can meet efficiently the change in demand for their products because industrial robots are capable of continuous operation without long interruption. In Japan, this productivity effect was achieved early through a cooperative trade union relationship as well as by increasing improvements in robots and engineering services by robot firms.

Secondly, as far as the impact of robot introduction on labour markets is concerned, the more industrial robots are diffused in Japan because of robots firms' initiatives, the more the impact they may have on unemployment. This problem may become more serious if labour markets become less flexible in the future so as to cause some wage rigidity. Here, the experience of electric machinery industry firms may give a hint to this problem. Since 1980 they have copiously introduced industrial robots in Japan, but they

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[9] Small financial institutions in the Tokyo area have been suffering from the deindustrialization of the economy because their client S-M firms in manufacturing industries have been exiting from their markets and shifting to service or property businesses. Their commitment is strengthened to maintain their business in manufacturing industries. However, these effects may have been decreasing because of the financial liberalization.

[10] See JIRA (1989, p. 15).

have also increased their employees because of expanding demand for their products such as semiconductors, VTRs, and other electronic products of high quality. This parallel expansion in both employment and robot installation can also be seen in automobile industries. Furthermore, as far as the international comparison is concerned, Japan is seen as a country which has succeeded in rapidly expanding industrial robot markets with no severe impact on labour markets because of its high economic growth. We can conclude that robotization in each country depends on its long-run economic growth.

IV. *Summary*

Japan is a leading industrial robot country concerning both production and introduction. Firms have entered into robot markets from related industries such as electric or general machinery industries and have promoted the development of robot industries. There are three groups of firms; S-M or big firms' affiliated companies, big companies, and S-M robots parts firms. These S-M or venture type firms have also been supplying engineering services to users in Japan.

Their production has been supported partly by the industrial relationships between either assembly and part makers or big and S-M firms. Firms in robot industries depend considerably on the market for some robot units, except for hand units since it is on these that their R & D and marketing activities have been concentrated. These activities are closely related because robots need to be produced to meet the process needs of each user. This supply-promoting expansion is clearly revealed in some firms which were producing their in-house robots and recently started sales activities to users.

The users in Japan have been stretching to various firms of all sizes, many industries, and each need. In 1987, S-M firms demanded a 20 percent nominal share of industrial robots in total demand. In particular, these shares rose to more than fifty percent in some declining sectors in Japan such as textiles, lumber, or non-ferrous industries. The diffusion into these declining industries may have improved their productivity, and may also have caused their over investment in robot introduction because of policies supplying preferential finance or tax treatment. However, these policy impacts cannot be identified because of the unavailability of data, and this may bring new international frictions into high tech markets [11].

[11] At the Williamsburg Summit convened in the U.S. in 1983, it was agreed that in order to encourage economic growth and the improvement of the labour environment, international technical research co-operation in the field of advanced robotics should be conducted. Japan was appointed as one of the leading countries in this co-operation as well as France, and may have more responsibilities to mitigate any frictions in robot markets.

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LO SVILUPPO DELLA ROBOTICA INDUSTRIALE IN GIAPPONE

Scopo dell'articolo è di esaminare il processo di robotizzazione dal punto di vista dell'organizzazione industriale della robotica in Giappone. Si stima che il numero dei robot industriali in funzione alla fine del 1987 abbia raggiunto 141 migliaia di unità e il Giappone ha una quota di circa il 67,3 per cento del numero totale dei robot in funzione nel mondo.

Le imprese sono entrate nel mercato dei robot da industrie connesse come l'industria del macchinario elettrico o della meccanica generale. Vi sono tre gruppi di imprese: *a*) imprese di piccola e media dimensione (S-M) o affiliate a grandi imprese; *b*) grandi imprese; *c*) imprese piccole e medie che producono parti di robot. Le imprese del primo gruppo forniscono anche servizi di ingegneria agli utenti in Giappone. La produzione è stata in parte sostenuta dalle relazioni industriali tra i produttori di parti e gli assemblatori, come anche tra le grandi imprese e quelle medio-piccole.

L'utenza in Giappone si è estesa a varie imprese di ogni dimensione di diverse industrie e per molti tipi di operazioni. Nel 1987 la domanda di robot delle imprese medio-piccole rappresentava il 20% della domanda totale. In particolare, questa percentuale è salita a piú del 50% in alcuni settori in declino come i tessili, legname e industrie non ferrose. Questa diffusione della robotica può avere migliorato la loro produttività, e si è accompagnata con un eccesso di investimento in robot dovuto a una politica di trattamento finanziario e fiscale privilegiato.

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IMPACT OF TPM ON U.S. STEEL IMPORTS FROM JAPAN

by
Aspy P. Palia * and Harold R. Williams **

In the late 1940s the U.S. steel industry was the largest and most efficient in the world. It produced half of the world steel output, an amount more than 2.5 times that of Western Europe and 82 times that of Japan. By 1984 the U.S. accounted for less than 12 percent of world steel production. This amount was only 70 percent of that of Western Europe and 80 percent of that of Japan. Over this same time period the U.S. moved from the leading exporter of steel to the largest steel importer. By 1959 trade surpluses in steel gave way to large recurring annual deficits. Steel imports rose from less than 5 percent of domestic supply in 1960, and 14 percent in 1975, to 21 percent in 1983 and 26 percent in 1984 (American Iron and Steel Institute, 1985). American steel lost not only its leading position in the technology race but also its ability to effectively compete with foreign producers.

This import penetration of the American market occurred at the same time that capacity utilization and employment within the steel industry were falling. Stagnant steel demand combined with worldwide excess capacity and resulted in aggressive price competition. The global oversupply of steel resulted partly from an expansion of steel producing capacity of both developed and developing nations. It was also due, however, to substitutes, like fiber glass and metallic alloys, as well as product down-sizing which reduced sharply the need for steel. As a result of these developments, international competition became very aggressive, with imported steel gaining a large share of the American domestic market. This led to charges of unfair price competition. American producers said foreign steel companies were dump-

* College of Business Administration, University of Hawaii, Honolulu, Hawaii (U.S.A.).
** Graduate School of Management, Kent State University, Kent, Ohio (U.S.A.). This is part of a larger study the authors are doing on U.S. trade policy and protection.

ing steel in the U.S. and/or were being subsidized by their governments [1].

The steel Trigger Price Mechanism (TPM), or Solomon Plan, was designed to protect U.S. steel producers from "unfair" import competition. It was to do this by discouraging sales of imported steel products at prices below the foreign producer's cost of production [2] plus the cost of landing the steel in the U.S., and by expediting implementation of traditional anti-dumping investigations. While the TPM applied to all countries, it was aimed primarily at Japan, the most efficient (at that time) and aggressive steel exporter. For the years 1975-1977 almost half of all steel imports came from Japan alone. By 1983, steel imports from Japan had dropped to 24.8 percent of total U.S. steel imports (4.24 million net tons). In 1985, the figure was 24.7 percent (6.0 million net tons).

This paper concentrates on Japan-U.S. steel trade. It estimates, after first giving a brief explanation of the TPM and the model used to derive the estimating equations, the impact of the TPM on sales of imported steel in the U.S.

The TPM

The TPM was in effect during most of the period from February 1978 to January 1982 [3]. It entailed formulating a set of reference, or trigger, prices that served as a bench mark for monitoring steel imports to ascertain

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[1] Two tests may be used to determine whether dumping has transpired under the Antidumping Act of 1921 as amended by the Trade Act of 1974, the "fair value" test and the "cost of production" test (U.S. INTERNATIONAL TRADE COMMISSION, 1985). Under the fair value test, a foreign good is sold at "less than fair value" if, over a substantial period of time, the product is systematically sold at a higher price in the exporting country than in the U.S. Under the "cost of production" test an American firm may allege dumping even if the U.S. price of the product is not below the price in the exporter's home market, provided the price at which the product is sold in the U.S. is below the foreign manufacturer's full cost of production.

[2] The cost of production test was incorporated in U.S. dumping legislation by the Trade Act of 1974. To conclude dumping has occurred, a finding is necessary that the sales made at prices below the manufacturer's cost of production continued for an extended period of time and involved a substantial quantity of the product. Moreover, it must be found that the sales are not at prices which permit recovery of all costs within a reasonable period of time in the normal course of trade. These sales cannot be used in determining foreign market value. Should, however, the remaining sales be insufficient for determining fair value, or if the data are not available, dumping is based on "constructed value", which is the sum of (1) direct cost of production, (2) overhead costs of (at a minimum) 10 percent of direct production costs, and (3) an allowance for profits of at least 8 percent of direct cost plus overhead costs.

[3] It continued to apply to selected stainless steel imports after April 15, 1982.

if there was a prima facie case of dumping and thus a reason for undertaking antidumping investigations (Solomon, 1977). If steel imports entered the U.S. at a price below the pre-established trigger price, there was a presumption they had been dumped. Accordingly, the U.S. Treasury (the U.S. Department of Commerce after 1980) would begin an antidumping investigation to see if the imported steel had in fact been dumped. If it had, an antidumping duty would be assessed that removed the dumping margin.

Trigger prices were based on the estimated production costs in Japan [4]. They covered both the Japanese unit production cost and freight. The Japanese cost of production was estimated assuming that the Japanese industry was operating at 85 percent of capacity – its average rate of capacity utilization over the prior five years – rather than the 72 percent rate at which it operated in 1977.

The primary objective of the TPM was to expedite traditional antidumping investigations. It was viewed by U.S. steel producers as a way of propping up world steel prices without first requiring protracted antidumping investigations. As such, they welcomed it [5]. The U.S. Treasury viewed it as a substitute for traditional antidumping petitions. It was the Treasury's position that while the TPM was in effect U.S. steel producers should not file their own complaints. Should they do so, the TPM would be abandoned since the government did not have the resources to carry on both forms of protection simultaneously. Based on this philosophy, on March 21, 1980 the U.S. suspended the TPM when U.S. Steel, supported by other steel producers, filed antidumping petitions against steel producers in five EC countries. In October 1980 U.S. Steel dropped its dumping complaints against the EC countries and on October 21, 1980 the TPM was reactivated.

Trigger prices are a standard against which the government can compare the prices of steel imports and determine whether a self-initiated inquiry is warranted. Inquiries and subsequent investigations, when warranted, are carried out in accordance with the Antidumping Act and related regulations. All provisions of the Act thus remain in force and no one is

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[4] The data were obtained from the Japanese Ministry of International Trade and Industry (MITI). They cover 6 major and 6 minor Japanese steel companies. The data were reviewed by the U.S. Treasury (originally) and the phased-out Council on Wages and Price Stability (COWPS). They then used this data to estimate the cost of producing the various types of steel products under investigation. The trigger price has three parts: (1) a base price for a particular category of steel mill products, (2) an additional charge for extras like width, thickness, surface preparation, heat treatment, etc., and (3) the cost of transportation to the U.S.

[5] During this same period, the EC was setting up its own system of steel reference prices (CRANDALL, 1981).

deprived of the right to lodge a complaint and have it pursued in accordance with the terms of the Act. Accordingly, the TPM does not amend the Antidumping Act. In order to justify anti-dumping duties it is still necessary to find that both dumping and domestic injury have occurred.

If the price of imported steel was below the trigger price, the U.S. Customs initiated an informal inquiry to ascertain the reasons for the low price. If there is a valid justification, no further action was taken. If there is no valid justification, the U.S. Treasury [6] had to decide whether to initiate a formal investigation. Should a formal investigation be initiated, an effort is made to render a tentative determination as rapidly as possible [7]. Before anti-dumping duties could be levied, the Treasury had to make a final determination and the United States International Trade Commission (ITC) had to conclude that U.S. companies or workers were being injured by the dumping.

The Model

To assess whether the TPM had a significant impact on U.S. steel imports from Japan, a single equation linear regression model is formulated based on international trade theory. The least-squares-with-dummy-variable technique is employed to generate estimating equations for steel imports by major product category. Quarterly data covering the time period from the first quarter of 1975 to the fourth quarter of 1983 were utilized. The study starts with 1975 because the U.S. steel industry was protected with a voluntary restraint agreement (VRA) from 1969 to 1974, although the VRA probably had little effect after 1972. It stops with the end of 1983 because the U.S. negotiated steel VRAs with Europe and other nations for 1984 and beyond. Steel imports are subdivided into four categories of steel mill products; plates, cold rolled sheet, galvanized sheet, and hot rolled sheet. These categories are used because they constitute the major steel mill imports and involved the bulk of the antidumping/subsidy allegations. We are not specif-

[6] Under the 1980 reorganization of the trade functions of government, the responsibility for conducting anti-dumping and countervailing duty investigations, as well as operations of the TPM, were transferred from the U.S. Treasury to the U.S. DOC. In addition, the procedures involved in dumping investigations were revised.

[7] It was expected that a tentative determination would be rendered within 90 days of launching a formal investigation. To cover potential duties foreign producers are required to post bonds. Should the tentative determination be affirmative, all imports of steel from that source are subject to the possible assessment of duties.

ically concerned about the TPM's impact, if any, on the composition of steel imports.

The major variables explaining the level of imports of steel mill products are the rate of exchange, relative steel prices, and domestic income. Other factors are expectations and non-price trade distortions, including inducements as well as barriers.

The basic model [8] is represented as follows:

$$M_s = M_s[(P_f/r),\ P_d,\ Y_d,\ \Pi] \qquad (1)$$

where:

M_s = imports of steel mill products (in net tons)
r = rate of exchange, defined as the number of foreign currency units per U.S. dollar – foreign exchange price of U.S. $ 1.00
P_f = price of imports expressed in foreign currency
P_d = price of domestically (U.S.) produced steel in U.S. dollars
Y_d = domestic (U.S.) real income
Π = non-price, non-income trade distortions, expectations, etc.

The primary theoretical relationships are as follows. A rise in the value of the U.S. dollar relative to the currency of the supplier country reduces the dollar price of steel imports and thus makes imports more price competitive. It thereby tends to increase steel imports. Of course, dollar appreciation also reduces the cost of imported inputs to the steelmaking process. Although the U.S., unlike Japan, does not rely extensively on raw material imports to produce steel, to the extent that it does, this reduction in the cost of imported inputs increases the cost competitiveness of domestically produced finished steel products [9].

An increase in the domestic dollar price, P_d, whether due to high labor costs compared to productivity gains, pollution regulations, administered prices, or whatever, will, *ceteris paribus*, increase the level of steel imports and thereby reduce the price competitiveness of U.S. steel. As domestic steel is a substitute product for imported steel, there is a direct relationship between the price of domestic steel and the demand for imported steel. An increase in domestic real income, Y_d, will tend to increase the total demand

[8] See WILLIAMS and PALIA (1984) for a more complete explanation of the model.

[9] Japan relies heavily on imported raw material – iron ore, coal, oil, etc. from Australia, OPEC, etc. – and hence this may be an important consideration from their side of the picture. A weakening of the yen would increase the cost of their imported inputs and tend to weaken their cost competitiveness. An increase in the yen would have the opposite effect. Of course, the direct effect on the price of the final product might well swamp the input price effect.

for steel in the domestic market and to this extent increase the level of domestic steel production and/or steel imports.

The Π variable lumps together many non-price, non-income factors that affect imports. A major consideration is non-tariff, non-subsidy, trade distortions. An import tariff or subsidy should be reflected in prices. Quotas, VRAs, and many other non-price measures would not. Expectations about future prices, future income, raw material shortages, etc., or trade distortions would not be reflected in price and/or income and hence have to be dealt with individually. The TPM, as an alternative form of protection to tariffs, quotas, VRAs, etc., fits into this category.

Based on the above stated model, the estimating equation is specified as follows:

$$M_s = a + B_1Y_d + B_2(P_f/r) + B_3P_d + B_4T + B_5TP + B_6Y_dT + B_7(P_f/r)T + B_8P_dT + B_9TT + e \quad (2)$$

where:

M_s = quarterly average imports of steel mill products (in thousands of net tons)
a = intercept term
Y_d = quarterly average industrial production index
P_f/r = quarterly unit value of steel imports ($= P_m$)
P_d = quarterly average U.S. producer price index of steel
T = quarter (a trend variable)
TP = a dummy variable representing the TPM (0 for 1975.1-1977.4, 1980.2-1980.3, 1982.2-1983.4; 1 for all other quarters from 1975.1-1983.4)
Y_dT = interaction term between Y_d and TPM
$(P_f/r)T$ = interaction term between P_f/r and TPM
P_dT = interaction term between P_d and TPM
TT = interaction term between T and TPM
e = a residual or error term

The quarterly level of imports (M_s) of each of the four categories of Japanese steel mill products is employed as the dependent variable. The operational definitions of the independent variables are as follows. The quarterly average U.S. industrial production index (Y_d) is employed as a proxy for real domestic income. The quarterly average producer price index of steel in the U.S. (P_d) is used as a proxy for the U.S. price explanatory variable [10]. The unit value in U.S. dollars of steel imports is used as a proxy

[10] This series, published by the Bureau of Labor Statistics BLS, appears to be the best

for the import price of steel products (P_m). This is necessary since quarterly imports price indexes of steel by product category are not available [11].

A trend variable (T) is included to account for technological advance, population growth, and other structural changes. Technological growth in the U.S. relative to supplier countries will lower U.S. production costs and thereby increase the international competitiveness of domestic steel producers. Population growth in the U.S. will increase the total demand for steel products, some of which may be satisfied by steel imports. These arguments apply in reverse for U.S. competitors.

A binary dummy variable (TP) is included to measure the impact of the TPM on the imports of each product category. It takes on the value of zero (0) when the TPM was not in effect and unity (1) when it was in effect. Thus it is zero during the quarters 1975.1 through 1977.4, 1980.2 through 1980.3, and 1982.2 through 1983.4 [12]. If there was dumping and/or subsidization, as the U.S. steel industry alleged, steel imports should decrease during those quarters when the TPM was in operation. If there was no significant dumping or subsidization the TPM should have little impact on steel imports – unless the trigger price was set too high.

Based on the theory underlying least squares analysis using the dummy variable technique, interaction terms between each of the predictor variables and the dummy variable TPM were generated and included in the estimating equation. This general unrestricted form of the estimating equation was used because there was no *a priori* basis on which to conclude that the TPM would have an impact on only the intercept or only the slope coefficients of the regression equation. Thus interaction terms between industrial production and the TPM (Y_dT), the unit dollar cost of steel imports and the TPM [$(P_f/r)T$], the domestic producer price of steel and the TPM (P_dT), and the trend variable and the TPM (TT), were included in the estimating equation.

It is the values and the signs of the coefficient of the binary dummy

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available proxy and is widely used. However, it suffers from a number of commonly recognized drawbacks. It measures quoted and not realized prices. Moreover, since the weight of each constituent component is fixed for long periods, it does not reflect short-run product mix changes. Furthermore, quality changes are not reflected in this widely and frequently used price index.

[11] It must be recognized that a unit value index is a weighted average figure and may change because of changes in commodity composition independent of any price changes. As such, it is not a true price index and must be interpreted with caution. This drawback is less severe in the case of disaggregated analysis by product category.

[12] These quarters represent time periods prior to the implementation of the TPM (1975.1 through 1977.4) or during which the TPM was suspended from operation (1980.2 through 1980.3, and 1982.2 through 1983.4).

variable and the interaction terms which are most important for assessing the TPM's impact on the import of steel mill products. The magnitude and direction of the shift in the intercept of the regression surface as a result of the TPM are indicated by the value and sign of the coefficient of the TPM dummy variable. The magnitude and direction of the shift in the slope of the regression surface along each of the relevant planes are indicated by the value and sign of the coefficient on each of the interaction variables. A significant reduction in the slope of the regression surface along each of the relevant interaction planes would imply that the TPM reduced steel mill imports. A reduction in slope accompanied by a higher intercept could also mean that imports were cut by the TPM. However, a conclusive determination in this case can only be made by substituting specific values of each of the explanatory variables in the estimating equation and then comparing the level of imports with and without the TPM [13].

Empirical Results

Table 1 shows the results [14]. Where the Durbin-Watson statistic in the OLS regression indicated the possible presence of positive or negative serial correlation in the error term, the Cochrane-Orcutt iterative procedure (CO) was used to re-estimate the equations concerned. The *t*-statistic is given below each coefficient and the degree of significance of each explanatory

[13] Since the import price of steel (P_m) is expressed in U.S. dollars, the need for an exchange rate variable by itself no longer exists. However, were the import prices expressed in a foreign currency, the dollar yen exchange rate would have to be included in the estimating equation. No explanatory variable for openness of the economy or the second OPEC price shock of 1979-80 is included in the estimating equation. The presence of tariff and/or nontariff trade barriers will tend to curtail imports of steel mill products. While quotas and VRAs will impose quantitative restrictions on steel imports, tariffs will tend to reduce the level of steel imports by raising their effective price. The level of steel imports may also be influenced by the second OPEC price shock via its influence on the cost of production of steel producers. Thus, for the period under investigation Japanese steel producers, who are more dependent than U.S. steel producers on foreign supplies of oil, may have suffered a relatively greater cost increase and decline in competitiveness as a result of this change. The inclusion of separate variables in the estimating equation to reflect the above influences would have resulted in the loss of several degrees of freedom. Moreover, operationalization of these variables would have posed additional problems.

[14] Quarterly data on steel imports disaggregated by country of origin and by product category were obtained from the U.S. Department of Commerce and the American Iron and Steel Institute.

variable is indicated directly below each *t*-value [15]. International trade theory would lead us to expect the coefficients for the Y_d and the P_d variables to have positive signs, and the coefficients for the P_m (which equals P_f/r) variable to be negative. The impact of the TPM on steel imports is indicated by the coefficients of the *TP* dummy variable and the interaction variables. If the TPM curtailed imports it could be indicated by a decrease in all these variables. However, all that is necessary for the TPM to cut imports is that the net value of the TPM and the interaction terms be negative. It is not possible to state *a priori* the expected signs of the estimated coefficient on the trend (*T*) and the dummy (*TP*) variables.

The results are presented by product group. The *SEE*, Adj. R^2, D-W, and *F* statistics are presented in each case. The Adj. R^2 for the CO estimated equations are the adjusted coefficients of multiple determination for the untransformed variables. Hence, it is possible to directly judge the joint explanatory power of the untransformed predictor variables. It must be recognized, of course, that if the trigger price were set on the high side, it would tend to reduce steel imports and thereby imply that there had been dumping even though none in fact may have occurred [16].

Table 1 gives the estimated results for U.S. steel imports from Japan for the four major categories of steel mill products. In all four cases, the CO procedure was used to re-estimate the regression coefficients since the OLS results displayed unacceptable D-W statistics. The *F* values are significant for all estimating equations at the 99 percent level. In addition, the R^2s are relatively high, ranging from .57 for cold rolled steel sheets to .89 for galvanized sheet.

The statistical significance of the independent variables for each product category is uneven. For imported steel plates the results, while statistically significant overall, are weak. Only the variable reflecting the dollar price of imports, P_m, is statistically significant [17]. Neither the *TP* intercept nor the interaction terms are significant.

The equation for imports of cold rolled sheets has several coefficients that are statistically significant. This is true of domestic income and the dollar price of steel imports. The TPM intercept dummy is significant at the

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[15] The degree of significance is indicated by the number of asterisks. The 90 percent level is indicated by one asterisk; the 95 percent level by two; and the 99 percent level by three.

[16] For our purposes we assume, in the absence of solid information to the contrary, the TP was set at the appropriate level.

[17] However, most of the "signs" of the coefficients are reasonable except for income. The negative sign on the industrial production variable, which is not statistically significant, is the opposite of what should be the case based on theory.

TABLE 1

IMPACT OF TPM ON U.S. STEEL IMPORTS FROM JAPAN

Product	a	Y_d	P_m	P_d	T	TP	Y_dT	P_mT	P_dT	TT	SEE	Adj. R^2	$D\text{-}W$	F
Plates														
(CO)	352.16 (1.14)	− 0.78 (0.45)	− 0.43 (1.86) **	0.04 (0.04)	− 0.93 (0.15)	120.55 (0.24)	− 1.64 (0.52)	0.14 (0.16)	0.67 (0.32)	− 5.33 (0.36)	21.91	.85	1.97	22.16 ***
Cold Rolled Sheet														
(CO)	− 101.64 (0.12)	6.51 (1.64) *	− 2.44 (2.48) **	0.25 (0.06)	10.96 (0.58)	3231.62 (2.27) **	− 29.70 (2.96) ***	12.65 (2.42) ***	− 7.63 (1.12)	− 58.13 (1.09)	67.13	.57	2.06	5.98 ***
Galvanized Sheet														
(CO)	− 1373.98 (0.54)	42.44 (3.04) ***	− 11.44 (4.59) ***	− 7.51 (0.84)	133.07 (2.73) ***	450.68 (0.11)	− 18.07 (0.67)	− 5.84 (0.68)	24.98 (1.52) *	− 136.84 (1.24)	172.40	89	2.44	32.21 ***
Hot Rolled Sheet														
(CO)	− 308.31 (0.57)	5.80 (1.92) **	− 1.00 (1.71) **	− 1.46 (0.74)	17.61 (1.67) *	1308.69 (1.72) **	− 8.63 (1.93) **	− 0.17 (0.11)	0.79 (0.23)	− 8.68 (0.34)	37.40	.61	2.43	6.93 ***

95 percent level. Since the sign is positive, it appears that the TPM caused the intercept to rotate upward. As noted earlier, this movement is consistent with the TPM reducing imports as long as the interaction terms are negative in total. The TPM interaction terms for industrial production is significant at the 99 percent level and has a negative sign, which is consistent with theory. The interaction term for the dollar price of Japanese imports is also significant at the 99 percent level. However, since it is positive while income is negative, an assessment of the impact of the TPM on cold rolled sheet imports must net out the effects of the intercept and two interaction terms to see if the TPM restrained imports of this line of steel mill products.

The estimating equation with the highest *F* value and greatest explanatory power is the one for imports of galvanized sheet. The U.S. real income and the dollar price of imported galvanized sheet both have the expected theoretical sign and are significant at the 99 percent level. The trend variable, which indicates that galvanized sheet steel imports trended upward, is also significant at the 99 percent level. The price of U.S. produced galvanized sheet steel is not statistically significant. The TPM dummy intercept and interaction terms are not, for the most part, significant from a statistical point of view. The only exception is the interaction between the domestic price of U.S. produced galvanized sheet steel and the TPM.

The final category of steel imports is hot rolled sheet. Table 1 manifests that both real domestic income and the dollar price of imports have the expected sign and are significant at the 95 percent level. Here again, as with galvanized sheet imports, the price of U.S. produced hot rolled sheet is not significant and has the wrong sign. Moreover, as with galvanized sheet, the trend variable is significant – but only at the 90 percent level.

The TPM intercept dummy is significant at the 95 percent level. As with cold rolled sheet imports, there is a positive relationship between hot rolled sheet imports and the TPM. In addition, the TPM interaction term with domestic income is significant at the 95 percent level and has a negative sign. Hence the TPM rotated the hot rolled sheet surface downward with the effect that the intercept term increased. Note also that almost all the non-significant interaction terms are negative [18]. On balance, it appears that the TPM tended to reduce somewhat the import of hot rolled sheet imports.

[18] It is difficult to justify some of the signs. However, in the real world, the demand for steel is influenced by many considerations not captured in the above estimating equation. These include perceived quality differences; differences in servicing steel users; the prices of such substitute goods as aluminum, fiber glass, and plastics; expectations concerning future incomes and future prices (as a result perhaps of an impending strike), and loyalty – eg., buy American. While the impact of such factors on the demand for steel is recognized, they are not easily included in the estimating equations.

Conclusion

Based on the results of this empirical analysis, no definitive statement can be made to the effect that the TPM significantly reduced steel imports from Japan. The results are mixed. However, a cautious assessment implies that the TPM may have had a mild overall moderating influence on imports of cold rolled sheets and hot rolled sheets. Recall, of course, that the TPM was not intended to cut imports except where they were being sold at "unfair" prices. If foreign steel prices were at or above the trigger price, which was based on Japan's cost structure, the TPM would not have reduced imports.

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L'IMPATTO DEL TPM SULLE IMPORTAZIONI STATUNITENSI DI ACCIAIO DAL GIAPPONE

Nel 1978 gli Stati Uniti introdussero il meccanismo del prezzo-grilletto (TPM - Trigger Price Mechanism) per proteggere i produttori statunitensi di acciaio dalla concorrenza sleale sotto forma di dumping o di sussidi dei governi stranieri. Sebbene applicabile per tutti i paesi, esso era rivolto principalmente al Giappone, il produttore piú efficiente.

Questo lavoro indaga se il TPM ha avuto un impatto significativo sulle importazioni statunitensi di prodotti siderurgici dal Giappone. A questo scopo viene usato un modello di regressione basato sulla teoria del commercio internazionale e composto da una sola equazione lineare. È stata utilizzata la tecnica dei minimi quadrati con variabili dummy in riferimento a quattro categorie di importazioni statunitensi di prodotti siderurgici: lamiere, laminati a freddo, laminati a caldo e laminati galvanizzati. Per verificare il modello sono stati utilizzati dati trimestrali dal 1975 al 1983.

Il TPM ha operato nei periodi 1978.1-1980.1 e 1980.4-1981.4. In caso di sostanziali dumping e/o sussidi, come sostenuto dall'industria siderurgica americana, le importazioni siderurgiche dovrebbero essere inferiori quando il TPM è operativo che quando non lo è. In caso di assenza di significativi dumping e sussidi, il TPM dovrebbe avere un impatto modesto sulle importazioni siderurgiche a meno che non siano troppo alti i prezzi-grilletto, rivisti trimestralmente per tener conto dei costi correnti giapponesi e del trasporto.

La conclusione dell'articolo, subordinata a diverse qualificazioni, rileva che il TPM ha avuto una leggera influenza moderatrice sulle importazioni di laminati a freddo e di laminati a caldo; esso ha avuto scarso o nessun effetto sulle importazioni di lamiere e di laminati galvanizzati.

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SOUTH KOREA AND TAIWAN: A COMPARATIVE ANALYSIS OF THE GENERATION AND DISTRIBUTION OF INCOME

by
JOSEPH A. MARTELLARO *

Introduction

During the years immediately following World War II, over 100 new nations throughout Africa, Asia, the Caribbean, and Latin America were confronted with the monumental task of transforming their stagnated, traditional societies into viable, modern economic systems. Unfortunately, the success stories of growth and development are limited in number.

The reasons for economic success and failure in the developing nations are not always possible to fully ascertain, despite our ability to amass and evaluate quantitative evidence. Among the diverse factors influencing economic growth are the climatic and geographical conditions of a nation, its cultural and social institutions, the kind of economic system and policies a nation has adopted, the extent of investment in its human resources, its diversity of natural resources, the state of its technology, and the achievement-motivation of its people [1].

Among the economies of Asia, Hong Kong, the Republic of Korea (South Korea), Singapore, and Taiwan have achieved growth rates consid-

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* Northern Illinois University, Department of Economics, DeKalb, Ill. (U.S.A.).

[1] The achievement-motivation factor, or "*n*-achievement", is a concept introduced by psychologist David C. MCCLELLAND; the concept was described in his book *The Achieving Society* (1961). A typical example are those Chinese originating from the southern coastal areas of China – Fujien, Guangdong, and Shanghai – individuals who are known for their competitive spirit, creativity, and diligence. They stand in contrast to their conservative brothers in the north and the interior who tend to be less willing to engage in competitive, risk-taking ventures. Both Hong Kong and Taiwan have been beneficiaries of the migrations of several million refugees from the southern coastal areas of mainland China.

ered extraordinary by economists. Their individual and collective economic success during the past four decades have appropriately earned for them the distinguished title of the "Four Tigers in the East".

Of the Four Tigers, South Korea and Taiwan were the first to become freed of a colonial-style economy. With its own development strategy, each successfully transformed its economic structure from a traditional agriculturally dominated society into a modernized industrial economy. The post-WW II rapid economic growth in South Korea and Taiwan has attracted the interest of economists. Of equal interest has been the subject of income distribution as the Korean and Taiwanese economies have grown. During the transitional period, each nation aimed at restructuring the sectoral balance of its dual economy, i.e., a deemphasis on the traditional agricultural sector in favor of secondary and tertiary sectors. Clearly, the purpose of expanding secondary and tertiary activities was to enlarge the economic pie so that every individual might be better off by being able to acquire a larger piece of the pie compared to a previous period, assuming that the generation of more income would be accompanied by an improvement of the income distribution.

The purpose of this paper is threefold. First and in a general way, the post-WW II development strategies and consequential economic progress of South Korea and Taiwan will be compared and contrasted. Several indicators, e.g., export growth, *per capita* income, and the Physical Quality of Life Index (*PQLI*) will be utilized to make meaningful comparisons relative to the improvement of economic well being in each of the case-countries. Second, the author will aim at presenting some of the ways by which income levels were raised during the transition processes and some of the related policies which were simultaneously employed to improve the distribution of the economic pie in South Korea and Taiwan. Third and most important, the author will address the subject of income distribution in South Korea and Taiwan; the Gini coefficients at various points in time for each nation will be compared.

Among various studies addressing the subject of the relationship between economic growth and income distribution, Simon Kuznets advanced a hypothesis suggesting that (1) the inequality of income distribution increases during the first stage of economic growth, (2) remains constant through the middle state, and (3) decreases as income increases throughout the last stage. According to the hypothesis, the curve of income inequality assumes the shape of an inverse U [2]. Relative to South Korea and Taiwan, some of the findings in this paper do not support the hypothesis.

[2] Some studies hold that there is a positive relationship between growth and the absolute

Pre-WW II Occupation

Prior to dealing with the main substance of this paper, a brief, pre-1945 historical profile of the two nations might be in order. Both Korea and Taiwan were victims and beneficiaries of foreign occupation and colonial exploitation for generations [3]. Not surprisingly and in a large measure, foreign intervention accounts for the similarities and differences which have existed in the two societies over the decades. During the first half of the current century, both South Korea and Taiwan were under the yoke of Japanese colonialism. Although Japanese intervention in Korea began as early as 1876, not until 1910 was Korea, or Chosun as the Japanese preferred to call it, formally annexed as a part of the Japanese colonial empire. Japanese colonialism had been thrust upon Taiwan some 15 years earlier, having been ceded to Japan after the Sino-Japanese War.

Although through the first half of the current century, Japan milked Korea and Taiwan of their rice to the advantage of the home economy, Japanese colonialism did provide several benefits. Indeed, the occupation opened an era of economic development in Korea and Taiwan. In Korea, agricultural productivity was improved, increasing the output of cotton, rice, and silk; small commercial enterprises proliferated; mining activities intensified; and, numerous large enterprises were organized by the Japanese *zaibat-*

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incomes of the poor (see LOEHR, 1980, as example). This implies that at the very least Kuznets' first stage hypothesis is refuted; if so, then what about the other two stages? Might not they also be refuted by testing against the empirical data? If we accept as reality that income inequality may be reduced in its growing path, then we may well become more concerned about the policies which cause the results.

[3] Beginning in the 10th century and ending in the late 14th century, the Kingdom Koryo ruled the Korean Peninsula. Mainland Chinese influence in South Korea and Taiwan began to be felt in the early 7th century. Taiwan was drawn into the sphere of Chinese influence as early as 618 A.D., when mainlanders emigrated to Taiwan. The migration continued in significant numbers until about 910. In 1637, Korea fell to the Manchu rulers; some 45 years later Taiwan also came under Manchu domination. While under Manchu governance both Korea and Taiwan came to share and accept as their own a good many of those values and institutions which had long been traditional on the mainland. Despite their common cultural heritage, the two nations have major differences. Whereas the principal ethnic group in South Korea is Korean *per se*, 98 percent of Taiwan's population is Han Chinese. Moreover, by and large, Korea may be considered as monolingual. In Taiwan, Mandarin is the official language; however, English, Hakka, Hokkien, and Japanese are also spoken. Buddhism and Christianity are common to both; nevertheless, Shamamism and Chodokyo are also practiced in Korea. In Taiwan, Taoism is widely practiced as well as Buddhism and Christianity. As a philosophy, Confucianism is commonly embraced in both countries. For a brief but perceptive commentary on the driving force of Confucian ethics in Sinic societies, see WU (1985, pp. 122-26).

su [4]. Moreover, electric generating plants were expanded severalfold, and the colony's inadequate educational system was improved considerably.

Under Dutch occupation, Taiwan, or Formosa as the Dutch named the island, did not prosper as a trading center nor did it fare much better when Taiwan was incorporated into Fukien Province in 1683. Not until 1895, when ceded to Japan, was Taiwan's economic potential to be realized. As in Korea, agricultural resources were harnessed to improve rice output and promote new cash generating crops such as bananas, pineapples, sugar cane, and sweet potatoes. (In time, these were to become important export commodities). Electric power generating stations were constructed, and public education at all levels was significantly improved [5].

This author cannot over-emphasize that Japan's occupation of Korea and Taiwan fell far short of altruism; on the contrary, in no small way the colonies were exploited to (1) serve the selfish economic interests of Japan and (2) contribute to the Japanese war effort of the 1930s and 1940s. Nevertheless, the Japanese colonizers did lay the foundations which were to contribute to the post-WW II industrial development, economic growth, and eventual generation of financial wealth in postwar Korea and Taiwan. However, the author hastens to add that the postwar economic development and growth in Korea and Taiwan are not solely attributable to Japanese pre-war occupation. Post-WW II national planning buttressed by foreign aid and assistance also played a major role. During the post-WW II years, two nations have exerted major economic influence on Korea and Taiwan. Since the early 1950s, the USA considerably influenced both nations; economically, militarily, politically, and culturally, but over the past two decades, Japan's economic influence on Korea and Taiwan has progressively heightened. Still, the American influence continues to be a major force [6].

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[4] The *zaibatsu*, e.g., Asano, Furukawa, and Yasuda, were buyers of state-owned mines and factories which were diversifield. In time, they came to dominate commerce and industry.

[5] For a fuller treatment see WORONOFF (1986, pp. 25-120).

[6] Both nations benefitted from considerable American economic and military aid during their formative years. Throughout the Korean War, the USA stood ready to assist South Korea with aid, including military and non-military manpower. With the end of the war, US aid increased markedly in two areas; the provision of agricultural products (mostly grains and raw cotton) plus economic reconstruction and rehabilitation through the auspices of the Agency for International Development (AID). By 1957, South Korea had received aid amounting to $ 370 million. Although from 1970 on US policy shifted from grants to loans, the USA has been a consistent major trading partner of South Korea. In 1987, total trade turnover between the USA and South Korea was $ 27.07 billion dollars, of which Korea enjoyed a favorable trade balance of $ 9.55 billion. In the case of Taiwan, project, non-project, and other forms of US aid during the period of 1950-54 amounted to $ 375.2 million. An additional $ 230 million of American aid was provided during the years 1955 and 1956.

Clearly, in the light of the foregoing, not unlike many other nations in Asia and Africa, South Korea and Taiwan are national products of World War II. The sovereign state of South Korea was established on 15 August 1948, some three years after Soviet and USA occupation of Korea [7]. In the case of Taiwan, the Kuomintang Government and its armed forces established themselves on the island after a hasty retreat from the mainland in December 1949, having suffered defeat by Mao Zedong's Communist army [8].

Strategies and Economic Profiles

Although as modern-day nations South Korea and Taiwan came into being at approximately the same time, their respective rates of economic progress – though individually impressive – have not kept in step. As an example, whereas in 1950 the *per capita* incomes in both instances were less than USA $ 100, the 1986 *per capita* income of South Korea equalled $ 2,370, while that of Taiwan approximated $ 4,605, some 94 percent greater than the former.

Although the strategy for development of the two case-countries bear similarities, marked differences also exist. Broadly speaking, the Taiwan model has been characterized by an ever increasing number of small-and medium-sized enterprises and a heavy reliance on market forces. On the other hand, although the reliance on free markets has not been rejected as a means of stimulating growth and development, the Korean model of development has given greater attention to the creation of giant conglomerates.

American aid from 1951 to 1965, totalled almost $ 6 billion of which $ 4 billion was military aid. Like South Korea – only even more so – Taiwan has profited immensely through trade with the USA. Taiwan-USA total trade turnover in 1987 was $ 35.6 billion, from which Taiwan enjoyed a surplus trade balance of $ 18.24 billion. See LAU, ed. (1986, p. 71); EIU (1988a, Appendix 2); CEPD (1987, p. 251); and MARTELLARO (1987, p. 29).

[7] The Soviets entered the north of Korea on 10 August 1945; in turn, the USA sent its armed forces into the south on 8 September 1945. In July 1945, it was agreed at the Potsdam Conference that Korea would be divided at the 38th parallel, thus creating two separate states. Syngman Rhee, who had formed a government in exile in Shanghai as early as 1919, assumed the presidency of newly created South Korea.

[8] The Cairo Declaration of 3 December 1943 (signed by Prime Minister Winston Churchill, Generalissimo Chiang Kai-shek, and President Franklin Delano Roosevelt), called for the return of Taiwan and the Penghu Islands to China at war's end. The Potsdam Declaration of July 1945 affirmed the commitment which was later formalized as one of the terms of Japan's unconditional surrender.

Furthermore, government intervention has been far more prevalent in the Korean economy than that of Taiwan.

The strategies of development in South Korea and Taiwan bear these similarities: First, both nations initially placed emphasis on promoting the agricultural sector of the economy. Land reform, better seed selection, technology, and a more abundant use of fertilizers all played a role in increasing agricultural productivity. Priority was given to supplying adequate food to the population at home and then exporting surpluses should any occur. Both nations were successful. During the 1965-80 period, the annual growth rate of agricultural output in South Korea averaged some 3.0 percent, while the population average annual growth was held to about 1.4 percent. In Taiwan, during the same period, the average annual growth rate of agricultural output approximated 3.1 percent while the annual growth rate of population averaged approximately 2.4 percent.

Second, economic planning stressed the importance of import substitution in order to help to reduce the imbalance of trade and create domestic markets and increase employment.

Third, both nations aimed to mobilize domestic savings by (a) setting realistic interest rates and (b) sustaining definite and real rates of interest for savers. Whereas in 1965, 19 percent of the Gross Domestic Product (*GDP*) in South Korea found its way into saving, in 1986 31 percent of Gross Domestic Product was saved. In the case of Taiwan, about 16.5 percent of 1965 *GDP* was channeled into savings; in 1986 savings approximated 36 percent [9]. Although the rate of domestic savings in South Korea has generally risen over the past two decades, it has not only sharply varied but it has also been less than that of Taiwan.

Four, both nations were compelled to deal with the problem of energy scarcity, having both suffered economic setbacks due to the oil embargoes of the 1970s (1973 and 1977). Taiwan's growth rate fell sharply from 13.4 percent in 1978 to 6.8 in 1980. As in Taiwan, the real growth rate of Korea deaccelerated – but significantly more so, having fallen from 11.6 percent in 1978 to – 6.2 in 1979. Fortunately, in 1981 Korea's real growth rate rebounded to 7.1 percent. In addition, both nations experienced inflationary pressures as a consequence of the oil crisis. Within a year of the first crisis, the wholesale price index rose 40 percent in both nations.

In dealing with the problems of growth and inflation, Taiwan assumed a wiser approach than Korea. Whereas Korea continued to aim for growth, Taiwan placed priority on stability; credit was restricted, interest rates were

[9] For South Korea, see WORLD BANK (1988, p. 231); for Taiwan, see CEPD (1987, pp. 23, 44, and 56).

raised, labor productivity increased, and product-quality control improved. Not until the second oil crisis did Korea adopt similar restrictions. Thus, during the 1973-85 period, the annual rise of wholesale prices in Taiwan averaged 6.3 percent as opposed to 13.6 percent in Korea. Diversification and improved product-quality by Taiwan brought positive trade results with the dawn of a new decade. During the first six months of 1980, Taiwan's exports rose almost 30 percent compared to 18 percent for Korea. However, the benefits derived through corrective and remedial actions and policies adopted by both nations were blunted by the worldwide economic downturn of the early 1980s [10].

Fifth, both nations pursued a policy of eventually deemphasizing import-substitution in favor of export-promotion, or export-substitution. The adoption of an export-substitution policy by both countries in the 1960s was not intended to be an abandonment of import-substitution but instead a complementary policy. Among the consumer-oriented exports developed were a broad range of common household implements, electronic products, food and food-processing, footwear, furniture, mechanics tools, sporting goods, traffic appliances, and toys – industries most deliberately tailored to meet consumer needs in American and Western European markets at attractive selling prices. Taiwan's and South Korea's anticipation of western consumer needs during the past two decades has been uncanny.

Sixth, the two nations have been able to maintain realistic rates of currency exchange. However, whereas since 1983 South Korea has found it necessary to devaluate the won by 6 percent vis-à-vis the American dollar, the Taiwan dollar has appreciated by 30 percent over the same period, partly because Taipei has been more realistic in evaluating its currency's worth.

Seventh and more recently, another important phase of development has been the expansion of light industry to increase the availability of consumer goods for 'domestic' use. Also, heavy industry has taken added importance in autos, machinery, shipbuilding, and steel.

Notwithstanding the similarities in economic performance and policy, sharp differences also exist. First, Taiwan's record of labor employment is superior to that of South Korea, not exceeding an average of 1.7 percent since 1967. It is most difficult to estimate the unemployment rate of South Korea, but official Korean sources report unemployment rates to be 4.5 percent and less since 1983 [11]. Second, South Korea has depended considera-

[10] Reliance on export trade as a means of generating income makes both Taiwan and South Korea vulnerable to cyclical variations in the West.

[11] During a survey week, anyone who has worked for more than one hour is counted

bly on international borrowing to finance investment – especially in heavy industry. In contrast, Taiwan has relied mostly on domestic savings as a major source of investment. In 1970, total external debt of Korea amounted to 28 percent of *GDP*, 45 percent in 1980, and 54 percent in 1985. By 1985, Korea's debt service had risen to 6 percent of *GDP*. In the case of Taiwan, foreign public debt in 1979 was 12 percent of *GDP*; by 1985, it became almost non-existent [12]. Third and related to the second, by 1988 Taiwan enjoyed a foreign trade reserve of USA $ 76.7 billion as opposed to an external debt of $ 2 billion. On the other hand, South Korea suffered an external debt totalling USA $ 35.1 billion and reserves of about $ 9.2 billion. Fourth, for the most part, Taiwan has enjoyed economic and political stability; South Korea has had its bad moments – economically and politically. Fifth, though Mother Nature was parsimonious in her endowment of natural resources to both South Korea and Taiwan, she was more generous to the former. Sixth and most important, as will be demonstrated below, the two nations differ markedly in the distribution of newly created wealth. Newly generated wealth in South Korea has gravitated to the upper end of the Lorenz curve. In contrast, newly created wealth in Taiwan has been more evenly distributed among income earners [13].

Clearly, the extent of well-being in a society is directly related to a number of factors; population size and growth, *GDP*, export growth, investment in human resources, health services, etc. During the 1965-80 period, *GDP*, in South Korea averaged an annual average rate of growth of 9.4 percent; during the same period, the annual average rate of growth in Taiwan was 9.5 percent. During the 1965-80 period, the annual population growth rate trailed well behind the *GDP* growth rate of 1.4 percent in Korea and 2.4 percent in Taiwan. The semi-tabular presentation below compares both absolute amounts of the *GDP* and the real *GDP* growth rates of both economies from 1983 to 1987.

Both nations have enjoyed impressive growth rates during the five-year period considered, and though South Korea's *GDP* has exceeded that of Taiwan, both the population base and the annual rate of population growth must be considered in order to bring the above data into proper

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among the employed, thus any given percentage must be viewed with a questioning eye. The author estimates that unemployment in South Korea could well be as high as 10 percent, by accepted standards of measurement.

[12] See CHINA POST (1988, p. 4).

[13] For a fuller treatment of the similarities and differences between economic policies in South Korea and Taiwan, see the chapters written by Tibor Scitovsky, Ramon H. Myers, and Sung Yeung Kwack in LAU, ed. (1986).

perspective. Taiwan's population in 1987 reached 19.7 million as opposed to some 42.1 million in South Korea – almost 114 percent greater in the latter's case. Since 1983, the average annual growth rate of population in Taiwan has decreased steadily from 1.5 to 1.0 percent; that of South Korea has fallen from 1.4 to 1.1 percent. The aforesaid have influenced considerably the difference in *per capita* income of the two systems; in 1986, *per capita* income equalled $ 4,605 in Taiwan and $ 2,370 in Korea.

SOUTH KOREA			TAIWAN	
Year	*GDP*[a]	Real Growth Rate[b]	*GDP*[a]	Real Growth[b]
1987	$ 121.3	11.1	95.5	11.2
1986	98.4	11.9	71.3	10.6
1985	86.9	5.4	60.2	4.3
1984	85.5	8.6	58.1	9.6
1983	78.6	10.9	49.9	7.7

a. Expressed in billions of USA dollars.
b. Expressed as a percentage.

Caloric intake *per capita* in 1985 was almost the same in both cases; 2,875 for Taiwan and 2,806 for South Korea. The population-to-physician ratio is another indicator of the state of national well-being. Here again the difference is modest; 1400 : 1 in Korea's case and 1500 : 1 in the case of Taiwan. Finally, as the term itself implies the *PQLI* is a meaningful indicator of the level of the quality of life in a nation [14]. By 1980, the *PQLI*s of South Korea and Taiwan were estimated to be 82 and 87 respectively [15].

[14] The data in this and the previous paragraph, were mostly drawn from BADGLEY (1971, pp. 51, 69); EIU (1988a, 1988b); CEPD (1987); WORLD BANK (1988).

[15] The *PQLI* is composed of the three components; the infant mortality rate, life expectancy, and percentage of literacy. To each is attached a predetermined weight. By identifying each component as *X*, *Y*, and *Z*, we may then express the *PQLI* as follows, with w_1, w_2, and w_3 representing the weights given each component:

$$PQLI = w_1X + w_2Y + w_3Z$$

At the time of this writing, the life expectancy, infant mortality rate, and literacy rate for South Korea are 70, 25, and 92 respectively. For Taiwan, they are 73, 20, and 91 respectively. These are significant improvements over the late 1970s. The author estimates the present *PQLI*s to be 89 for Taiwan and 84 for South Korea.

As stated earlier, the promotion of exports figured importantly in Korea's and Taiwan's post-WW II economic strategy for development and growth. In the case of both economies, rapid economic expansion through export-led growth began in the 1960s – particularly in the form of manufactures [16]. In the 1950s, both countries turned to import-substitution as a means of (1) reducing imports, (2) generating income at home by domestically producing previously imported goods, and (3) relieving hard currency shortages. Nevertheless, import-substitution was viewed as but one phase of a comprehensive strategy of growth and development. Economic planners in Seoul and Taipei recognized early that although import-substitution was a desirable goal to pursue, much more would be needed to advance their economics into a state of self-sufficiency [17].

The policies pursued by Korea and Taiwan to promote exports were several: (1) selectively allowing the establishment of foreign investment, (2) relaxing protectionist practices against exports and selectively easing import tariffs, and (3) devising export incentives. Among the export incentives were (a) low cost loans to export industries, (b) tax exemptions on export profits, (c) accelerated depreciation on capital used to produce export goods, (d) discounts on international shipping costs, and (e) cash rewards to manufacturers for expansion of exports. Moreover, cash rewards were made to firms who innovated and invented products which promised considerable export potential. The individual and collective economic effects of such policies were positive; manufacturers increased in considerable numbers, technology improved, employment increased, and *per capita* income improved steadily.

Tables 1 and 2 are revealing, for in absolute terms, they show the export-import activity for both Korea and Taiwan during the period of 1957 to 1986. Moreover, certain important ratios are shown. From Tables 1 and 2, it may be observed that South Korea did not enjoy a favorable balance of trade until 1986. Trade balances for 1986 and 1987 were USA $ 3.13 and

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[16] In the case of Taiwan, as an example, only 8.1 percent of exports consisted of industrial goods in 1952; the remainder consisted of agricultural products. By 1967, industrial goods constituted 55.1 percent of exports, up from 32.3 percent of 1960. By 1987, 93.5 percent of Taiwan's exports were accountable to industrial products and only 6.5 percent to agricultural products, processed and unprocessed (CEPD, 1987, p. 213).

[17] The point was strikingly clear in the case of the two city-states of Hong Kong and Singapore who astutely acknowledged the inadequacy of import-substitution as a singular approach to self-sufficiency. As economies, they were too small. Therefore, both concentrated on producing export goods, making it possible to import their needs. As an example, both city states are compelled to import most of their food supplies, given the density of population and poor quality of soil.

TABLE 1

TOTAL TRADE TURNOVER AND TRADE RATIOS FOR SOUTH KOREA, SELECTED YEARS, 1957-87

(Non-ratios expressed in millions of USA dollars)

Year	Exports *X*	Imports *M*	Balance *B*	Total Trade Turnover *TTT*	Export/Import *(X/M)*	*X/GDP* *x%*	*M/GDP* *m%*
1987	47,280.9	41,019.8	6,261.1	88,300.7	1.153	39.0	33.8
86	34,714.5	31,583.9	3,130.6	66,298.4	1.009	42.0	39.0
85	30,283.1	31,135.7	– 852.6	61,418.8	0.973	37.1	36.8
84	29,244.9	30,631.4	– 1,386.5	59,876.3	0.955	38.3	39.5
83	24,445.1	26,192.2	– 1,747.1	50,637.3	0.933	37.8	38.9
82	21,853.4	24,350.8	– 2,397.4	46,104.2	0.901	36.3	39.0
81	21,253.8	26,131.4	– 4,877.6	47,385.2	0.813	36.1	40.1
80	17,504.9	22,291.7	– 4,786.8	39,796.6	0.785	33.1	40.7
1978	12,710.6	14,971.9	– 2,261.3	27,682.5	0.849	33.7	36.5
76	7,715.1	8,873.6	– 1,058.5	16,488.7	0.869	32.8	34.6
74	4,460.4	6,851.8	– 2,391.5	11,312.2	0.651	28.2	39.8
72	1,624.1	2,522.0	– 897.9	4,146.1	0.644	20.3	25.2
70	835.2	1,984.0	– 1,148.8	2,819.2	0.421	14.2	24.0
1969	622.5	1,823.6	– 1,201.0	2,446.1	0.341	13.3	25.1
68	455.4	1,462.9	– 1,007.5	1,918.3	0.311	12.6	25.2
66	250.3	716.4	– 466.1	966.7	0.349	10.3	20.1
64	119.1	404.4	– 285.3	523.5	0.295	5.9	13.5
62	54.8	421.8	– 367.0	476.6	0.130	5.0	16.6
60	32.8	343.5	– 310.7	376.3	0.095	NA	NA
1959	19.8	303.8	– 284.0	323.6	0.065	NA	NA
58	16.5	378.2	– 361.7	394.7	0.044	NA	NA
57	22.2	442.2	– 420.0	464.4	0.050	NA	NA

Source: Data from various editions of BANK OF KOREA, *Economic Statistics Yearbook* (1978, 1980, and 1988); EIU (1988a, p. 2); and *Monthly Economic Statistics*, Volume 34, Number 2, p. 90. Also *Monthly Statistical Bulletin*, Volume 42, March 1988, p. 94.

$ 6.26 billion respectively. In contrast, with the exception of 1974 and 1983, Taiwan enjoyed trade balances since 1970. Impressive are the favorable trade balances during the 1980s – especially from 1983 to 1987 – balances ranging from USA $ 5.18 to 19.03 billion.

Of additional interest is the trade turnover (*TT*) of the two nations during the 1980s, each approximating the other during the eight-year period. However, the export-import ratio (*X/M*) has differed considerably; whereas

TABLE 2

TOTAL TRADE TURNOVER AND TRADE RATIOS FOR TAIWAN
SELECTED YEARS, 1957-87
(Non-ratios expressed in millions of Usa dollars)

Year	Exports *X*	Imports *M*	Balance *B*	Total Trade Turnover *TTT*	Export/Import *(X/M)*	*X/GDP* *x%*	*M/GDP* *m%*
1987	53,534	34,502	19,032	88,036	1.552	72.9	57.0
86	40,718	25,045	15,673	65,763	1.626	60.3	40.8
85	31,371	20,595	10,776	51,966	1.523	56.1	41.6
84	30,993	22,185	8,808	53,178	1.397	57.6	46.1
83	25,664	20,481	5,183	46,145	1.253	54.0	45.0
82	22,484	18,614	3,870	41,098	1.208	50.6	45.4
81	23,149	20,181	2,968	43,330	1.147	52.2	50.1
80	20,357	20,610	− 253	40,967	0.988	52.9	54.1
1978	13,353	11,323	2,030	24,676	1.179	52.4	45.9
76	8,206	7,109	1,097	15,315	1.017	47.3	45.1
74	5,697	6,172	− 475	11,869	0.923	43.7	51.5
72	3,114	2,843	271	5,957	1.095	41.8	35.5
70	1,562	1,528	34	3,090	1.022	29.7	29.7
1969	1,111	1,205	− 94	2,316	0.922	26.3	27.0
68	842	1,026	− 184	1,868	0.821	23.9	26.7
66	584	601	− 17	1,185	0.972	21.2	20.9
64	469	410	59	879	1.144	19.5	18.7
62	244	328	− 84	572	0.744	13.4	18.8
60	174	352	− 178	526	0.494	11.3	18.9
1959	164	244	− 80	408	0.672	12.5	20.8
58	165	233	− 68	398	0.708	10.3	16.7
51	169	252	− 83	421	0.671	9.6	14.7

Source: CEPD (1987, pp. 23, 211-14); also see EIU (1988-89, pp. 13, 35).

that of Taiwan was > 1 since 1980 – and in some prior years – not until 1986 did the *X/M* ratio exceed 1 in the case of Korea. Furthermore, although both countries rely heavily on exports as a means of generating national income, the export to Gross Domestic Product ratio (*X/GDP*) was much greater in the case of Taiwan. As an example, since 1978 Taiwan's *X/GDP* ratio has been at least 50.6 percent – peaking at an impressive 72.9 percent for 1987. In no year since 1962 did the *X/GDP* ratio of Korea exceeded 42.0 percent. Finally, the import to Gross Domestic Product ratio (*M/GDP*) also differed rather substantially between Korea and Taiwan.

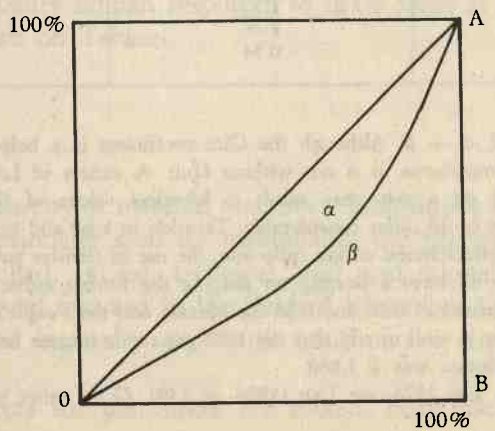
However, the author hastens to add that the *M/GDP* ratios of both nations are considerably higher than most other industrialized nations.

As meaningful as indicators may be, e.g. *per capita* income, *GDP*, growth, and export-import data, their usefulness is limited. Unequestionably, these and the earlier cited indicators provide insight as to the amount of new income generated in both of the two case-countries. Some, such as greater *PQLI* and caloric intake, suggest that the general welfare has improved as a consequence of income generation. However, *per capita* income, caloric intake, *PQLI*, growth ratios, export ratios, etc. shed little light as to how the newly gained wealth has been distributed within a nation. Therefore, at this juncture, the author will address the question of income distribution in South Korea and Taiwan.

The Methodology and Gini Coefficients

The Gini coefficient is a long accepted means of measuring income inequality, especially in making intercountry comparisons [18]. As an example,

[18] The diagram below typically illustrates the means utilized to estimate the Gini coefficient, *G*. A nation's cumulative proportion of population is expressed on the *X* axis, and the *Y* ordinate shows the cumulative share of total income received. *G* assumes values of 0 to 1 – the former value represents complete equality of income distribution and the latter represents complete inequality of income distribution. A state of complete equality in income distribution would be represented by straight line *OA*, an unlikely situation. Far more likely is a Lorenz curve plotted concave to the 45° line, *OA* – the more bowed-out the curve, the more unequal the distribution of income, i.e., *G* approaches 1. Expressed mathematically $G = \alpha/\alpha + \beta$, that is, the area between the 45° line and the Lorenz curve is divided by the entire



in a recent study, David Sunding and Irma Aldeman point up that mainland China's income distribution is among the most equal in the world – a factor which augurs well should market-oriented reforms gain added importance in the future. On the other hand, Mexico is recognized as a nation characterized by great inequality in income distribution [19].

Although strong arguments may be made for classifying a nation's income according to deciles, classification according to quintiles generally provides meaningful results in computing the Gini coefficient. The semi-tabular presentation below indicates the *G* for Korea and Taiwan for select-years during the period of 1953 to 1986. The coefficients have been determined by categorizing national income distribution according to quintiles, rather than deciles [20]. Clearly, during the last three decades the two economies have experienced a dramatic change in their respective Gini coefficients. However, it is evident from the data presented that the relative directional movement of the values of *G* has been an inverse relationship.

There are numerous reasons why the record of income distribution in Taiwan has steadily improved since 1953, bettering that of Korea.

Gini Coefficient		
Year	South Korea	Taiwan
1986	0.40	0.32
1980	0.39	0.30
1976	0.38	0.29
1970	0.33	0.29
1965	0.34	0.32
1964	0.33	0.33
1961	0.32	0.46
1953	0.34	0.56

triangular area of *OAB*, $\alpha + \beta$. Although the Gini coefficient is a helpful measurement in making intercountry comparisons, it is not without fault. A variety of Lorenz curves plotted and skewed differently on a map may result in identical values of *G*. Yet, the income distribution in each case could differ considerably. Taxation in kind and number, concentration in resource ownership, effectiveness of tax collection, the use of transfer payments, the national social budget, etc. may all have a bearing on shaping the Lorenz curve of a nation.

[19] *G* has been estimated at 0.60 and 0.18 for Mexico and the People's Republic of China respectively. However, it is vital to add that the 1986 *per capita* income for the PRC was only USA $ 300, that of Mexico was $ 1,860.

[20] For 1965, 1970, and 1976, see LAU (1986, p. 139). *G* for other years determined by this author.

First, with the exception of 1974-75 and 1981-82 Taiwan has had a better record of economic stability. Second, during the past three decades, the employment record of Taiwan has been markedly better than that of South Korea. Third, although the Confucian work ethic characterizes the people of both nations, its practice seems to be more widespread in Taiwan. Fourth, a spirit of free entrepreneurship – encouraged by government – has contributed to the creation of many small, income-generating private enterprises in Taiwan – many of them family owned and operated. Although free enterprise and markets are acceptable in Korea, government control of markets and intervention in business is not unusual.

Fifth, Taiwan's land reform policies of the 1950s promoted growth and productivity in the countryside. During the 1950s, hundreds of veterans who had fought alongside Chiang Kai-shek on the mainland were beneficiaries of land reform. Sixth, Taiwan has been more successful in bringing educational opportunities to the masses. Seventh, Taiwan's taxation policies, which include liberal estate and inheritance tax laws, have consciously aimed at improved redistribution in income. On the other hand, luxury goods are highly taxed in Taiwan. Eighth, in contrast to South Korea, social programs in Taiwan are more pronouncedly favorable to low income groups. Ninth, South Korea's post-WW II development was severely interrupted because of its 1950-53 war with North Korea – notwithstanding American aid during and after the war. Tenth, Taiwan has had a better record of political stability than Korea – clearly of some advantage – for economic and political stability are reciprocally reinforcing. Finally, the exodus of a variety of talented people from the mainland during Chiang Kai-shek's retreat from the mainland should not be overlooked. Semi-skilled and skilled workers, technicians, and a variety of professionals gave Taiwan a ready pool of quality human resources to draw from as development and growth took place on Taiwan.

Conclusion

Despite a scarcity of material resources, both South Korea and Taiwan have done exceptionally well by maximizing the use of their human resources; semi-skilled, skilled, technical, and professional. Moreover, both nations have moved forward in the field of education. Certainly not to be overlooked is the ingenuity and work ethic of the Korean and Chinese people.

The prospects for the future are mixed. Both nations will have to

depend on exports if their economies are to continue to thrive, for clearly they will remain export dependent for years to come. To expand their exports, both Korea and Taiwan will have to regain some of the competitiveness lost in the light industries – the consequence of rising labor costs over recent years. It appears that automation, innovation, improved productivity, and stricter quality-control measures will be required, if both nations are to remain keen competitors in international consumer markets. In the case of Korea, its external debt problem must be mitigated in order to modernize its industry. Moreover, Korea's domestic saving rate, which is significantly less than Taiwan's, will have to improve.

In order to compensate for their lost comparative advantage in the production of secondary goods, both nations are now striving to develop new industries, e.g., automotive production, computers, and electronics equipment for commercial and domestic use. Products such as computer terminals, electronic switching devices, television sets, transistors, and telecommunications gear will serve well to satisfy domestic as well as foreign needs. The eventual partial or total abandonment of industries by the highly industrialized nations of the West will open new opportunities for Taiwan and South Korea who can fill the void created. Until now, both have progressed well in the export of home entertainment equipment – a rapidly declining industry in the West. Moreover, South Korea's Hyundai has made good penetration into Western markets, opening a new industry for Korea.

If there is any validity to Walter Rostow's "take-off" theory, both the South Korean and Taiwanese economies have indeed experienced "take-off". Notwithstanding certain unique and common difficulties confronting them, the two economies have established strong foundations to build upon in the future. With appropriate economic policies fashioned by Seoul and Taipei, the future of both economies appears bright.

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COREA DEL SUD E FORMOSA: ANALISI COMPARATIVA DELLA PRODUZIONE E DISTRIBUZIONE DEL REDDITO

La Repubblica di Corea e Formosa sono fra le nazioni orientali che hanno avuto il maggior successo economico. Con Hong Kong e Singapore sono state giustamente chiamate le « Quattro tigri dell'Oriente ».

Scopi di questo articolo sono anzitutto e in modo generale: 1) confrontare e contrapporre le strategie di sviluppo del secondo dopoguerra della Corea del Sud e di Formosa e il progresso economico che ne è conseguito. Vengono utilizzati vari indicatori, per es. la crescita delle esportazioni, la crescita industriale, il reddito procapite, e l'indice della qualità fisica della vita (PQLI) per fare significativi confronti relativamente al miglioramento del benessere economico in ognuno dei paesi studiati. 2) L'autore cerca di presentare alcuni modi coi quali si sono elevati i livelli di reddito durante il periodo di transizione, cioè le politiche adottate per allargare la base economica della Corea del Sud e Formosa. 3) L'autore affronta il problema della distribuzione del reddito nella Corea del Sud e Formosa determinando i coefficienti di Gini in vari momenti per ognuna delle due nazioni.

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THE POSITION OF WOMEN IN JAPANESE ECONOMY AND SOCIETY

by
ALMA LAURIA *

A law on equal job opportunity for men and women came into force in Japan on 1st April 1986. This law was the result of a long debate on whether it was necessary or not to make men and women's treatment in this sector equal and on whether women would reap the benefit of any advantages from this law.

At the end of 1985, the Japanese government had ratified the United Nations convention of 18th December 1979 on "the elimination of every form of discrimination against women" and coherently issued Law no. 45 of 1985 on equal opportunity which was to enter into force the following spring.

Despite this official stand by the Japanese authorities, one is led to wonder whether there is in fact a move towards a real modification of the situation of female employment, given the significant freedom that is left to employers by Japanese law and the traditional attitude towards women's role which is typical of Japanese society.

It is also important to note that this law on equal opportunities does no more than re-organize the contrasting provisions already in force in Japan on female work, namely those included in the "Fundamental Law on Work", Law no. 49 of 1947 which still constitutes the basic legislation on this subject, and Law no. 113 of 1972, on the promotion of female workers' well-being including the guarantee of equal opportunity for both sexes in the employment sector, as its title states. The Fundamental Law was revised and updated in September 1987 with a number of provisions allegedly for the protection of female work, such as, for example, certain limits to the duration of overtime and night shifts or particularly heavy work in specific

* Bocconi University, Institute of Sociology, Milan.

sectors. The 1972 law, in guaranteeing the essential female function of producing and raising children, strongly recommends entrepreneurs to eliminate any differences in their treatment of men and women when offering jobs, taking on staff, training, possibility of career, salary, pensionable age and so on, and sets up a special commission at provincial level to act as mediator for any controversies that may arise.

At the beginning of the 1970s, when this law was passed (1972), the climate in Japan was calling for social reforms and the awareness of the economic results the country had reached internationally had focused attention on the shortcomings still present in the social area and on how much remained to be done in this field. However, this movement was immediately brought to a standstill by the oil crisis and the 1972 law was also eventually forgotten, since no sanctions were laid down in the event of the law not being applied.

Nevertheless, the capabilities and educational standards of Japanese women also deserve fair recognition when they work. Japanese women study and they study a great deal. Their standard of education is perhaps the highest in the world. Illiteracy does not exist: all girls attend the compulsory nine years of school. According to 1986 statistics from the Ministry of Education 95.3% of girls who finish middle school continue their studies, and this percentage is higher than the number of male students, 93.1%, who carry on. The presence of female students in the universities is also high: 33.5% of girls go on to university from high school, although they do not always enroll for four-year courses (12.5%), more often than not attending a two-year course of study (21%) which allows them to enter the world of work earlier or to get married sooner. Occasionally, girls study in single-sex schools or in schools run by Christian nuns, even though they do not have links with the religion itself. In all cases, Japanese school-girls study a great deal. They are frequently harder-working and better qualified than their fellow male students at university and it is only logical that they aspire to being appreciated when they start work, and more than ever, they are entering employment.

The life expectancy for Japanese women in the year 2000 is estimated to be 82 years. This possibility stimulates them towards leading a full life, and studying is only the beginning. However, this propension for study is not a recent phenomenon for Japanese women. About a thousand years ago, women had the prerogative in the world of letters. The most important names in Japanese literature – the equivalents of Dante Alighieri and Petrarch in Italy – are female names: the writer Murasaki Shikibu and the

poetess Sei Shonagon, both of whom reached the highest pinnacles of literary fame.

The significant contribution of female workers must not be forgotten when considering the results the Japanese economy has reached since the end of World War II.

According to statistics published by the Ministry of Labour, in 1986, 15,840,000 women were employed, representing 36.2% of the total employed population, and this large number of female workers is the result of a constant movement of women towards work.

"Men at work and women in the home" has always been the order over the past decades in Japan; this order – that represents the male populations's point of view rather than the female's – has nonetheless not prevented the number of women who work from increasing: from 11,670,000 in 1975 to the above figure of 15,840,000 just over ten years later.

At present, the female work force, which also includes those completely unemployed and women looking for work, amounts to 23,950,000, and amongst women who are not included in the work force, 30,2% would like to work. In 1984, the news that the number of employed women had exceeded the number of full-time housewives for the first time ever created a scandal. Since then, this trend has only increased.

What has happened to the division of roles, where the man worked outside the home to maintain his family and the woman stayed at home to manage the family budget, deal with local problems and, most important of all, devote herself to bringing up children?

Kyoiku-mama is a Japanese expression that refers to a mother who is totally dedicated to following her children's progress at school, which not only means helping them with their homework but also urging them to learn and take part in school activities. This type of mother is fully aware of the fundamental importance of education in Japanese society and is determined to help her children in the "rat-race" which is competitive even from the child's earliest years.

But a working mother would feel guilty if she could not carry out this fundamental duty in connection with her children's upbringing and society would reproach her for this shortcoming in her role as a mother. Japanese women thus try not to put themselves into this situation and avoid the dual role of working mother from the time their children are born until they are well into their school life.

The present scarcity of social assistance for very young children is another reason that discourages mothers from working at a time when children most need their care and attention. Mothers of school-age children

who nonetheless go out to work are severely reproached by their surrounding environment.

Of the total female population currently employed (excluding the agricultural and forestry sectors), married women, divorcees and widows together make up 68% according to 1986 figures, against 62.1% in 1975 and 49.7% in 1965.

When the overall picture of working women according to age groups since the end of World War II is examined, the largest group of all is that of women between 20 and 24 years of age, followed by those in their fifties. The former group is made up of young women who have not yet reached the age of marriage; traditionally this period was followed by an interval of several years away from work, coinciding with marriage and the arrival of children. From the age of 35, women whose children are old enough go back to work, even if only on a part-time basis, until the age of 65.

Over the past few years, this trend has undergone a slight modification and an increasing number of working women are no longer leaving their jobs when they get married even although they may do so when they have children. Increasingly more women are also returning to work at a later stage: in 1986, 58.7% of working women were over 30. Immediately after World War II only very young women worked: in 1954 the average age of working women was 25.3 years and in 1965 50.3% of the employed female population were not yet married.

The number of working women in Japan is continually on the increase – today there are three times as many as in 1955 – but the treatment they receive could be a great deal better both when they are young and when they are older.

On average, Japanese women earn about 52% of the amount their male colleagues earn. This mainly depends on the virtual impossibility for women to have a career and the fact that they generally stay in their jobs for a very short period of time (for example, 3.6 years on average in 1954) and only recently has the average length of time spent by women in their jobs risen to 7 years or exceptionally to 10 years.

It is to be stressed that salaries in Japan are closely correlated to length of company service. As they are not expected to remain long in their jobs, women are excluded from, for example, training courses, in which firms invest a great deal of time and energy, and also from transfers and change of duties, which in Japan represent one of the secret keys to enrich one's professional capacities and therefore gain promotion, career advancement and salary increases.

Consequently, if men and women start off with more or less the same

salary when they join a company, a difference can be seen even after only four or five years and this is one of the factors that discourages women from carrying on working. Yet another motive is the small amount of consideration that private employers and entrepreneurs show towards a woman employee who takes maternity leave (the law guarantees 6 weeks' leave before and after birth) and she often feels obliged to resign. More often than not, women are given works of a low level and the younger they are, the less they count, and this leads to employers' interest in early resignations.

In comparison, working for the state is an oasis as regards non-discriminatory treatment for women and working for local authorities is even better where relatively high salaries are also guaranteed.

However, women are approaching the world of work not only in ever-increasing numbers but also with increasingly better qualifications. According to the Ministry of Labour's statistics, in 1986 19.2% or one out of five working women held a university-level diploma and this figure rises to 35.4% or one out of three for those in their first job.

Up to the present, this high standard of education has not been of much benefit and has not offered any real possibilities to women, or at least not in the large private corporations which are competitive training grounds for men who at least have a chance of success.

Over the past few years, small – and medium – sized companies, which are having increasing difficulty in finding male employees of a good level, have been looking for women with good academic curricula. In the future, it could be these firms to offer concrete career possibilities to women.

For the time being, the rare female figures in positions of a certain prestige in the private sector are mainly to be found in companies they themselves have started, for example in fashion or in family-owned companies.

Junko Koshino, Rei Kawakubo and Hanae Mori are names of fashion designers and entrepreneurs who are now also well known in the West and represent an example of this type.

The journalist Yuki Sato is the special correspondent of the "Mainichi Shimbun" one of Japan's leading newspapers based in Geneva, from where she covers several other European countries, including Italy. She has become something of a figure-head for "Mainichi Shimbun" which thus presents itself as a newspaper which does not discriminate against working women.

Nakane Chie, the well known anthropologist who recently retired, was the first woman to be appointed professor at the prestigious Tokyo University. In 1986, 4.4% of all university professors and 7.2% of university

lecturers were women. However, these are rare situations of privilege.

Women who return to work after having had children and brought them up do not usually find a very favourable or welcoming situation. And they often have to make do with a part-time job. Women who work part-time represent about 22.7% of the total, and their average age is 42. Their hourly pay is in the region of 75% of full-time female employees and they are not generally covered by national insurance schemes. It should be noted in addition, that part-time work is so considered when it does not exceed 35 hours per week and in 1986 these women worked on average 6 hours per day for 22 days each month. Their actual contribution is therefore not very different from that of full-time employees. Even if working conditions are unfavourable the number of women who work part-time is constantly on the increase, and there are several reasons for this. The first is the possibility of having some time to dedicate to one's family and to oneself. Another reason is that at times companies offer older women only this possibility which represents for the firms a substantial saving compared to the cost of employing a person full-time since even a seven-hour day is considered part-time; these women, however, make just as substantial a contribution to the Japanese economy. There is a third reason why women choose this form of work: the temptation to avoid progressive taxation which weighs heavily on the salary of both husband and wife if the latter works full-time.

Another sore point of female employment is the pensionable age which in Japan, despite instigation by the law, generally remains lower for women than for men. Firms can in fact arbitrarily fix the pensionable age for their employees and there have been examples of companies setting the retirement age for women at as low as thirty. However, this situation is gradually changing.

The application of the law on equal opportunities should do away with all these problems and inequalities.

Women today work predominantly in services, manufacturing industries and retail sales and the technological revolution that microelectronics is producing is also pushing female work increasingly towards the tertiary sector and away from manufacturing. But the future of women's employment will also depend to a great extent on the attitude of public opinion on the position of women in society and in the work-place.

In spring 1987, one year after the publication of the law on equal opportunity between men and women, the Prime Minister's office commissioned an opinion survey on women, the results of which appeared in February 1988. This survey confirmed the prevalently conservative attitude

of men towards women's social position. On the female side too, however, there is a certain resistance to change the traditional role, especially on the part of older women and of those of a more modest cultural background. (The sample used represented the whole of Japanese society).

If 66.2% of those interviewed declared they were in favour of women working, 64.1% however, specified that women should advance only in those sectors appropriate to them and stay away from executive positions or from positions requiring particular technical knowledge. 48% of those interviewed expressed the opinion that a woman should give up work when she is married and has children and were in favour of her returning to work once the children have reached a certain age and school level. This confirms the curve of women's presence in employment over the whole period since the end of World War II, with the two high points before marriage and at a later stage.

As for the traditional idea of "men at work and women in the home", the majority is represented by 43.1% of those interviewed who say they are convinced that this is a sound and up-to-date concept, whilst only 26.9% are strongly against it, and the remaining 28% "didn't know". Given this situation, the hostility that a woman who intends working must face in her family and in her social environment is obvious. Even today, it is not uncommon for a husband whose wife works to feel ashamed because he feels that shows that he is not capable of providing completely for the maintenance of the family.

Coming to the fundamental problem, that of equality between the sexes in the work-place today, honest and objective answers gave the result that only 10.8% of those interviewed consider that women receive the same treatment as men, whilst 62.1% recognize the absolute lack of equality between the two types of work and relative conditions. 19.8% did not express any opinion one way or another. In comparison with a similar survey carried out in July 1975, that is twelve years earlier, the percentage of those who consider the actual working conditions equal for both sexes is lower, whilst a higher percentage disagreed. This indicates that, over this period, there has been an increase in the awareness of the problem going hand in hand with the fierce debate on the opportunity or not of a real legislative equality between the two sexes on the subject of work. This debate has been raging for years, both in legal circles and amongst those most directly concerned, working women themselves. Women are in fact divided into two opposing camps with diverging opinions.

The law on equal opportunity eliminates all the previous provisions that restricted women's overtime working, prohibited heavy and dangerous

jobs as well as those which represented a hazard to health, night shifts and work in mines. The law on equal opportunity also eliminates the concession of monthly rest periods to women (a typically Japanese provision) and only the provisions regarding maternity leave have been left intact, and an improvement in these would be greatly welcomed. To compensate for this the law strongly recommends private firms to eliminate discrimination against female employees, without laying down any sanctions. Therefore, factory women and office employees of the more modest levels fear that they may lose certain advantages and have to work more without gaining any benefit and certainly without any hope of a career.

On the other hand, women who are at a higher level, already in positions of a certain importance and who are full of ambition, feel that the provisions protecting female employees in the 1947 Fundamental Law are unnecessarily restrictive and they are looking forward to a tangible possibility of career thanks to the new law on equal opportunity.

The Prime Minister, Noboru Takeshita, in a speech he gave to the National Diet on 25th January 1988 on his government's political programme, said, "We intend implementing ambitious and far-reaching measures to allow women to use their capabilities and contribute to the development of society on an equal footing with men ...".

In effect female executives are beginning to appear in Japan, even if mainly in companies dealing with new activities, as well as in foreign owned companies. It is not certain whether this tendency is the consequence of the measures taken by the government or just of the determined wish of women to come to the fore.

Space for women seems to open not only in the business field but also in the political field. As a matter of fact, the dramatic success of the socialist party in the elections for the renewal of the Upper House of 23 July 1989 – which obtained 45 seats at the place of the previous 20, and compelled the powerful Liberal democratic party to move back to 36 seats from the previous 73 – is due completely to Mrs. Takako Doi, the new president of the socialist party.

In the same elections, female candidates at the Upper House were 146 twice as many as in 1986. And in August 1989 in the cabinet of the Prime Minister Mr. Kaifu there were two women, Mrs. Mayumi Moriyama and Mrs. Sumiko Takahara.

These results do not mean at all that everything is changed in Japan and that now the way is easy for women. In fact, only a few months ago at the beginning of July just before the elections, the Ministry of agriculture Mr. Hisao Horinouchi said: "In politics women are completely useless.

Their duty is to be at home and take care of the family", and about Mrs. Takako Doi, the president of the socialist party, he added that, as she is a non-married lady, nobody in Japan must allow such a woman to manage the State.

LA POSIZIONE DELLA DONNA NELL'ECONOMIA E NELLA SOCIETÀ GIAPPONESE

Il 1° aprile 1986 è entrata in vigore in Giappone la Legge sulle pari opportunità fra uomo e donna nelle occasioni di lavoro. Questa legge è il risultato di un lungo dibattito sulla necessità o meno di parificare il trattamento fra uomini e donne in questo settore, trattamento che fino ad ora è stato fortemente penalizzante per le donne. Le donne hanno un elevato livello di scolarizzazione. Non ci sono analfabete. Il 95,3% delle diplomate di scuola media inferiore prosegue gli studi e il 33,5% delle diplomate di scuola media superiore frequenta l'università dove spesso studiano piú seriamente dei colleghi maschi.

La speranza di vita per le donne giapponesi prevista per il 2.000 è di 82,69 anni. Questa lunga speranza di vita spinge sempre di piú le donne verso il lavoro. Nel 1986, 15.840.000 erano le donne occupate il che rappresenta il 36,2% di tutti gli occupati. Negli ultimi decenni l'imperativo valido in Giappone è sempre stato "l'uomo al lavoro e la donna a casa", anche se questo rappresenta piú che altro il punto di vista maschile. Ha fatto quindi scalpore nel 1984 la notizia che in quell'anno per la prima volta il numero delle donne occupate aveva superato quello delle casalinghe a tempo pieno. Da allora questa tendenza non ha fatto che aumentare. Alle attività tradizionali della donna cui è sempre spettato il compito di amministrare le finanze familiari, occuparsi dei problemi del quartiere, e soprattutto allevare i figli, si affianca sempre piú spesso un lavoro fuori casa. È però un lavoro che non dà troppe soddisfazioni perché il guadagno di una donna è in media il 52% di quello di un uomo. Ciò è dovuto alla esclusione delle donne dalle possibilità di carriera nelle grandi aziende (esclusione cui vuole porre rimedio la Legge sulle pari opportunità), e alla grande diffusione fra le lavoratrici di un impegno a tempo parziale in campo lavorativo, il che riduce ancora di piú le possibilità di guadagno.

L'emergere di presenze femminili ai livelli dirigenziali è il fatto nuovo dei nostri giorni, anche se le aziende che accettano questa rivoluzionaria presenza sono quelle che svolgono attività non tradizionali, o le aziende straniere.

Anche nella politica i primi ma promettenti passi sono di questi giorni con i successi ottenuti dal nuovo presidente del partito socialista, signora Takako Doi, e con l'immissione di due elementi femminili in posizioni di rilievo nel gabinetto del primo Ministro Kaifu, creato nell'agosto 1989.

RECENSIONI E LIBRI RICEVUTI
(BOOK-REVIEWS AND BOOKS RECEIVED)

FODELLA Gianni: *Dove va l'economia giapponese. L'Estasia verso l'egemonia economica mondiale.* 1989, Roma, La Nuova Italia Scientifica, pp. 212, L. 32.000.

Fra le pubblicazioni che continuano ad uscire sul Giappone è difficile trovare un'analisi dell'economia giapponese del dopoguerra così precisa come quella che emerge dal libro di Gianni Fodella. La ricostruzione delle caratteristiche dell'economia di quel paese, che parte da una accurata documentazione cronologica, fa di questo libro un'opera indispensabile per ogni serio studioso della materia.

È decisamente nuovo e lungimirante il considerare il Giappone parte integrante di un'area economica, quella dell'Estasia – come viene definita dall'autore con un interessante neologismo – che si delinea con caratteristiche omogenee, invece che isolare il Giappone, come generalmente veniva fatto fin qui, avvicinandolo piuttosto agli Stati Uniti. In buona parte dei paesi costituenti l'Estasia, come Corea del Nord e del Sud, Taiwan, Hong Kong, Singapore, Malaysia, Tailandia, Indonesia e Giappone, il tasso di crescita economica degli ultimi trent'anni, per esempio, ha superato il tasso di sviluppo di aree di ormai antica industrializzazione, segnalando questi paesi anche come mercati e come economie protese all'attacco, oltre che come centri di produzione per conto terzi, come erano sembrati fino a tempi recenti. Quest'area, trainata dal Giappone, sembra lasciar prevedere un nuovo importante centro propulsore dello sviluppo economico, ed è difficile prevedere fino a che punto la ricostruentesi Europa saprà fronteggiare questo processo.

In un ambiente internazionale in cui, con ritardo di qualche lustro, ci si è accorti delle autentiche possibilità e mire del Giappone dopo averne ciecamente sottovalutate le qualità, Gianni Fodella vuole additare all'attenzione anche tutti gli altri paesi dell'area estasiatica che, seguendo la lezione del Giappone, si fanno strada e possono diventare – al di fuori del Giappone ed insieme con il Giappone – una controparte economica molto agguerrita e potenzialmente pericolosa.

Un punto interessante indicato dall'autore fra i settori fondamentali della competitività giapponese, è la diffusione tecnologica che, molto più della ricerca tecnologica, caratterizza il Giappone attuale.

La tecnologia, sviluppata dapprincipio all'estero ed acquisita spesso a bassi costi dal Giappone, viene diffusa nel paese tramite la formazione permanente cui sono sottoposti i giapponesi, lavoratori e no, e questa diffusione crea aspettative di nuova tecnologia sempre più avanzata, formando così un mercato di prodotti tecnologicamente evoluti, oltre che lavoratori ed acquirenti sempre più preparati. È da queste premesse interne che parte poi il Giappone esportatore di prodotti tecnologici.

ALMA LAURIA

MARAINI Fosco: *Ore giapponesi*, nuova edizione, 1988, Milano, dall'Oglio, pp. 528, Lire 60.000.

È la nuova edizione di un libro che al suo apparire, nell'ormai lontano 1957, ha contribuito piú di qualsiasi altro a presentare il Giappone al mondo occidentale e che anche oggi non ha perso nulla della sua attualità. Il popolo giapponese resta piú che mai sconosciuto e occorre imporci di colmare questa lacuna, oggi piú di ieri, non soltanto per conoscere un paese la cui presenza è divenuta un fatto quotidiano per europei e americani, ma soprattutto perché soltanto comprendendo appieno in quale altro modo la pianta uomo possa crescere e prosperare avremo i mezzi per guardare con piú obiettività al mondo che ci è familiare per migliorarlo.

Credo che nessun'altra lettura introduttiva al Giappone possa essere più illuminante di questa per chi abbia un forte interesse per le scienze sociali. Fosco Maraini fornisce al lettore delle "chiavi" per capire il popolo giapponese, spesso con una tecnica che ricorda il modo di procedere dei maestri zen, con squarci illuminanti, intensi e arricchiti da una prosa non certo comune tra gli studiosi di scienze sociali, e che rivela una cultura vasta e profonda sia del mondo occidentale che del mondo estasiatico, strumentale alla capacità davvero sorprendente di comunicare al lettore l'emozione che prova soltanto chi si rende conto di stare pian piano scoprendo un mondo di cui non aveva neppure sospettato l'esistenza, e che gli stereotipi diffusi da alcuni giapponesi e dai giornalisti non hanno fatto che rendere più lontano in questi anni.

Il lavoro è strutturato come un resoconto di viaggio sul filo della memoria, ma ha il sapore di un diario arricchito da notazioni culturali sempre pertinenti e stimolanti. Come tutti i grandi libri comunica naturalmente di più a chi ha già una certa conoscenza della materia, e ogni rilettura è motivo di nuove scoperte. Per chi sia interessato all'economia giapponese è importante avere un'idea della "distanza" culturale che ci separa dal Giappone, in modo da farci sospettare quali abissali differenze possa racchiudere la prassi quotidiana che fa da sfondo all'operare del suo sistema economico.

GIANNI FODELLA

KLENNER Wolfgang (editor): *Trends of Economic Development in East Asia*. 1989, Heidelberg, Springer-Verlag, pp. X + 554, DM 198.

Si tratta di un *Festschrift* per Willy Kraus che molto felicemente unisce al momento celebrativo di una lunga attività accademica una interessante operazione culturale riunendo in un unico volume scritti relativi allo sviluppo economico dell'Asia Orientale. Gli scritti raccolti da Klenner riguardano essenzialmente il Giappone, la Cina (compresa Taiwan) e la Corea del Sud, e i rapporti di questi sistemi economici tra di loro o con l'Europa. Anche se la prima parte riguarda l'« Asia Orientale e il Bacino del Pacifico » di quest'ultimo si parla per fortuna poco, ed è molto interessante che l'Europa guardi a quella parte del mondo come a un mosaico variegato ma che racchiude dati di fondo comuni, e che visti in chiave comparata vengono posti in una luce diversa che ci permette di comprenderne meglio i connotati.

GIANNI FODELLA

SUGIYAMA Shinya: *Japan's Industrialization in the World Economy 1859-1899. Export trade and overseas competition*. 1988, London, The Athlone Press, pp. XVI + 306, Lst. 37.50.

Dalla tesi di dottorato dell'autore è nato un libro di grande interesse che illumina un momento importante della scena economica mondiale quando vi si affaccia un nuovo e sempre piú importante protagonista. Le ragioni che portano il Giappone ad imporsi come agguerrito esportatore di seta (in concorrenza con la Cina) e di carbone (in concorrenza con Gran Bretagna e Australia) oltre che di té (anche se con minor successo) vengono esaminate con

abbondanza di particolari e ci portano a riflettere come, *mutatis mutandis*, alcune di queste tematiche siano di grande attualità poiché molti dei problemi causati dalla presenza del Giappone sui mercati mondiali alla fine del secolo scorso non sono molto diversi da quelli odierni causati dalla presenza dei paesi dell'Estasia nel suo complesso. Il libro dedica forse proprio per questa ragione molto spazio a questi aspetti e tratta con dovizia di dettagli le esportazioni giapponesi e i problemi connessi all'industrializzazione toccando il tema cruciale dei tassi di cambio dello yen. Il parallelo con la Cina è frequente ed è interessante a questo proposito notare come l'operare del Giappone di allora non sia dissimile da quello della Repubblica Popolare Cinese di questi anni. Ciò dovrebbe farci riflettere sulla dirompente prospettiva futura che una più massiccia presenza cinese finirà per generare nei mercati mondiali fra non molti anni.

GIANNI FODELLA

DORE Ronald: *Taking Japan Seriously. A Confucian perspective on leading economic issues.* 1987, Stanford, Stanford University Press, pp. X + 264.

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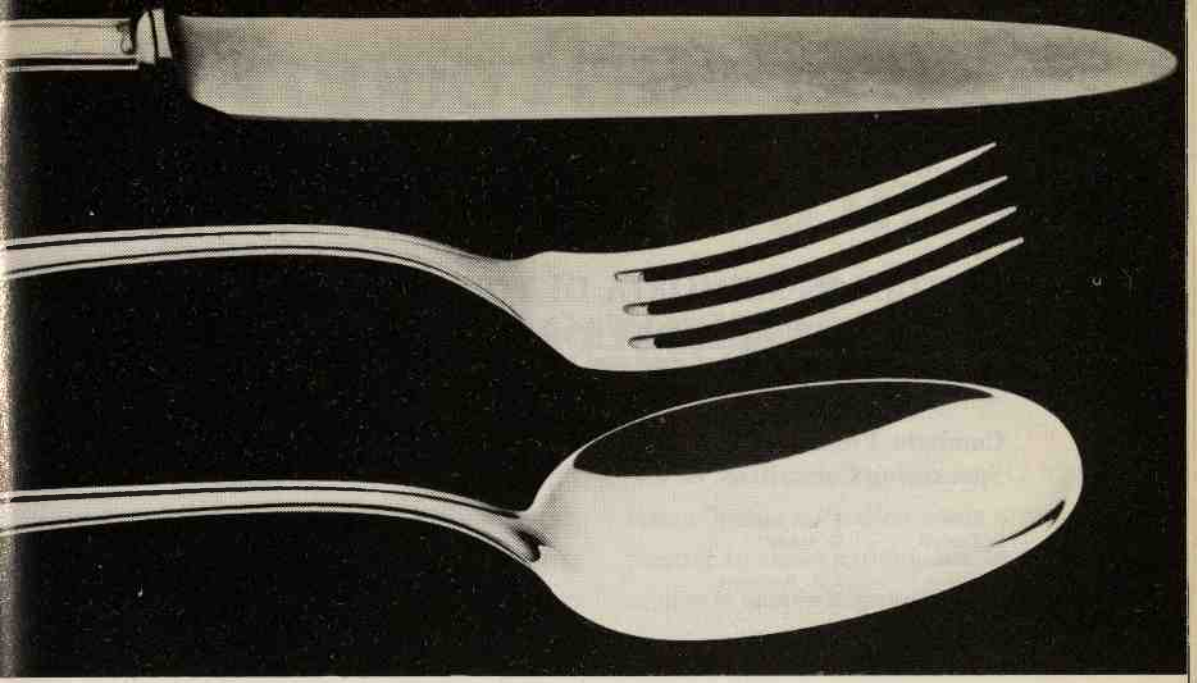

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Il piacere di sedersi a tavola dove ogni cosa è perfettamente pulita, dove non esiste ombra di unto, dove le stoviglie si mostrano in tutta la loro tersa brillantezza a garanzia di perfetta igiene. Alla Henkel si è sempre sentita questa esigenza e per questo si è studiata e preparata una gamma di prodotti, a mano e in lavastoviglie, che garantiscano la più completa igiene e brillantezza nella pulizia di pentolame, piatti, posaterie, bicchieri. Tutto perché di fronte ad una posata perfettamente pulita ti senti tranquillo!

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1928. In Italia, come già in America, arrivano i magazzini a prezzo unico. È la Upim, che ben presto sarà presente in tutta Italia.

1961. È il boom, la spesa alimentare si fa alla SMA col carrello. I consumatori trovano qualità e freschezza e una formula nuovissima.

1972. È il trionfo dell'auto. Fuori dai grandi centri La Rinascente apre le Città Mercato, ipermercati all'italiana dove la famiglia trova tutto in un unico grande spazio.

1974. Una nuova formula di vendita per i negozianti. Cash&Carry Gross ha subito successo.

1983. La Rinascente inaugura i Bricocenter, dove gli appassionati del fai-da-te possono acquistare tutto e ricevere, gratis, utili consigli.

1986. Croff Centro Casa, un marchio affermato nel settore degli oggetti per l'arredamento, entra nel Gruppo.

1989. Il presente e il futuro. La leggenda di Piazza Duomo si è trasformata in una realtà che è presente su tutto il territorio nazionale, copre praticamente tutte le esigenze della distribuzione ed ha nel settore una posizione di leader.

Il Gruppo è formato da attività distinte, che hanno tipologie di offerta e pubblici differenziati, ma hanno una comune cultura e vocazione: essere sempre all'avanguardia nella distribuzione italiana.

Lo spirito è quello di sempre: fare già oggi le cose che altri cominceranno a fare domani.

Questo vuol dire anticipare sempre le esigenze del consumatore, essergli sempre vicino e conoscerlo sempre meglio.

Questa strategia ha portato il Gruppo Rinascente a essere oggi fra le prime 20 società industriali e commerciali italiane, con 13.500 dipendenti, un fatturato di circa 3.000 miliardi e 10 milioni di clienti all'anno.

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