Pacific Partnership: United States-Japan Trade
Prospects and Recommendations for the Seventies

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The Competitive Impact of Japanese Growth

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Close and cooperative relations between Japan and the United States are essential to maintaining a secure position for Japan and the West in today's world. On this relationship depends the security of the North Pacific and the feasibility of a viable order in the 1970s in Southeast Asia. Fast becoming an economic superpower, Japan is a large market for U.S. goods, and has been a dependable ally in maintaining order both in the world monetary system and in security arrangements.

Over the past two decades, while Japan moved from the status of a client to that of an associate of the United States, the relationship remained close and cooperative despite the inevitable strains associated with this change. This was true despite the fact that the two countries have little in common. Neither history, religion, culture, language nor race provide a basis for an identity of interests. Economic interests and their associate, military interests, have provided the real basis for cooperative efforts between the two countries.

Yet present relations are in a state of considerable tension. This is especially hazardous since these tensions are building with respect to trade—precisely the area in which common interest is most widespread and most likely to continue. For example, the inability to find even a basis for real negotiations over the textile issue, much less agreement, was a clear signal that relations are in serious trouble.

The crux of the issue has been, of course, Japan's increasing competitiveness in world markets, particularly in manufactured goods. Japan has broadened the spectrum of its penetration of the U.S. market from textiles and toys to steel, consumer electronics, and autos. In addition, it has replaced the United States as the main supplier of heavy equipment to such countries as Taiwan, Korea, and the Philippines. From the U.S. viewpoint, this situation has been further exacerbated by a shift of Japan's trade balance with the United States from deficit to growing surplus.

The major realignment of the yen-dollar parity in December is another sign of this changing economic relationship. However it is viewed most appropriately as a sign of Japan's increasing international competitiveness, as evidence of Japan's successful industrial policy, and as an indication of other countries' competitive failures. The purpose of this paper is to explore the underlying dynamics of Japan's success and the probability of its continuation.
The Problem

Since World War II, Japan has increased its share of world exports and almost totally in manufactured goods. Though this largely reflects a recovery of its prewar position, there is no abatement in its recent export growth rate. During the last decade, this has been two and one-half times the United States (17.2 percent versus 7.7 percent), and the United States has been steadily losing world export market share. This was almost inevitable given the economic anomalies of the early postwar period. In recent years, however, U.S. export growth has continued below world averages, especially in manufactured goods.

The net result of this process has been an increase in Japan’s competitive export position vis-à-vis the United States in share of world exports from one-twentieth of U.S. exports in 1948 to not quite half in 1970. Further, Japan’s exports are almost all manufactured goods (1970: 93 percent), whereas the U.S. exports large quantities of raw materials and agricultural commodities (1970: 32 percent). Therefore, in the world export market for manufactured goods, where the two countries really compete, the U.S. is less than twice as large and is losing ground fast (7.0 percent growth versus 17.8 percent). Most world trade is manufactured goods and, as their share is increasing, the Japanese are gaining world market share relative to the U.S. in the fastest growing portion of world exports.

This situation, as will be analyzed below, accelerates the improvement in their competitive cost position and a continuation of this trend will ultimately give Japan a larger share than the U.S. of world manufactured exports. For instance, by 1975 Japan’s GNP may well be close to $500 billion in current prices. If exports continue to be about 10 percent of GNP, the total value of exports will be $50 billion compared with $20 billion in 1970. Most will be manufactured goods.

Concomitant with these world market developments Japan has increased her share of total U.S. imports from 7.8 percent in 1960 to 14.7 percent in 1970 and of U.S. manufactured imports from 16.8 percent in 1960 to 21.6 percent in 1970. As significant as these developments are, however, they do not completely reveal Japan’s current dominance of U.S. imports of particular products such as textiles, steel, and consumer electronics that compete directly with U.S. producers of these items.

A typical assessment of Japan’s ability to compete effectively in world markets, particularly the U.S. market, focuses on Japan’s lower wage rates, special export incentives together with controls on imports, and “dumping” practices. Paradoxically, Japan’s competitiveness has increased as wage differentials with respect to the United States and Europe have narrowed sharply and as she has dismantled her incentives and protectionism. In addition, Japanese companies have been profitable both domestically and overseas, an unlikely result of sustained “dumping.”
Regarding the wage rate issue, during the 1920s Japanese wage rates and per capita GNP were about one-tenth U.S. levels, but Japan's only significant export to the U.S. was raw silk, accounting for perhaps 80 percent of Japanese exports to the United States. At present, Japanese labor rates are at West European levels, about one-third comparable U.S. rates, and several economists are predicting wages and per capita GNP at or above U.S. levels by the 1980s. However, the diversity, technological sophistication, and effectiveness of Japanese competition have increased as wages have increased and will continue to do so.

The question of trade policy, of protectionism versus free trade, is a changing one. Japan, like the United States in its earlier turn, pursued a vigorously protectionist policy as its industries were developing. Rather clearly the century of experience with a precarious payments balance resulted in a considerable awareness of the desirability of exporting as much as possible and importing as little as possible. And there is little question that this attitude persisted both in government and business longer than was warranted or economically desirable.

For its part, most of the American business community has for many years prided itself on being dedicated to a free trade policy and has felt that under reasonably free competitive rules, the United States is likely to outcompete other countries in any market. Just as the Japanese were slow to recognize the desirability of shifting away from protectionism, so the Americans have been slow to appreciate the reality of a U.S. shift toward protectionism.

According to the U.S. Department of State, over the past decade from 1963 to late 1971, Japan moved from an extremely high level of quantitative import restrictions (132) to a rather low level (50, soon to be 40). The United States on the other hand went from the very low level of seven in 1963 to 67 in late 1971 not including the most recent textile quotas. Japan then has been moving with extraordinary speed given the obvious domestic problems in doing so to dismantle her protectionism while U.S. policy is moving about as rapidly toward protectionism. (The failure of many Americans to recognize these facts does not assist the dialogue between the two countries.)

The important fact about trade policy is not that one or the other nation is protectionist; the two nations appear now to be about equally "free-trading," although the trend lines are diverging. The important fact is that Japan, with a coherent and economically rational industrial policy, is protecting her high technology, high growth sectors while the protectionism of the United States is directed to the low growth, low technology sectors. It is evident, and will be further demonstrated below, that these respective positions tend to accelerate Japan's growth and hence her international competitiveness while depressing U.S. growth and competitive capability.

It is apparent that Japan is committed to a course aimed at eliminating all export incentives and opening most major industries to competition from imports and foreign investment. By the mid-1970s, Japan could well be the least
protectionist country in the world and the most competitive. Excessive attention to issues like wage rates, trade policy or pricing methods only masks the underlying dynamics, with grave consequences of misperception for Western industries and governments. For this reason, it is imperative to clarify the cost effectiveness of Japan’s rapid growth and the interaction of this growth with Japanese pricing behavior. The dynamics of Japanese competition are not being phased out; they will continue.

Cost Effectiveness of High Growth

A critical aspect of Japan’s competitive development has been its industry’s demonstrated ability rapidly to lower a product’s costs and price. In product after product, Japanese firms have begun as high cost producers internationally but in a few years have become very competitive. We shall illustrate this shortly for television, and it will be demonstrated again later for steel and automobiles. Traditional product cycle analysis explains this as a result of market growth and changing factor supply availabilities. Yet, this explanation has a ring of historical inevitability, and on further examination is analytically inadequate. A firm’s ability to lower a product’s cost and price in fact depends on the volume it produces.

The Boston Consulting Group and other researchers have demonstrated for a variety of products in many industries that total cost per unit in constant dollars (or yen) will decline by a characteristic amount (usually 20-30 percent) each time accumulated production experience (total amount ever produced) doubles. This statistical phenomenon is reflected in prices for entire industries as well as in unit costs for individual firms. It is observed in many countries, including the United States, Europe, and Japan and is an accepted part of cost projection formulations in the aircraft and semiconductor industries. Because the concept relates the rate of cost decline with the rate of accumulation, a company’s cost-experience relationship is plotted on log-log paper and is usually a straight line (Figures 2-1 and 2-2).

The cost-experience effect is temporally more noticeable in new products than in older, mature products. New products have a small experience base and a high demand growth. These products’ accumulated production can double rapidly, and costs will fall accordingly. In mature industries, the effects of inflation will obscure the decline in real dollar (yen) cost. To obtain an accurate picture, one must factor out inflation.

The distorting effect of inflation is eliminated by deflating the current dollar

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[a] Cost data are not always available, but one can derive curves from price data on the assumptions that prices follow costs over time and that market shares change slowly. Price curves are displayed in this paper and later for steel and autos. Cost is total cost to the end user, including direct overhead and marketing.
(yen) unit costs by the GNP deflator. Given a product's historical experience curve, one can predict future real costs at various levels of accumulated experience. To estimate actual future dollar (yen) cost, though, one must reflate by multiplying the constant dollar (yen) cost projections by the expected rate of inflation.

Given this relationship between cost and volume, an individual firm's cost position within an industry depends on its growth relative to the entire industry, that is, on its market share. Conversely, an industry's ability to lower prices for a given amount of production depends on the market shares of the individual producers, that is, on the industry's concentration. (With greater concentration, industry experience is spread among fewer producers.)

The implication of the cost-experience effect for Japanese competition is that growth directly determines the Japanese firm's ability to accumulate experience and lower costs. And market share determines its ability to lower costs relative to competitors both domestic and foreign. The successful Japanese firm is the one who captures a dominant share of the world demand represented by Japanese market growth and subsequently export demand. This is evident from the direct relationship between Japanese firms' profitability and production share (see Table 2-1).

If a Japanese firm accumulates experience at 30 percent per year, it will double experience in less than three years and will lower real costs 20 to 30
Figure 2-2. Price-Experience Curves (Japanese Transistor Prices vs. Accumulated Production: 1958-69). Data Source: MITI.
percent. If inflation is 5 percent per year, its current costs will decline anywhere from 5 to 15 percent over the three-year period. If industry demand is growing at 15 percent, and the industry’s accumulation rate has approached industry demand growth, the firm is capturing more than its share of incremental industry experience. It is gaining market share relative to competitors and is improving cost position.

At a fixed exchange rate, the Japanese firm also lowers current dollar costs. If a mature U.S. market is growing at 5 percent with the same 5 percent inflation rate as Japan, the Japanese firm is rapidly gaining absolute cost advantage relative to U.S. producers (assuming relatively stable U.S. market shares). As most Japanese production has served, however, to satisfy domestic demand for products produced elsewhere first, frequently the United States, U.S. companies have begun or gone through the product’s development and growth phase. They

\[ \frac{1}{\sum (1 + go) t} + go = gn(t). \]

Thus the accumulation rate substantially exceeds the market growth rate in the early production stages but approaches it as the market matures.
have substantial cost-experience advantage relative to Japanese firms. Initial Japanese production has depended therefore on transportation cost differentials, Japanese government protection (tariffs, quotas, and subsidies), and/or no foreign marketing effort. Once beginning production, though, the firm’s ability to become competitive has been a function of its initial real production costs, the slope of the experience curve, Japan’s inflation rate, Japan’s exchange rate, and the firm’s accumulation rate.

Conversely, U.S. manufacturers’ ability to maintain price competitiveness and dominance in products they have introduced would depend on an appropriate combination of the following:

- lower real start-up and initial production costs in the United States than Japan,
- steeper experience curve slope,
- lower inflation rate
- continuous devaluation
- faster accumulation rate.

In reality, few of these conditions can be met. The United States tends to have higher initial production and development costs than Japan. The cost of transferring a given technology decreases over time, and thus Japan need not accumulate equivalent-experience to become competitive. Secondly, actual comparisons by the Boston Consulting Group have yet to show any appreciable slope differentials between the United States and Japan for the same product. Real price reductions for a doubling of experience are similar. This indicates that technological factors and industrial organization at a given stage of development are analogous for the same product, and cost-experience curves for successful United States and Japanese firms producing a product are roughly equivalent.

Inflation and exchange rates are primarily macroeconomic variables over which firms have little control. Nevertheless, U.S. inflation rates approaching Japanese levels since 1967 have heavily affected U.S. competitiveness. Until that time, the 3 percent inflation differential between the United States and Japan offset the real cost reduction effect of Japan’s higher manufacturing growth rate. The current revaluation compensates for the absence of this inflation differential during the last 4 to 5 years.

However, U.S. firms do have some control over Japanese firms’ ability to capture world market share and accumulate experience even if they have not done so in many products. United States firms have lower current costs when Japan begins production, comparing each industry’s starting point, even if not lower real costs. There is thus a calculable accumulation rate over some time period that Japanese firms require to become cost competitive. United States producers can remain dominant if Japanese firms fail to grow at this rate. During Japan’s initial production stage, the United States can rarely accumulate
experience as rapidly as Japan. The United States is the initial producer and has a larger accumulated production base, consequently taking longer to double experience. As Japan’s smaller market saturates and its experience base gets larger, though, further doublings and cost reductions become more difficult for Japanese producers too. United States firms must use their initial cost advantage, therefore, to participate in the Japanese market and/or shut off export development. They can deny Japanese manufacturers the growth necessary for fully competitive cost reduction, but the time horizon is limited.

Product Cycles and Economic Development

Product and industry life cycles are a recognized and logical economic phenomenon. We see currently and historically that the scientific and material resources needed for the invention and commercialization of any new product are concentrated in a few advanced countries (frequently the United States). A wide range of innovations are stimulated by the conditions of domestic demand and supply these countries enjoy:

- high wage rates promote labor-saving innovations;
- high personal incomes stimulate demand for new products;
- large military and space programs support technical innovations which may ultimately have consumer applications;
- the availability of large amounts of capital and skilled labor permit development to occur.

These demand-and-supply conditions do not occur in the LDCs until their income levels rise; therefore, they lag behind the advanced countries in the development of a particular product. They generally attain the required levels of demand and begin to make these products at the same time that demand is slowing down in the advanced countries. This process results in intra- and interindustry shifts within a country, and from country to country. Industrial emphasis moves continually from products less technically sophisticated and capital-intensive toward those requiring more capital, more skill, and more technological inputs. This historical evolution is apparent for Japan.

That is, after being introduced in the United States, new products and processes diffuse abroad, first to advanced countries like Japan that have the technical capabilities and resources needed to identify and imitate the technology. The less developed countries adopt the innovations more slowly depending on the upward shift in their demand and supply structures.

This process is well documented for many Japanese industries and products. Consider the cotton textile industry: U.S. and European dominance gave way first to Japanese competition, and later to competitors from Hong Kong, Korea,
and Taiwan. Today the cycle is entering a new phase, with India and Pakistan developing their cotton textile industries. Wool and synthetics follow a similar evolutionary path.

These product or industry life cycles are continually evolving for all industries in each economy, new industries emerging all the time. In each country one finds a constantly changing spectrum of industries in various stages of development (initial development, growth, maturation, decline, export and import).

Because this is an ongoing process, it is unreasonable to expect a particular country to dominate production of any product forever. The reasons for this are apparent from comparative experience development. That the Japanese understand this process better than the U.S. is indicated by their willingness to phase out and rationalize declining industries, such as cotton textiles or sewing machines, in favor of newer high-growth products. It is these high-growth industries the Japanese have protected and are continuing to protect by controlling imports and foreign investment. Japan consciously pursues a policy of shifting its economic and industrial emphasis from low-growth, less sophisticated products toward high-growth, more sophisticated products—a very rational policy that has contributed substantially to Japan's postwar success. On the other hand, U.S. policy in direct contrast to Japan's, protects slow-growth, declining industries, leaving high-growth industries on their own. This is self-defeating in terms of resource allocation, growth, and meeting Japanese competition.

The Relationship between Experience and Product Cycles

A typical life-cycle pattern vis-à-vis Japan has run as follows:

In the early years of production U.S. demand, production, and experience have grown rapidly. Increases in productivity and relative price declines have been large. As domestic demand leveled off, increases in growth rates and productivity decreased so price declines slowed both relatively and absolutely. During this second phase, an industry shakeout usually occurred as one or two firms gained dominance and market shares stabilized.

Subsequently U.S. firms' international competitive strategy has been inadequate. United States firms have generally failed to capture increased world demand emerging abroad (because of international trade barriers and/or strategic errors). They have lost world market share to Japanese competitors who have begun production and have dropped costs rapidly. Since their initial real production costs have been lower than they were in the United States (the United States even facilitating this process by licensing and patent agreements), they did not have to repeat U.S. production experience to become competitive.

Japan's actual initial costs have been higher though than current U.S. costs. Some protection or lack of competition was thus required to get started. But the
very rapid expansion of demand and production lowered costs quickly and established competitive equality in a few years.

Given a similar demand growth in both countries, the ability to sustain high growth (therefore a high accumulation rate) is a function of capital availability to expand capacity, which is a function of retained earnings, debt usage, and tax rates. A corporation's ability to increase its domestic and international market share thus depends on its financial policies and its financial environment. More specifically, a larger use of debt by Japanese companies facilitates higher growth rates and lower margins for the same return on equity than U.S. financial practices. Combined with a higher breakeven due to fixed labor costs and high fixed capital charges, this policy tends to stimulate penetration pricing and continuous operation at full capacity. The section on Japan's approach to pricing which follows will discuss more completely the Japanese practice of dropping prices as costs decline.

To catch up, Japan has accumulated experience faster than the current U.S. rate. Reduction in relative costs has proceeded particularly fast during Japan's initial production phase because the accumulation rate is higher at this stage of product development. In addition, during this initial production period, Japan has enjoyed greater growth in demand than the United States, the U.S. market usually being mature. Still, it has only been after this initial period of rapid cost reduction that Japan has become competitive enough to export.

The successful Japanese follower has generally increased his export market share first in less developed countries, where there is no domestic competition, where demand is growing, and where the United States has no innate advantage. These exports have served multiple competitive functions. They impaired the ability of U.S. firms to grow and to lower costs relative to Japan. They also enhanced Japan's ability to grow and lower costs. Competitively, there was a double effect. This was very important if the Japanese domestic market was relatively small and quickly saturated, or if costs had to be lowered further to stimulate additional domestic demand. Finally, these exports developed Japan's overseas marketing experience.

All these developments were critical if Japan was to gain enough strength to penetrate the U.S. market. This task was difficult because U.S. market demand was growing slowly, in-place capacity was difficult to dislodge, and domestic competition existed. However, quotas and high tariffs were seldom applied until after significant import market penetration, when the U.S. industry was in trouble.

Japan has often benefited from other economic conditions present in the United States as well. The United States has higher wage rates than Japan. As growth slowed, productivity increased slowly and higher wages were not offset as in earlier stages of product development. As the U.S. domestic market matured, the manufacturer has also frequently decided to forego continued growth (requiring investment and aggressive pricing) and has attempted, instead, to earn a return on past investment by maintaining a constant real price level.
Moreover, he has often felt that the foreign market's size and the foreign competitors, particularly Japanese, were not large enough to justify fighting Japanese protective policies, (though this thinking may be changing). Yet as the U.S. market matured it became increasingly price sensitive and vulnerable to low-priced imports.

Therefore, despite the difficulties encountered, Japanese firms penetrated the U.S. market and local producers declined in their own market, feeling even more the competitive pressures resulting from a smaller market share and a deteriorating cost position. Thus, in spite of U.S. protectionist policies, competitive forces have constantly pushed U.S. industry toward the development of newer and more sophisticated products, initiating the process once again.

The repetition of this competitive evolution with respect to Japan by the LDCs would only seem limited by product obsolescence, by the minimum internationally competitive plant size, and by follower's ability to capture world demand growth represented by its domestic demand. This appears to be happening in textiles and other simple manufactures. It has been made possible by the protective policies of local governments, by changes in U.S., European and Japanese financial strategies, and by the domestically restricted market perception of U.S. and European companies. Inflation and yen appreciation have also obviously contributed, decreasing the competitive advantage of mature Japanese business, for example (apparel and handicrafts). Exports of these products from the LDCs are increasing, both to Japan and third country markets.

Japanese firms compensate for these developments, however, by investing in these industries offshore and by playing the follower in new products at home. They are thus upgrading their employment structure and are participating in growth areas domestically and overseas. They make use of economic forces; they do not try to oppose them.

Their alternative strategy indicates the sensitive points within product cycle evolution for each country and firm: initial foreign production, initial foreign export development, and initial domestic market penetration. At these times, key variables such as margins can be effectively influenced by external pressures. The ability to apply or resist such pressure is related to:

- a firm’s investment strategies (foreign and domestic);
- its marketing strategies (including exports);
- its pricing strategies (domestic and foreign); and
- its financial strategies

within the context of a country’s current position in the product cycle and likely position five or ten years hence.
Policy Implications

The above analysis has immediate and profound implications for U.S. policy vis-à-vis Japan. Until now, Japan has quite rationally protected her growth industries from foreign (U.S.) exports that would keep her industry from developing, and from foreign (U.S.) investment that would merely serve the Japanese domestic market and would not develop into a major export industry. Japan has been able to adhere to this policy in part because the United States, in its trade negotiations, has been preoccupied with protecting its declining industries (for example, shoes and textiles) rather than its established or growth industries. U.S. antitrust policies—which have prevented various industries from combining into more competitive units better able to accumulate experience—have only exacerbated the unfavorable situation.

The Japanese have also demonstrated a better understanding of the economic forces determining their competitive development. This is apparent in many policy statements by Japanese business and government officials. The United States, on the other hand, has failed to respond with any integrated trade strategy or basic understanding of the competitive process. It has instead continued to react to ad hoc political pressures, pressures naturally favoring declining industries rather than growth industries, where we tend to be overconfident.

Furthermore, Japanese financial strategies, incorporating high debt and high breakeven characteristics, have helped create a finely tuned growth system—a system which, given the same initial costs as in the United States, normally sets lower prices and ultimately achieves lower costs and still lower prices. This is particularly true in export markets where trading companies offer a more efficient distribution system than the one existing in Japan itself. Given this competitive challenge, the United States can only respond effectively by thinking its way through some necessary changes in its present business practices and government economic policies.

More specifically, the United States has tended to give away experience by investing overseas rather than exporting. This is a second-best solution to the problem of access to foreign markets from the point of view of U.S. costs and contribution to GNP. In some cases, overseas investment is the only way to gain or maintain access to foreign markets, but in general U.S. firms simply prefer to invest overseas rather than export. This is probably a logical preference; its large volume of exports notwithstanding, the United States is not really structured for export. The U.S. export distribution system is fragmented and expensive, and there have been legal restrictions on the integration of functions which might otherwise have reduced costs. United States antitrust laws deter cooperation by U.S. firms in export marketing and in the creation of joint or cooperative trading
companies that could spread export marketing costs over several products. For example, what would the U.S. government do if Ford and GM cooperated to defeat Toyota competitively overseas? Some relief from antitrust is required if the United States is to meet Japanese competition, competition that concentrates experience and invests overseas only in raw materials or declining industries.

United States antitrust policies also erode the experience base for export and accelerate the decline of maturing industries by preventing concentration of experience in one or two producers. The U.S. government currently thinks of competition only in domestic terms; it needs to extend its view to worldwide competition. Such a change in viewpoint would lead to more efficient U.S. production units, a more competitive position; and lower consumer prices. It would coincide with our traditional free trade posture as well since heavy protection would not be required even for traditional industries.

Such a change in outlook implies a reversal of U.S. policy—from protecting declining industries to protecting those industries whose growth rate is faster than that of the GNP or industry as a whole. The United States needs to be more conscious of the benefits derived from the huge U.S. market, from U.S. R&D capability, and from high growth. The U.S. market is twice the size of Japan’s and will remain so, even if per capita purchasing power becomes the same. This means that the U.S. experience base and its potential cost advantage will always be larger than Japan’s if equivalent industry concentration exists in the two countries. By protecting this base, the United States should be able to remain competitive if it exports and invests effectively, capturing world market growth.

Conversely, Japan must have access to the huge U.S. market if she is to maintain cost advantage and continue to grow once her own market is saturated. Her alternative overseas markets are limited, at least in the near future. These markets are growing fast but they cannot quantitatively provide what is required to add to Japan’s increasingly larger experience base at a rate that will lower costs significantly. However, effective penetration of the U.S. market, the largest and most developed in the world, can provide such additions. Although Japan is gaining a greater position in Western Europe; although Southeast Asia will remain important for initial export development; and although some specialization agreement with China may be worked out, the United States will remain Japan’s major foreign market for the foreseeable future.

One must conclude therefore that a rational U.S. trade posture would be to require Japan to pay for access to certain U.S. markets with access to certain Japanese markets (e.g., the U.S. auto market in exchange for the Japanese computer market). Since Japan’s ability to develop an industry depends on protection and her ability to sustain cost advantage depends on access to overseas markets, particularly the U.S. market, this policy would naturally force a decision as to who would specialize in which products. The United States must stop Japan’s progress in industries in which she still has a cost advantage;
protection is of little use in a declining or slow-growth industry. Also, in areas in which the United States is following Japan (e.g., video cassettes or four-channel stereo) it can use protection of high-growth industries to even greater advantage than Japan as the size of the U.S. market permits faster and greater accumulation of experience.

Japanese Pricing: “Dumping” or Sound Strategy?

The cost consequences of Japan’s rapid growth have been discussed in terms of the whole economy or of industry and product groupings. Turning now to the firm, one can ask how these cost effects translate into pricing behavior. Why are Japanese firms often seen as pricing in “unfair,” “irrational,” “uneconomic” ways? Japanese companies are commonly accused of “dumping” into world markets. Yet it is clear that if Japanese companies were persistently dumping, they could hardly exist for long periods, much less finance very rapid and continued growth. Is there then a basis for analyzing Japanese pricing behavior which, taken with the effects of rapid growth, demonstrates a real competitive advantage? We believe there is.

The Price Implications of Corporate Debt

To understand Japanese pricing behavior, one must first note an aspect of Japanese corporate practice strikingly different from the West. As Figure 2-3 suggests, Japanese companies characteristically depend very heavily on debt for corporate financing. The typical level of debt financing is so high as to suggest to Western businessmen that the average Japanese firm is virtually bankrupt. For the typical Japanese firm, less than 20 percent of total capital is owned (equity and retained earnings) with more than 80 percent composed of short- and long-term borrowings and the financing of trade receivables. United States companies characteristically source most of their capital from equity and retained earnings; debt comprises a third or less.

The effects on pricing behavior of this difference in financial practice are startling (Table 2-2). Assume two competitors, a U.S. company and a Japanese company; assume their costs are roughly equal, but the Japanese company follows Japanese financial practices, and the American company uses somewhat more debt than customary in the United States. If both provide their shareholders an equal return (10 percent on equity) and grow on a sustained basis at 10 percent annually, the margin of the Japanese company will be roughly half the U.S. company’s. Therefore, given equal costs, the Japanese company can service its debt, pay an equal return to shareholders, and maintain a growth rate equal to that of the U.S. company but at a far lower price level.
Figure 2-3. Capital Structure: 1968. Source: Bank of Japan.

While Table 2-2 is a generalized example, companies in the two economies display the effects of these differing financial approaches. The Bank of Japan reported 1968 results for major companies in both countries. Japanese companies were far less profitable in terms of after-tax return on sales (2.6 percent compared to 5.1 percent) but provided a higher return to shareholders (13.7 percent compared to 11.8 percent).

The generous use of debt by Japanese firms in effect uncouples their growth rate from their profitability as long as they can cover their debt service and dividend payout. This practice permits the continued financing of rapid growth even though sales are made at significantly lower margins.

But if the high use of debt confers a substantial competitive advantage, why
Table 2-2
Margins Required to Grow at 10%

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</tbody>
</table>

do U.S. companies not follow a similar strategy? A full answer is both complex and outside this discussion. Briefly, however, Japan’s business environment reduces the risk and makes tolerable for large Japanese companies a debt level unattainable and intolerably risky in the U.S. environment. The financial risks associated with high debt levels are reduced in Japan as the central bank stands implicit guarantor of major Japanese companies’ debt position. No American company can assume similar support from the Federal Reserve. Further, an American company is vulnerable to the threat of prolonged strikes which make enormous demands on liquidity. The thin cash position of Japanese companies would make such strikes devastating, but Japanese labor relations and personnel practices make these labor conflicts unlikely.

In looking at Japanese price behavior, then, one must first appreciate that the Japanese business system permits an extraordinary level of debt financing for corporate growth, and that this in turn makes possible operation at significantly lower margins than in the United States.

The Full Capacity Policy

One consequence of this financial policy is the pressure on the Japanese company which results from its large debt service. Sizeable interest charges contribute to a high level of fixed costs for a Japanese company compared to a U.S. company. This too has direct implications for Japanese pricing behavior.
To take a specific product, Table 2-3 compares costs for Japan and the United States in nylon production. The Japanese advantage in labor costs is somewhat offset by higher overhead costs and by interest charges. Total costs are similar. However, given personnel relations in the large Japanese company, with employees hired for their entire careers, all labor costs as well as sales, overhead, and interest costs, are in fact fixed. For the American firm, labor is partially a variable cost (this analysis assumes about one-third U.S. labor costs are fixed). Taken with lower overhead and little debt service, a much smaller proportion of the U.S. firm’s total costs are fixed.

These high fixed costs typical of a Japanese company result in what might be called a “full-capacity policy.” Since most costs are fixed, there is considerable incentive to operate at full capacity so long as the product is sold at prices somewhat above variable costs—in fact, somewhat above raw material costs. Since the break-even point is high and cannot be significantly reduced in the short run, management is constantly pressed to lowering prices as necessary to ensure full operations as long as these prices do not drop below variable costs. In the United States this price point is reached much sooner than in Japan, since a substantially larger share of U.S. costs are variable and can be reduced.

Taken together with Japanese financial practices, this “full-capacity policy” means that the Japanese firm can price lower while maintaining required levels of return and a high growth rate, and has a powerful incentive to price lower to maintain full capacity.

Pricing Implications of Rapid Growth

These facts must also be seen in the context of rapid economic growth. The implications of Japan’s high growth rates have been analyzed in the national context, but rapid growth impacts on individual firms’ pricing behavior as well. The experience of the current generation of Japanese businessmen is unique. They have known twenty years of uninterrupted growth, and for most of this time, growth at rates virtually unprecedented in history. Further, they have a government committed to continued rapid growth, and the credibility of that commitment is strongly reinforced by success. Indeed, their government’s generous growth estimates have nearly always fallen short of actual economic expansion.

The confidence that demand will increase rapidly, and long experience with rapidly expanding markets, has in turn confirmed the necessity to invest in anticipation of demand. In national terms, this makes for a self-fulfilling prophecy—investment in anticipation of demand creates the economic conditions that bring about increased demand. For the individual company, it means that since capacity does not increase smoothly but rather expands in large increments, there will be periods of temporary excess capacity. And Japanese
Table 2-3
Cost Comparison: U.S. and Japan Nylon Production

<table>
<thead>
<tr>
<th></th>
<th>Japanese Company</th>
<th>U.S. Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Labor</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Sales and administration</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Overhead</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Debt Service</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total Cost</td>
<td>67</td>
<td>70</td>
</tr>
<tr>
<td>Fixed Cost to Total Cost(^a)</td>
<td>70%</td>
<td>54%</td>
</tr>
</tbody>
</table>

\(^a\)Assuming all Japanese labor cost fixed and one-third U.S. labor cost fixed,

\[
\text{Japan} = \left(\frac{10 + 20 + 15 + 2}{67}\right); \text{U.S.} = \left(\frac{5 + 20 + 13}{70}\right)
\]

management is likely to clear that capacity at temporarily lowered prices and into world markets. This fact, in conjunction with the typical approach to export marketing discussed below, helps explain the part of Japanese pricing behavior that Japan's competitors object to and often find inexplicable.

But from the Japanese point of view, their preoccupation with investment and market share in the domestic market is entirely reasonable. At Japanese growth rates, failure to maintain market share can very quickly lead to a disastrous competitive position. Japanese industrial output has been growing in real terms at some 13 to 14 percent per year. The modern sector of most industries is thus doubling in size every five years or less. Put another way, if a competitor enters a market with zero share and simply takes the market growth without reducing the sales volume of other companies, he will hold half the market in only five years. Given the cost-experience effect, the competitive implications of this kind of market share loss are clear. The same phenomenon would occur in the United States, but since U.S. growth rates are generally much lower, management's appreciation of the effects of market share loss is less. In the Japanese context, however, it is appropriate that management accept market share as a primary objective even at the expense of short-term profitability.

Some additional special characteristics of the Japanese business environment reinforce this attention to market share. As Japanese industry swings away from labor-intensive toward capital-intensive industries, the effects of scale on cost are increasingly clear. Further, growth and market share have a direct effect on labor costs. Employees are hired directly from school for their career. Since their pay is essentially a function of their age, the average labor cost for a Japanese company is directly related to the average age of the work force. A rapidly
growing company is hiring large numbers of young people; as the average age of
the workforce drops, labor costs also drop. Conversely, a slow-growing Japanese
company has a workforce aging steadily, and its labor costs are rising. The
payoff for growth is immediate and clear.

_**Japanese Pricing and the Experience Curve Effect**_

All these factors come together to create a business system in which rapid
growth in demand stimulates rapid investment; rapid investment and maintained
or increased market share translates directly into visible cost advantage; high
fixed costs ensure the additional capacity will be fully utilized; and financial and
competitive practices are such that margins in excess of the financial require-
ments for growth penalize firms in high-growth business. Under these conditions,
it is hardly surprising that price becomes the primary competitive weapon. U.S.
firms characteristically prefer to compete through increased services, additional
merchandising or product differentiation, and use price competition as a last
resort. U.S. laws, notably the Robinson-Patman Act and ultimately the antitrust
laws, reinforce this tendency and place sharp limits on the use of price as a
competitive weapon. The results for international competition are unfortunate.

It is evident from this discussion that the Japanese firm is under considerable
pressure to translate into immediate price reduction cost improvements resulting
from rapid growth. The situation found in the United States of a “price
umbrella” held over the market by the leading producer for an extended period
is not commonplace in Japan. The risk of market share loss is too evident and
urgent. Japanese prices thus tend to follow costs directly down the experience
curve. This phenomenon, together with rapid growth, makes Japanese goods
increasingly price competitive in world markets quite apart from other aspects of
Japanese price behavior already noted.

_What Are Real Prices?_

This discussion has so far dealt only with the individual producer, and with some
of the factors that make for differences in pricing practices between manufac-
turers in Japan and the United States. The issue is made more complex, however,
by differences in distribution methods and their effect on pricing behavior.

In Japan the traditional, and still general, approach to distribution both
domestically and for export has been the trading company, rather than direct
management of sales activities by the manufacturer. The Japanese trading
company is unique to Japan. The large ones are very large indeed, with sales over
$10 billion annually and worldwide office networks, dealing in virtually all kinds
of goods. But the trading company is basically interested in rapid turnover, and
in handling large volumes at low margins. In contrast to a manufacturer selling for his own account, the trading company has less interest in market stability and permanence. The pricing effects in world markets are obvious.

At the same time, the trading company is a highly efficient export distributor. Especially for producers whose export sales are below the threshold volume making an export effort economic, the trading company offers an efficient and inexpensive way of arranging transport, establishing inventory and reaching customers. The result is worldwide export market access for relatively small Japanese companies, for products with limited export potential, and to countries with small markets. The lack of a comparable U.S. business institution hampers U.S. export efforts by many companies that cannot economically justify entry to export markets, much less to markets of limited size.

The efficiency of the trading company as an export distribution mechanism raises a difficult question, however, regarding the issue of “double pricing.” It is commonly argued that Japanese companies “double price,” with a higher price for their domestic market than for export markets. The real possibility of this kind of pricing has been indicated above with respect to the full capacity policy. It must be noted however that distribution costs in Japan are high: distribution channels are multi-layered with compounding margins; customers are numerous, small, and expensive to reach; and payment terms are extended and difficult to enforce. Under these different conditions of domestic versus export sales, it is clear that caution must be exercised before charging “double pricing” against Japanese manufacturers.

Some Implications for Policy

It is not easy to discuss pricing behavior without seeming to justify the Japanese approach. U.S. producers are at an inherent competitive disadvantage. Japanese companies with costs similar to Western producers can price lower while being as profitable to shareholders and financing faster growth—which in turn leads to lower costs, and under Japanese conditions this is promptly translated into still lower prices. This advantage, unless compensated for by a higher Japanese inflation rate, must soon be balanced by exchange rate adjustment. The alternative—that U.S. companies might adopt Japanese financial practices—is not available given U.S. government-business relations.

This does not rule out however a critical review by U.S. firms of their own export pricing policies. It seems appropriate that roughly as many “dumping” charges should be brought against U.S. firms as are registered by U.S. firms against foreign competition. The current disproportion suggests U.S. companies are not pricing as aggressively in international markets.

The “dumping” issue also suggests a new U.S. response might be useful. By definition, dumping means Japanese domestic prices are high and a price
umbrella is being held over the domestic Japanese market, providing the cash flow to finance expansion. At present, the U.S. response to this is to close or limit access to the U.S. market. Strategically, an interesting alternative would be to trade off closure of the U.S. market against wide-open access to the Japanese market. If Japanese prices are disproportionately high, U.S. producers should be able to penetrate the market and shut off the cash source financing further Japanese growth.

It also seems useful for the United States to examine the trading company. It is clear that most large American companies are prepared to handle their own export sales (although even these might find a joint export effort to smaller overseas markets economic). But many smaller, specialized producers that only the huge U.S. economy makes possible have export markets that their scale and experience prevents them from penetrating. Are there perhaps, in the trading company, some of the elements that might be used to expand U.S. exports and make U.S. producers better able to compete with the Japanese even outside the United States?

A Case History—Monochrome Television

Japanese television producers offer a poignant and pointed illustration of Japanese competitive development along the lines described above. It is a pattern systematically repeated throughout Japan’s industrialization. Television is especially interesting, however, because U.S. strategic errors were illustrated not once but twice. In addition, the rapidly growing Japanese market was unprotected compared to textiles, steel, or autos. The government never considered consumer electronics strategic or an important industry. Its development has not depended on special quotas, marketing restrictions, high tariff barriers, or other protections. There was little to prevent U.S. exports and market penetration when the United States was the world’s low-cost producer. But no real effort was made. The eventual size and competitiveness of Japanese producers testifies though to the U.S. strategic misperception. (Black and white production in 1970 was $400 million.)

A brief comparison of the U.S. and Japanese price-experience curves for

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"Though our discussion is restricted to monochrome television, color TV followed a similar competitive development. Initial Japanese current average wholesale prices in 1962 were high compared to U.S. prices ($500 versus $350 a set), and Japanese sets were smaller. Extraordinary domestic demand growth after 1965, however, brought costs and prices down rapidly. Production grew from 98,000 units in 1965 to 6.4 million units in 1970 (a growth of 196 percent per annum versus 41.0 percent for the United States), but only 16 percent were exported in 1970. The value of 1970 production was $1.9 billion. Failure to participate in this growth market not only created formidable international competitors but was also a sizeable lost market opportunity. With the examples of transistor radios, monochrome TV, and stereo equipment as guides, there seems little reason for U.S. misperception; yet, it did occur again."
monochrome television in Figure 2-4 and of price trends over time in Figure 2-5 indicate the United States maintained a large cost-price advantage before 1957. Still, there were no exports to the Japanese market despite its rapid growth. Just how rapidly production grew compared to the U.S. is documented in Table 2-4. Japanese producers between 1954 and 1970 accumulated experience at 61 percent p.a. versus 8 percent in the U.S. The result of this large differential accumulation rate was inevitable. A differential accumulation rate of 53 percent p.a. more than exceeded what could be permitted by a 1 to 2 percent inflation differential, and absolute cost advantage at a fixed exchange rate was gained quickly (Table 2-4). Yet, this was based on domestic market growth. Exports did not start until Japanese domestic prices were below U.S. prices, and penetration of the U.S. market did not occur until the price differential was substantial and third country export experience had been developed (Table 2-5).

This was a typical "follower" scenario of competitive development. But as the economics of monochrome production have shifted in turn from Japan to countries like Taiwan and Korea, the Japanese managerial response has differed from U.S. experience. In response to the emergence of competitors in the LDCs, the belated move of American companies offshore, and their own changing production economics, Hitachi, Toshiba, Matsushita and Sanyo all have established monochrome television plants in Taiwan or Korea. Unlike U.S. producers, though, they are not supplying their own domestic market in Japan but are using or are planning to use these sources to supply markets worldwide (United States, the LDCs, etc.). In this approach they remain one-step ahead of U.S. producers who produce only for the U.S. market; U.S. manufacturers will thus lose relative cost position due to their smaller volume and experience growth at the new location. Competitive initiative in television would seem to have passed from the U.S. innovators to the Japanese followers.

**Japanese Competition in the 1970s**

Any effort to project the competitive interaction between the economies of Japan and the United States over this decade encounters the customary hazards of prediction. Some of the factors that will determine the direction of Japan's economy are quite predictable, population size and rate of population increase for example. Some of the factors, the proportion of personal consumption to gross national expenditure for example, show rather long trend lines that seem unlikely to change abruptly. And yet, of course, any prediction is subject to the unpredictable—a Near East crisis that cuts off energy supplies, a shift in world power relations that changes Japanese policy in a direction discontinuous from the present.

Given the hazards of prediction, it remains useful to examine those facts that have a high degree of predictability, consider their implications for economic
Figure 2-4. Real Wholesale Prices against Accumulated Production of Monochrome Television in the United States and Japan.
growth and policy, and review their impact on the economic interaction of Japan with the world. In selecting the facts that seem especially relevant for this exercise, and to array them systematically, we propose to examine in turn some main trends in three key areas—human resources, financial resources, and technology. An examination of these leads to conclusions not only about broad economic policy but also to some specific conclusions about the industries and product areas in which Japanese effort is likely to be focused. Finally, some general predictions about the rate and nature of growth can be outlined along with a view of the factors upon which this growth depends.

*Human Resources in the 1970s*

A first fact about Japan in the 1970s is that the population will increase slowly, about 1 percent per year, and this population will be slowly aging in conse-
Table 2-4
Monochrome Television Cost Competition: 1954-70, 1965-70

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1954-70</td>
<td>(1965-70)</td>
</tr>
<tr>
<td>Real annual accumulation rate</td>
<td>8.6%</td>
<td>(4.6%)</td>
</tr>
<tr>
<td>Real annual growth rate</td>
<td>-2.9%</td>
<td>(-12.0%)</td>
</tr>
<tr>
<td>Annual price decline in constant dollars or yen (75% curve)</td>
<td>3.6%</td>
<td>(1.9%)</td>
</tr>
<tr>
<td>Inflation rate per annum</td>
<td>2.6%</td>
<td>(4.0%)</td>
</tr>
<tr>
<td>Annual change in costs in current dollars</td>
<td>-1.0%</td>
<td>(+2.1%)</td>
</tr>
<tr>
<td>Competitor’s cost advantage per annum</td>
<td>+20.8%</td>
<td>(+3.4%)</td>
</tr>
</tbody>
</table>

Note: Exchange rate fixed at Y360 = $1.00 through the period.

Table 2-5
Japanese Production and Exports: Monochrome Television (1,000 Units)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>137</td>
<td>3,552</td>
<td>4,878</td>
<td>4,060</td>
<td>5,681</td>
<td>7,284</td>
<td>6,089</td>
</tr>
<tr>
<td>Exports</td>
<td>-</td>
<td>45</td>
<td>686</td>
<td>1,414</td>
<td>1,922</td>
<td>3,286</td>
<td>3,715</td>
</tr>
<tr>
<td>% U.S.</td>
<td>-</td>
<td>18%</td>
<td>66%</td>
<td>75%</td>
<td>68%</td>
<td>70%</td>
<td>66%</td>
</tr>
<tr>
<td>E/P</td>
<td>-</td>
<td>1%</td>
<td>14%</td>
<td>35%</td>
<td>34%</td>
<td>45%</td>
<td>61%</td>
</tr>
</tbody>
</table>

sequence of a low birth rate over the past decade or two. This means of course a reduced number of entrants to the labor force (the number of entrants peaked several years ago) with a resulting labor shortage in the sense of a slow rate of increase. While this does not mean a labor shortage in an absolute sense—that depends on capital investment and off-shore investment policies as well as on total numbers of workers—it does mean that the size of the labor force is one constraint on the nature of the economy.

At the same time, Japan’s labor force is experiencing a very rapid rise in its level of education. By the mid-'70s, a quarter of the work force will be college graduated, and new entrants will virtually all have graduated from higher schools. The labor force is now probably on average the best educated in the world. This further increase in educational level leads to a need for and capability of more sophisticated employment than is now the case. Japanese companies have already had experience with an unwillingness on the part of higher school graduated employees to accept the kind of menial or brutally repetitive tasks that are offered for example on an auto assembly line. They have been trained to expect more interesting work and have a capacity for it.
Along with a reduction in the numbers of workers entering the work force, and a sharp increase in their level of education, will go a considerable rise in wage rates. Japanese wage rates have been increasing recently about 15 percent per year, that is, doubling each five years. (Note that since productivity has been rising equally rapidly, labor costs have not increased despite these increases in wage rates. The contrast with the British and U.S. experience over the same time could hardly be more sharp.) Whether this high rate of increase continues, and the 1971-72 reduction in growth rates will no doubt result in some slackening of the rate of wage increase, it can only be expected that wage levels will continue to rise rapidly.

In the case of Germany's rapid growth, subject to much the same kinds of pressures in terms of labor force, the solution was the large-scale importation of labor from such less-developed areas as Southern Italy, Spain, Greece, Yugoslavia, and Turkey. Large-scale immigration into Japan is politically and psychologically most unlikely indeed. The alternative is to move the jobs to the lower-rate labor supply. This will mean (as it already has begun to mean) the establishment of facilities offshore in Taiwan, Korea, and Hong Kong where well-disciplined, inexpensive labor is available in considerable volume.

Trade policy becomes important at this point. Japan needs to find imports from the areas which have less expensive labor that is willing to carry out the labor-intensive manufacturing tasks. By exporting capital and importing product, the trade relationship with these less-developed countries is aided. More important, as noted earlier, Japan is now devoted to a trade policy by which tariffs are kept low on low technology products, and quantitative restrictions are confined to high technology products. That is, domestic producers in labor-intensive, low-technology sectors are being exposed to maximum import competition in such industries as textiles. (Japan has the lowest textile tariffs of any OECD member.) Further, Japan is a high-cost producer of foodstuffs, with an uneconomic concentration of labor in agriculture. Again, imports are the solution both to high domestic costs and to high consumer prices. But this import competition means the shift of the economy, and therefore of the labor force, out of agriculture and the labor-intensive sectors, and makes the labor supply available to the more capital-intensive, high-technology sectors.

The pattern of human resources in the economy then is of a slowly growing labor force, with rapidly increasing skills, and rapidly rising wage levels. The static alternative under these conditions is labor shortage, increasing labor costs, and increasing labor unrest. The dynamic alternative is pressure on the labor-intensive sectors of the economy, displacement of the domestic labor force into higher skill, capital intensive sectors, and a rapid export of capital to move offshore the low-technology, labor-intensive industries to less developed countries. Present Japanese government policy is most explicitly directed to the dynamic alternative.
Financial Resources in the 1970s

What are the high-probability characteristics of the 1970s regarding deployment of Japan's financial resources? We have discussed above the characteristic sourcing of industrial investment funds, and the impact of high use of debt on corporate growth and on pricing. There has been a long-term decline in the importance of the capital market as a source of industrial investment funds, from 36 percent of the total in 1957, to 29 percent in 1963 to only 18 percent in 1969. In parallel, private financial institutions have been the source of 48 percent of investment funds in 1957 and 68 percent in 1969. Even assuming this long-term trend were over the 1970s to be slowed, then stopped, then reversed (and the Fuji Bank for one sees no such reversal in its forecasts), it is clear that through this decade bank borrowings will remain the predominant source of funding.

This brings with it continued commercial bank influence over corporate investment decisions, and a continuation of strong government influence through the Bank of Japan on these decisions. Further, the present pattern of pricing behavior and the pressure of companies to operate at full capacity are likely to remain major factors in Japanese competitive behavior over the decade.

Another long-term trend with critical bearing on the issue of the deployment of financial resources is the fact that personal consumption as a percentage of gross national expenditure has been declining for a long time. Personal consumption was 66 percent of total expenditure in 1953, 56 percent in 1963, and 51 percent in 1969. Despite the fact that taxes (as one measure of government expenditure) account for a very low proportion of GNP, there has been a steady decline in proportion of personal consumption over this period and again, as with sourcing of investment funds, it is difficult to see an abrupt stop and then reversal of this trend line.

It needs to be further noted that over this period from 1953 to 1969, the increase in percentage of gross national expenditure was in the area of private capital formation, reflecting the very high and very rapidly increasing rate of expenditure in capital goods and equipment. Government expenditures over the period as a percentage of the total were nearly constant.

This pattern of expenditure indicates the considerable demand that has built up for expenditures in the government sector—the need for investment in the whole gamut of infrastructure, social overhead needs, from harbor, road, railroad, waterworks, and sewage disposal investment to improvements in schools, hospitals, and social security programs. The 1972 policy reflects both the opportunity and the prospect of a shift in the direction of investment. As the growth of the economy slowed through 1971 and into 1972, and as in consequence private capital investment was held back, demand reflation has been sought through a sharp, 20 percent increase in the national budget, largely in the social overhead category of investment. Looking forward into the 1970s,
it seems reasonable to suppose that increases in national expenditure will take place largely in the public sector, with continued high, but proportionately not increasing, investment in the private capital sector. This probable pattern indicates increased government investment, and with it of course increased government influence over the direction of the Japanese economy. It needs also to be observed that this investment is likely over time to bring about a gradual decline in productivity increases and hence some slowing in the growth rate of the total economy. However, this is likely to be a long-run, gradual effect. In the shorter run, given long underinvestment in the infrastructure, government investment in distribution facilities for example could well provide higher productivity increases than the investment of similar amounts by private industry.

If these are indeed the likely central facts about financial resources in the 1970s, one must conclude that the basic patterns of government-business interaction are likely to remain in full force, that the role of banks in the private sector of the economy is unlikely to change, and that the principal change will be the diversion of resources made available by declining personal consumption into increased government expenditure. This will in time begin to slow the growth rate, but in the short run will have positive consequences for economic growth.

Technology in the 1970s

By the end of the 1960s, Japanese industry rather clearly had reached technological parity with competitors in other developed economies. This had been accomplished largely through the massive importation of technology from all over the world, at a cost far below that required if independent development had been undertaken. (The cumulative total cost to Japan of all technology imported from 1950 to 1971 is about $3 billion, about one-tenth of current annual U.S. expenditure in research and development.)

Clearly Japanese industry must increase its level of investment in research and development. In fact that investment is now at or above Western European levels in terms of amounts, and considerably greater in terms of numbers of personnel deployed. Further, while research expenditure in the West is largely through governmental channels, and has been for a long time (about two-thirds of the total in France, Britain and the United States), most of the expenditure in Japan is by businesses (about two-thirds of the total for the past fifteen years). Thus the Japanese effort is considerable and is much more tightly focused in the commercial area.

Still, this must be considered a question area for Japan in the 1970s. The education level in Japan is high, much higher at all social levels than Western Europe, although lagging still the United States in university graduates. R&D
investment is high, but again lags the United States at least in total sums expended. Can Japan achieve the needed results in terms of technological development necessary to continue rapid growth? The answer must be that no one can know since there is no historical record against which to examine the question. This might prove a real and substantial obstacle to a continuation of Japan’s competitive success. But there is no more basis for a pessimistic answer than an optimistic one—whatever one’s definition in this case of optimism or pessimism.

*Japan’s Focus in the 1970s*

With this brief scan of the three areas critical to economic performance, and mindful of such issues in Japan as pollution control, energy costs, and trade relations, what do these facts lead to in viewing Japan as a competitor economy in the 1970s?

**Continuing Shift to Higher Technology Industries.** The entire thrust of the Japanese economy in the 1970s will be to add more value to imports, to reduce thereby import dependence, and in sequence to lessen export dependence. (A MITI official in private conversation in late 1971 observed, “We have been importing pollution and exporting clean air. We will in the future import pig iron, and export air frames.”)

**Massive Offshore Investment.** Japan has quite ample foreign reserves to finance large-scale foreign investment. Japan has the same incentive to invest offshore as did U.S. companies in the 1950s and 1960s—rising protectionism in export markets and high domestic labor factor costs. Further, offshore investment in the processing of raw materials such as wood fiber and iron ore is pollution-controlling and energy conservative. Offshore investment in labor-intensive operations not only lowers labor costs but relieves domestic pressures on the labor force. Offshore investment in marketing facilities helps to secure and expand export trade positions already established. In sum, a major phenomenon in the 1970s will almost certainly be massive investment by Japanese firms in such countries as Australia, Brazil, Indonesia, and the United States.

The whole complex of factors that is likely to influence Japan in the 1970s comes into play in the basic strategy for the nation’s economy of moving as rapidly as possible to capital-intensive, high-technology industries, and away from labor-intensive, low-technology industries. The changing nature of Japan’s labor force, the continued high availability of investment funds, the domestic requirement for limits on energy demand and for pollution control, the tensions surrounding Japan’s trade relations—all these and more press the nation to a program of steadily displacing its industrial focus away from the low-growth,
low-technology, labor-intensive sectors into those industries that offer relief to these problems. What might these be? In what businesses is Japanese competition likely to intensify in the 1970s? We suggest that they might include the following areas of high Japanese growth:

- High R&D sectors, e.g., computers, electric autos, atomic energy and by-products, advanced circuitry, fine chemicals, synthetic paper, industrial robots.
- Systems sectors, e.g., communications equipment, business machines, automated freight warehousing and transport, numerically controlled production systems, prefabricated housing, centralized heating air-conditioning.
- Software, e.g., data storage, information retrieval, home electronic entertainment.
- Fashion, e.g., apparel, furniture, clothing and cosmetic design.

These are suggestive, rather than definitive, of course, but an examination of the issues confronting Japan, as well as the opportunities, suggests that these are the likely directions of further effort. And in most of these Japan will continue to confront the United States in the thrust of its economic effort as it has in the 1960s.

This appears the likely pattern of development over the decade. Its consequences if effectuated will include the following:

- Continued high growth, 10 percent real increase in GNP per annum.
- Steady yen revaluation against the dollar—perhaps two-three percent per year if inflation rates are comparable in the two countries.
- World’s most free-trading nation.
- Massive overseas investment, similar to the United States in the 1950s and 1960s.

The key questions that arise regarding the probabilities of this pattern working out are:

- Can Japan manage in domestic political terms the continuing shift of resources to high-growth, high-capital investment, high-technology sectors?
- Can Japan manage successfully very high levels of overseas capital investment?
- Can Japan manage its increasing R&D investment to reduce dependence on imported technology?

Assuming Japan manages to deal with these problems of resource allocation, overseas investment management and R&D productivity, it is clear that the
United States and Japan will be in continued competition in key product areas, with resulting continued tension in the relationship through the period. The further prediction may then be offered that through the decade Japan will seek steadily to effect a disengagement from its very deep commitment to the United States, and search actively for viable alternatives to the United States in both the economic and security areas.

Notes
