

# The Changing Commodity Composition of U.S. Imports from Japan

The last several years have brought a surge in U.S. imports from all areas of the world. Especially rapid has been the growth in Japan's sales to the United States, which nearly doubled between 1980 and 1985 and now amount to one-fifth of our total imports (Chart 1).

Magnifying the impact of U.S. purchases from Japan is their high and increasing concentration in key manufacturing sectors previously dominated by domestic producers. Nearly one in five new cars sold domestically is produced in Japan. Japanese capital goods, led by personal computers and other high technology equipment, have been the fastest growing component of imports since 1980. Indeed, last year nearly 7 percent of all investment equipment expenditures by U.S. businesses went to Japanese exporters.

As with our imports generally, purchases from Japan have been boosted substantially by the dollar's rise over 1980-85; presumably, the dollar's recent decline should slow their growth considerably. But whether Japan's most impressive gains in the United States will be reversed is less clear. Quality and cost-efficiency, and rapidly growing U.S. domestic demand, have also contributed to Japanese successes. These factors, together with the dollar's movements, will ultimately determine whether Japan's role in U.S. markets diminishes or continues to increase.

This article examines recent trends in U.S. imports from Japan for the major commodity groups, focusing on capital goods and autos. After identifying the major shifts among the categories since 1980, we analyze the reasons for the changes, and then assess their implications for Japan's future position in U.S. markets. U.S. purchases of Japanese capital goods have grown especially rapidly and their share, both of our domestic market and of total imports from Japan, has increased. The dollar's appreciation over 1980-85, relatively rapid U.S. real demand growth, and a change in the composition of domestic investment spending appear to

be largely responsible for this shift. Our analysis suggests that despite the dollar's fall, U.S. producers will continue to face stiff competition from Japan, and that Japan's share of our total imports is likely to remain high by historical standards.

## Commodity composition

Considerable diversity underlies the remarkable growth of Japanese exports to the United States since 1980: not all categories have fared equally well. Indeed, the commodity composition of our imports from Japan has changed markedly in recent years. These changes reveal that Japan's success in U.S. markets has been less pervasive than is often supposed.

As shown in Table 1, imports of consumer goods (except autos) and industrial supplies from Japan have grown in line with our imports of these products from other areas. Japan's share of total U.S. imports in these categories has changed little since 1980. Our imports of these products from Japan have grown faster than demands for domestic products but so have imports from other areas.

More striking have been the divergent performances since 1980 of the two leading components of U.S. imports from Japan, capital goods and autos. Their current positions also represent a reversal of the 1970s pattern. During most of the 1970s and early 1980s, autos were the dominant U.S. import from Japan, accounting for nearly 40 percent of the total; capital goods were second in importance, but they only moderately exceeded consumer goods and industrial supplies shipments. Spurred by strengthening demand for small cars due to rising gasoline prices, Japan's share of total U.S. auto imports rose rapidly during the mid- and late 1970s, as did its share of the overall U.S. market (Chart 2). By the end of 1980, just before the voluntary export restraint (VER) was imposed, Japanese producers had garnered one-fifth of the U.S. market for new cars.

Since 1980, however, growth in Japanese auto exports to the United States has slowed considerably, and their share

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of total auto imports has dropped by five percentage points.<sup>1</sup> But a surge in U.S. purchases of capital goods from Japan has more than compensated for the sluggishness in autos. Imports of Japanese capital goods have grown nearly five times faster than domestic demand and 50 percent faster than overall capital goods imports. As a result, capital goods now challenge autos as Japan's leading export to the United States. Japanese producers' share of the domestic market has more than doubled, from 3 percent of business investment equipment expenditures in 1980 to 7 percent in 1985.

The rapid growth of Japanese capital goods imports is largely responsible, in an accounting sense, for the increase in Japan's share of total U.S. nonpetroleum imports over the last five years from 19 percent in 1980 to 24 percent in 1985. This increase would have been even greater if the Japanese share of auto imports had not declined.<sup>2</sup> That capital goods have been the fastest growing component of total imports only adds to the significance of Japan's gains: Japa-

<sup>1</sup> Auto imports from Japan grew more slowly in real terms than total auto imports and U.S. demand over 1980-84, but rebounded in 1985 following an increase in the VER quota. The drop in Japan's share of auto imports partly reflects the slower growth in the price deflator for Japanese autos compared with the deflator for auto imports as a whole.

<sup>2</sup> Note, however, that because of the rapid growth of capital goods, Japan's share of total imports would have increased over 1980-85 even if its shares of individual categories had remained fixed at their 1980 levels.

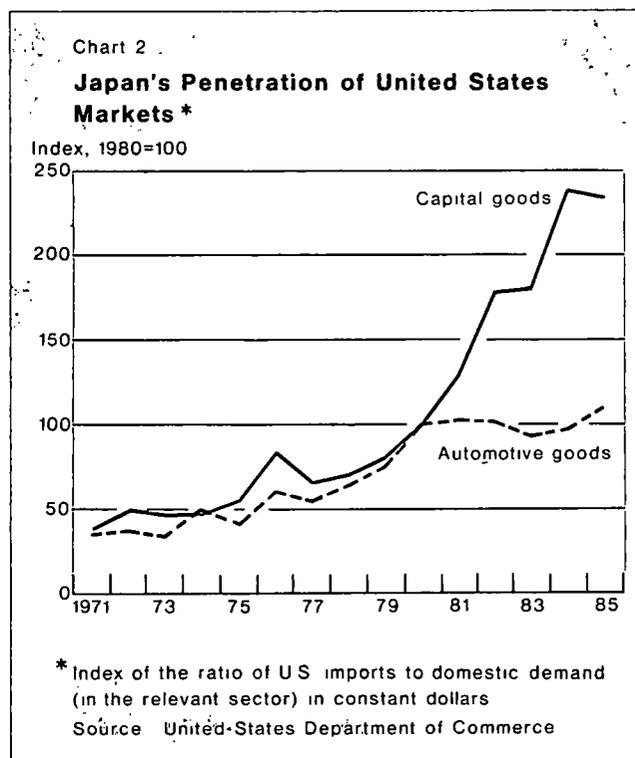
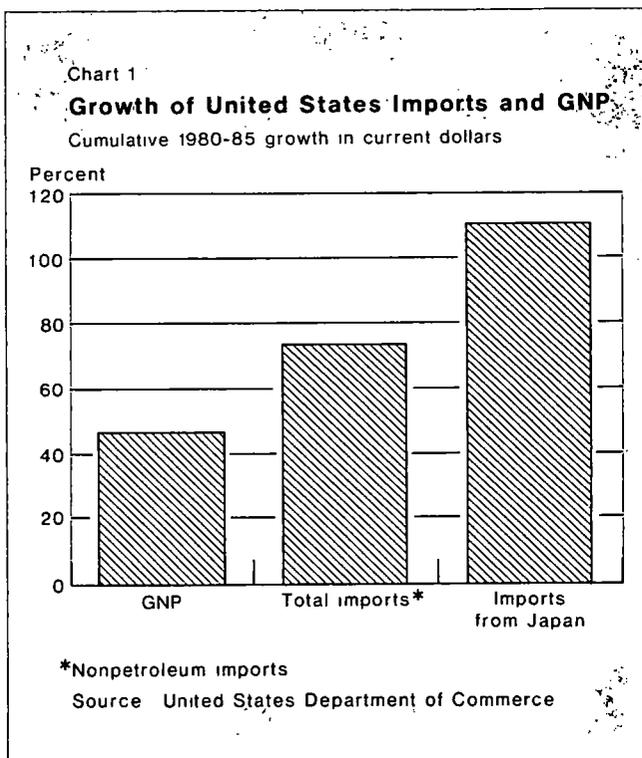
nese producers have strengthened their position in one of the most buoyant sectors of our market.

### Determining factors

Our analysis suggests that the performance of Japanese exports is due not only to macroeconomic trends, such as the dollar's appreciation, but to other factors as well. For example, the most obvious explanation for the relatively slow growth of U.S. auto imports from Japan lies with the VER imposed in 1981. Because of the VER, sales of Japanese autos in this country reportedly have fallen short of demand in recent years.

Capital goods imports from Japan and elsewhere were stimulated by U.S. investment growth during the 1983-85 business expansion,<sup>3</sup> as well as the boost to foreign competitiveness provided by the dollar's appreciation. However, because the dollar rose less against the yen than other major currencies, Japanese exporters may have benefited less than their European competitors. Probably more favorable to Japan has been the shift in U.S. investment spending toward office and store equipment, primarily small computers and copiers. This equipment accounted for 26 percent of producers' durables expenditures in 1984, up from 16 per-

<sup>3</sup> Nearly three-quarters of the increase in capital goods imports over 1980-85 occurred during the recovery from the 1982 recession.



cent in 1980 and less than 10 percent in the mid-1970s Japan has benefited significantly from this shift because it is the major foreign producer and exporter of this type of capital equipment<sup>4</sup>

The relative importance of these factors is of special interest because some of the conditions spurring Japan's gains into the United States are now changing. The most obvious is the dollar's depreciation, an average of 20 percent from its 1985 peak, and to more than 25 percent below its 1980 level against the yen. But other conditions that have favored Japanese exports may continue. New developments that could further enhance the position of Japanese producers, such as relaxation of the VER on autos, cannot be ruled out. Thus the extent to which Japan's advances in our markets will continue, or recede, is not obvious.

To make this assessment, we have used a statistical analysis of the determinants of U.S. imports from Japan during the 1970s to estimate the major contributors to their growth over the 1980s. This analysis also provides a basis for judging the outlook for future competition between the two countries.

As explained further in the box, imports in each category are largely determined by several factors: domestic demand for all products of that type, production costs in Japan (and possibly other countries) compared with those in the United

<sup>4</sup> Office and related equipment accounted for about one-third of total U.S. capital goods imports in 1985, compared with 10 percent in 1980. Japan now supplies 45 percent of these imports, with Asian developing countries supplying another 30 percent. Imports of this equipment from Asian developing nations have grown more rapidly than imports from Japan. European and Canadian capital goods exports are heavily concentrated in industrial machinery.

Table 1

### Import Growth by Major Categories

In percent (trade data for 1985 are preliminary)

|  | Automotive goods* | Capital goods | Consumer goods | Industrial supplies† |
|--|-------------------|---------------|----------------|----------------------|
| 1980-85 real growth                          |                   |               |                |                      |
| U.S. imports from all areas                  | 10                | 15            | 14             | 6                    |
| Imports from Japan‡                          | 10                | 24            | 16             | 7                    |
| Domestic demand                              | 8                 | 5             | 3              | 4                    |
| Japan's share of U.S. imports                |                   |               |                |                      |
| 1976   | 29                | 26            | 19             | 13                   |
| 1980   | 42                | 24            | 18             | 11                   |
| 1985   | 37                | 33            | 20             | 11                   |
| Memo: Share of total U.S. imports from Japan |                   |               |                |                      |
| 1980   | 37                | 23            | 20             | 17                   |
| 1985   | 36                | 32            | 20             | 10                   |

\* Includes auto parts

† Nonpetroleum supplies

‡ Separate import-price indexes for U.S. purchases from Japan are not available. Real growth of these imports was calculated using measures of Japanese production costs, converted to dollars at prevailing exchange rates, as deflators of nominal imports in each category.

States, exchange rates, and several industry-specific factors. For example, an increase in U.S. producers' durable equipment spending should raise demand for Japanese capital goods, increases in Japanese production costs or dollar depreciation should lower imports by raising selling prices or reducing the yen profits to Japanese exporters. In addition, the share of domestic investment in office/store equipment may significantly affect U.S. demand for Japanese capital goods, while higher gasoline prices should favor demand for fuel-efficient Japanese cars.

Table 2 indicates the expected growth of each type of Japanese import over 1980-84 based on these factors.<sup>5</sup> The expectations are very close to the actual increases recorded for capital goods and industrial supplies. U.S. auto imports from Japan grew much more slowly than past relations would suggest, probably because the VER kept actual purchases below the level of demand.

Table 2 also suggests that the dollar's appreciation has contributed significantly to the overall growth of imports from Japan, particularly in consumer goods and industrial supplies where it seems to have been the single most important factor. But the dollar appears to have had less influence on the growth in demand for Japanese capital goods and autos.

Instead, the overall growth and composition of U.S. investment spending appear to account for nearly 80 percent of the exceptional increase in capital goods imports from Japan. Half of this is attributable to the ten percentage point increase in the office/store equipment share of producers' durable equipment spending. In effect, Japan's increased share of our capital goods market largely reflects its concentration in the most rapidly growing component.

In autos as well, domestic activity has been the dominant contributor to demand for Japanese imports.<sup>6</sup> In fact, the figures in Table 2 imply that imports of Japanese autos would have grown nearly twice as fast as actually recorded over 1980-84 if the VER had not been imposed. Although this amount may be overstated,<sup>7</sup> it seems likely that Japanese auto producers would have penetrated significantly further into the U.S. market had it been free from these restraints.

### Prospects

Economic conditions prevailing over the last several years have greatly favored U.S. demand for Japanese exports at

<sup>5</sup> Though final complete data for 1985 were not available, preliminary figures indicate that they would not change our conclusions.

<sup>6</sup> Auto imports from Japan seem relatively insensitive to exchange rate changes, although for reasons discussed in the box, this may be understated.

<sup>7</sup> About half of the residual can be attributed to the VER assuming that Japan's share of auto imports would have remained at the 1980 level in its absence. Allowing for some further increase in Japan's share suggests that perhaps three-quarters of the difference between actual and predicted growth is attributable to the VER. The rising cost of gasoline was a major factor behind the growth of Japanese auto imports after 1973 but became much less important during the 1980s.

## How Different Are U.S. Imports From Japan?

The exceptional growth in U.S. imports from Japan might suggest that there is something unusual about their determinants. However, our statistical analysis of individual categories implies that U.S. demands for Japanese products are largely explainable in terms of factors governing comparable U.S. imports from other areas. Much of the distinctive behavior of aggregate imports from Japan is attributable to their commodity composition, as well as the commodity composition of U.S. demand.

As with purchases from other countries, imports of particular Japanese products (*e.g.*, autos) are heavily influenced by two sets of factors: domestic demand for products of the given type (*i.e.*, cars in general),\* and Japanese exporters' production costs compared to those of U.S. and foreign competitors. Costs determine the price at which a supplier can sell and the profit earned. A rise in Japanese costs is apt to lower our imports, either by raising prices or reducing the exporter's profit. Exchange rates affect imports by altering their cost: a rise in the dollar against the yen, for example, lowers the cost, expressed in dollars, of Japanese exports relative to their U.S. competitors. In many cases, imports from European and other foreign countries will compete with Japanese products, and if so, their costs and exchange rates may also affect our imports from Japan (Appendix, p. 18).

Other industry-specific factors also seem to have affected our imports significantly: Increased capacity utilization in our domestic durable goods industries seems to encourage capital goods purchases from Japan, probably by slowing deliveries from U.S. competitors. The share of our investment spending going to office/store equipment is positively related to demand for Japanese capital goods, as is the relative price of gasoline to demand for Japanese autos (table).

\* Demand is measured by producers' durables spending for the capital goods equation, consumer spending for consumer goods, domestic auto expenditures for autos, and industrial production for industrial supplies.

### Response of Real Imports from Japan to Demand and Exchange Rate Changes

In percent

| Import response   | Capital goods | Automotive goods | Consumer goods | Industrial supplies |
|---|---------------|------------------|----------------|---------------------|
| One percent increase in demand                                    | 13            | 13               | 19             | .08                 |
| One percent rise in dollar versus                                 |               |                  |                |                     |
| All currencies  | 15            | 0                | 22             | 10                  |
| Yen only  | 15            | 0                | 07             | 22                  |
| One percent increase in office equipment share of U.S. investment | 33            |                  |                |                     |
| One percent rise in gasoline price                                |               | 09               |                |                     |

\* Not applicable

The figures in the table confirm that the response of imports from Japan to demand and exchange rate changes is generally similar to that of imports from other areas. Except for industrial supplies, domestic demand growth is associated with more than proportionate increases in imports. This implies that growth itself tends to raise the share of Japanese exports in the U.S. market (although, except for consumer goods, the increase is fairly modest). This pattern is not unique to Japanese products, however. Industrial nations' imports generally seem to respond more than proportionately to their income growth, helping to explain why import-to-GNP ratios have been rising over time. Indeed, the Japanese responses to demand shown in the table are, in general, fairly close to those derived in a recent study by Christopher Rude<sup>†</sup> of total U.S. imports in each major category.

Imports from Japan also seem to be about as responsive to exchange rates as other comparable U.S. imports.<sup>‡</sup> Capital goods imports appear fairly sensitive to changes in the dollar, even though its appreciation seems to have played only a modest role in import growth over 1980-84. The main reason is that strong demand growth dominated the impact of the more modest change in the yen/dollar exchange rate. Auto imports from Japan appear insensitive to exchange rates, but the Rude study suggests that this is the case for U.S. auto imports generally. This insensitivity may also be a statistical illusion. Because the quality of Japanese autos generally has been rising, the measures used in the analysis may overstate true costs and hence mask their influence on imports, as well as the effect of exchange rates. The relative price of gasoline does seem to have been a major influence on our demand for Japanese autos during the 1970s, substantially accounting for their rising share of the domestic market. However, because energy prices since have changed little, this factor appears to have been much less important during the first half of the 1980s.

Finally, our analysis suggests a reason for the especially rapid growth of imports from Japan during U.S. economic recoveries.<sup>§</sup> Business investment, and hence demand for capital goods, are procyclical; that is, they normally grow faster than GNP during business-cycle expansions. Capital goods imports are also procyclical, more so than other major import categories. On this basis, the relatively high capital goods share of Japan's exports to the United States helps explain their more rapid growth than overall U.S. imports during recent expansions. Note, however, that investment and demand for capital goods typically slow substantially as the economy approaches full employment and GNP converges toward its "potential" growth path. For this reason, imports from Japan should not be expected to outstrip our GNP indefinitely.

<sup>†</sup> Christopher Rude, "The Role of the Dollar in the Changing Composition of U.S. Trade, 1980-84," unpublished working paper, Federal Reserve Bank of New York (April 1986).

<sup>‡</sup> The aggregate (volume) elasticity of imports from Japan with respect to changes in the dollar is 1.0, for imports excluding autos it is 1.6.

<sup>§</sup> This pattern was pronounced during the 1976-78 and 1983-85 expansions, when imports from Japan grew much more rapidly than total imports and U.S. GNP.

the expense of domestic products. With the decline in the dollar, falling gasoline prices, and generally slower U S real growth, these conditions are now less favorable. Accordingly, growth of imports from Japan should slow significantly over the next several years. But whether these changes will be sufficient to roll back Japanese gains in our markets since 1980 is doubtful. One reason is that the share of investment spending going to office equipment is likely to remain high,<sup>8</sup> another is that decelerating demand for Japanese autos may not be reflected in imports.

Table 3 gives a projection of the position Japanese exporters might hold in U S markets after the fall in the dollar has fully affected demand. This should not be taken as a forecast but as an illustration of how recent changes in U S economic conditions could affect our imports from Japan.

As might be expected, the dollar's decline should curtail the rapid growth of imports from Japan of the last several years. Indeed, these imports probably will fall in real terms over the next one to two years, in sharp contrast to the first half of this decade. Nonetheless, the projection suggests that roughly 40 percent of Japanese gains since 1980 in the capital goods market will persist, primarily because the composition of domestic investment spending seems likely to continue to favor Japanese producers.

Interestingly, because of the changed energy situation, Japan's share of the U S. auto market may shift little even if

<sup>8</sup> In part, spending on office equipment reflects an increased concentration of investment in services, including wholesale and retail trade. This pattern should persist, at least to a large extent, over the next several years.

Table 2

**Sources of the Growth in Imports from Japan, 1980-84**

Changes in billions of 1982 dollars

| Sources                                     | Capital goods | Automotive goods | Consumer goods | Industrial supplies |
|---|---------------|------------------|----------------|---------------------|
| Actual*                                     | 11.7          | 4.2              | 4.9            | 1.9                 |
| Predicted                                   | 12.0          | 9.3              | 2.7            | 1.7                 |
| Of which attributed to                      |               |                  |                |                     |
| Dollar appreciation                         | 2.9           | 1.0              | 3.6            | 1.1                 |
| U S activity                                | 4.7           | 7.6              | 1.7            | 0.9                 |
| Office equipment demand†                    | 4.8           | ‡                | ‡              | ‡                   |
| Other                                       | -0.4          | 0.7              | -2.6           | -0.3                |
| Unexplained                                 | -0.3          | -5.1             | 2.2            | 0.2                 |
| Memo Cumulative growth 1980-84 (in percent) |               |                  |                |                     |
| Actual                                      | 176           | 34               | 83             | 37                  |
| Predicted                                   | 180           | 73               | 47             | 29                  |

\* U S imports from Japan deflated by Japanese costs of production expressed in 1982 prices

† Measured by the share of office equipment in U S producers' durables expenditures, and applicable for capital goods only

‡ Not included

the VER is removed. The reason is that falling gasoline prices could lower demand for Japanese autos nearly back to the level permitted by the quota, largely removing its effective constraint on imports for several years.<sup>9</sup>

Overall, then, the U S propensity to buy Japanese products is likely to remain high. For U S producers, this means that competition with Japan in domestic markets (as well as in foreign markets) will continue to be fierce. Japanese producers will probably maintain their present share of the U S auto market for the foreseeable future—and could make further inroads if oil and gasoline prices recover. And unless the dollar declines further, or the office equipment share of investment drops significantly, Japanese exporters are likely to capture at least 5 percent of domestic capital goods expenditures, more than double their 1980 share.

**Trade balance**

Finally, the gains made by Japanese exporters also have implications for the U S trade deficit with Japan. Restoration of balance in U S trade would bring a substantial decline in our nearly \$50 billion deficit with Japan.<sup>10</sup> Nonetheless, the

<sup>9</sup> The Table 3 projections assume that three-quarters of the difference between actual and predicted growth in imports of Japanese autos over 1980-84 was due to the VER. If all of the difference is allocated to the quota, its removal would allow a somewhat greater increase in Japan's market share.

<sup>10</sup> See the article by Vincent Reinhart, "Macroeconomic Influences on the U S - Japan Trade Imbalance," this *Quarterly Review*, pages 6-11.

Table 3

**Projected Medium-Term Outlook for Imports from Japan\***

In percent

|  | Autos†        |          |             | Consumer goods | Industrial supplies |
|--|---------------|----------|-------------|----------------|---------------------|
|  | Capital goods | With VER | Without VER |                |                     |
| Ratio of real imports to real domestic demand (Index, 1980 = 100)                            |               |          |             |                |                     |
| 1985   | 230           | 110      | ‡           | 180            | 115                 |
| Projected  | 145           | 110      | 115         | 105            | 75                  |
| Memo Projected average real import growth over the first two years of the projection horizon | -12           | 3        | 5           | -13            | -14                 |

\* Projected positions after several years assuming U S real demand grows at 3 to 4 percent, the dollar stays roughly 25 percent below its 1985 average against the yen and 10 percent below its 1985 average against other foreign currencies, relative price of gasoline stays about 30 percent below its 1985 average, and the office/store equipment share of producers' durables spending is unchanged from the 1985 level.

† Projection with VER assumes imports and domestic demand grow at the same rate. Projection without VER assumes that three-quarters of the 1980-84 residual growth given in Table 2 is restored over the projection horizon.

‡ Not applicable

commodity composition of the two countries' overall trade means that Japan's share of U.S. imports is likely to continue to exceed the share it takes of our exports.<sup>11</sup> In effect, even when its overall trade is in balance, the United States is likely to have a trade deficit with Japan—although a much smaller one than at present.

Substantially because of its inroads in capital goods, Japan's share of total U.S. imports is now five percentage points higher than in 1980. Our analysis suggests that much of this gain will persist. Growth in imports from Japan should decline over the next two to three years, but so should import growth from other areas. The likely composition of investment spending is apt to prevent Japan's share of U.S. capital goods imports from falling substantially below its present level of one-third; and Japan's share of auto imports could as easily rise as fall. On this basis, Japan's share of our overall imports could remain significantly higher than in the late 1970s, perhaps by as much as two to three percentage points or \$5 to \$8 billion in 1985 prices.<sup>12</sup> If so, restoration of overall balance to U.S. trade is likely to leave a significant deficit with Japan.

<sup>11</sup> Japan's imports are dominated by raw materials while its exports are primarily manufactures. For this reason, Japan typically has trade deficits with LDC exporters of raw materials and trade surpluses with the industrial countries. Furthermore, the commodity composition of U.S. imports is similar to that of Japan's exports, autos and capital goods together account for two-thirds of Japan's exports, and nearly half of U.S. (nonpetroleum) imports.

<sup>12</sup> The estimate reflects the increased importance of autos and capital goods in total U.S. imports, as well as Japan's increased share of capital goods.

## Conclusion

By past standards, U.S. imports from Japan have grown very rapidly during the 1980s. The United States now buys almost as much from Japan as it does from Canada, its primary trading partner. To many observers, this performance reflects a combination of Japanese production skills and determination to export that will not be easily offset by the dollar's depreciation.

Our analysis has shown, however, that Japanese producers have not been equally successful in U.S. markets. Capital goods is the only major category where imports from Japan have grown more rapidly than those from other areas. But this growth has been so strong that Japan's aggregate share of U.S. imports has increased—despite the voluntary export restraint on Japanese autos.

Japanese inroads into our markets also appear to be due at least as much to economic conditions in the United States as in Japan. Because of the overall composition of its production, Japan was well-positioned to benefit from the surge in U.S. imports during the 1980s that resulted from our strong domestic demand growth and the dollar's appreciation. Together with a shift in the composition of U.S. investment toward office equipment, these macroeconomic trends largely account for the very rapid growth of Japanese capital goods exports to the United States.

As a result of the dollar's sharp decline, Japanese exports to the United States are apt to grow little, if at all, in nominal terms over the next two years, and should decline in real terms. The result should be a significant improvement in the U.S. trade deficit with Japan. Nonetheless, as long as the composition of U.S. investment is favorable to Japanese capital goods exporters, Japan's share of our imports probably will remain high by pre-1980 standards.

Daniel E. Nolle and Charles Pigott

## Appendix: The Statistical Model

The statistical model includes equations for imports from Japan for capital goods, autos (including parts), consumer goods, and (nonpetroleum) industrial supplies. The form is log-linear, with the dependent variable the value of imports from Japan divided by an index of Japanese production cost converted to dollars at the prevailing exchange rate.\* The predetermined variables (expressed in logarithms) are U S real activity in the relevant category,† the ratio of U S to

Japanese production costs,‡ and industry-specific variables. Capacity utilization in durable-goods industries and the ratio of office/store equipment spending to total producers' durables expenditures are the industry-specific variables in the capital goods equation; an index of the ratio of gasoline prices to the CPI was included in the autos equation. The equations were estimated using quarterly data over 1971-80.

\* Import data are from United States Commerce Department published sources. Japanese production costs were measured by the export unit value index for autos, and by wholesale price indexes for the other categories.

† The demand variables are producers' durables spending, the value of consumer auto purchases, consumption, and industrial production—all expressed in constant (1972) dollars.

‡ This variable was not included in the autos equation because of lack of data, it was dropped from the capital goods equation because of a statistically insignificant coefficient.

### U.S. Imports from Japan by Major Commodity Group: Estimated Equations\*

t-statistics in parentheses

| Independent variables                                | Dependent variables |                   |                   |                     |
|--|---------------------|-------------------|-------------------|---------------------|
|  | Capital goods       | Automotive goods  | Consumer goods    | Industrial supplies |
| U S cost/Japan cost†                                 | 1.46<br>(4.06)      | 0.03<br>(0.09)    | 2.17<br>(2.45)    | 1.03<br>(2.29)      |
| Third countries cost/Japan cost†                     | ‡<br>‡              | ‡<br>‡            | -1.46<br>(-1.90)  | 1.17<br>(2.13)      |
| U S activity   | 1.26<br>(3.21)      | 1.27<br>(4.47)    | 1.86<br>(2.16)    | 0.84<br>(1.23)      |
| Capacity utilization in U S durable goods            | 0.01<br>(1.17)      | ‡<br>‡            | ‡<br>‡            | ‡<br>‡              |
| Share of office equipment in U S producers' durables | 0.03<br>(2.36)      | ‡<br>‡            | ‡<br>‡            | ‡<br>‡              |
| Gasoline price index                                 | ‡<br>‡              | 0.90<br>(7.03)    | ‡<br>‡            | ‡<br>‡              |
| Constant   | -13.74<br>(-2.99)   | -10.99<br>(-2.44) | -19.16<br>(-1.63) | -7.17<br>(-1.22)    |
| Autocorrelation coefficient                          | 0.68<br>(11.35)     | 0.52<br>(3.67)    | 0.73<br>(7.13)    | 0.60<br>(4.65)      |
| F statistic  | 24.32               | 27.31             | 1.94              | 5.65                |
| R <sup>2</sup> (adjusted)                            | 0.97                | 0.93              | 0.78              | 0.64                |
| Regression standard error                            | 0.07                | 0.11              | 0.09              | 0.11                |

\* All variables were expressed in natural logarithms, except capacity utilization in U S durable goods industries and the share of office equipment in U S producers' durables.

† Estimates refer to the total (sum of current and lagged) impact. A second order polynomial distributed lag (4-6 quarters) was used.

‡ Not included.