

Research Department  
Federal Reserve  
Bank of  
San Francisco

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## Detroit vs. Tokyo

Back in the 1950's, a Bank of Japan governor said, "There is no reason to believe that we in Japan may stay competitive with imported cars. Stop manufacturing passenger cars in Japan!" Japanese automakers decided to ignore his advice. Millions of people associated with the U.S. auto industry (but not U.S. consumers) are now sorry that they did.

In 1980, Japan became the world's largest automotive producer—turning out roughly 11 million cars, trucks and buses. In contrast, the U.S. last year produced about 8 million units (including 6½ million autos)—the smallest number of the past 20 years, and a striking comedown for a country which accounted for three-fourths of total world production in the aftermath of World War II. Japan's performance in 1980 was led by exports, which represented more than half of Japanese production, and which soared more than 30 percent in a year when worldwide auto demand dropped about 10 percent. Imported cars (three-fourths Japanese) took over more than one-fourth of the U.S. market (see chart)—and roughly half of the style-setting California market. As a final blow, Japanese and other imports accounted for one seventh of all the cars sold in Michigan, the heartland of the U.S. auto industry.

Domestic sales and production data, consequently, made very disturbing reading in 1980. U.S. auto producers lost an unprecedented \$4 billion last year, and at year-end one-fourth of the automotive workforce was jobless. Cries of alarm soon resounded through the halls of Congress, because this key industry and its suppliers account for roughly one-sixth of the nation's workforce. Detroit's products and services represent 8½ percent of GNP and 25 percent of retail sales. The industry uses 21 percent of the nation's steel, 60 percent of its synthetic rubber, 25 percent of its glass, 20 percent of its machine tools, and so on.

### Quotas and their effects

As quota legislation began to move through Congress, Japan responded this month by announcing that it would "voluntarily" limit imports for the next several years. The plan calls for a 7.7-percent decline in Japanese imports, with Japan limiting car shipments to the U.S. to 1.68 million units in the present year (April 1981-April 1982). The following year, shipments would be held to the same number plus 16.5 percent of the year-to-year growth in U.S. auto sales—and the year after that, Japan would monitor its shipments monthly to "protect against surges."

The domestic auto industry, which had recently deserted its long-held free-trade principles as exports declined and imports mounted, claimed that import limitations would be needed only as a stop-gap measure—since Detroit would be able to compete equally again once it completes its present massive investment in "import fighters." Critics of the agreement (such as Milton Friedman in *Newsweek*) nonetheless argue that "voluntary" restrictions should be resisted because they are a form of tax—an imposed transfer from purchasers to producers of cars. Friedman cites a precedent in the windfall gains obtained by Taiwanese clothing producers who purchase export quotas under the agreements which limit Taiwanese clothing exports to this country.

In the present case, import restrictions mean that the U.S. market for Japanese cars will be about 400,000 units short this year. To many industry analysts, this means that prices of those scarce cars will rise about 5 to 10 percent in the near future—and that prices of competing American makes will rise a comparable amount as U.S. producers (under the Japanese price umbrella) try to increase their badly depleted margins. But these increases in new-car prices, while improving the health of domestic auto producers, could also

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worsen the inflation spiral as indexation formulas transform the price hikes into higher private spending for payrolls and higher government spending for transfer payments. In a word, "import fighters" don't automatically translate into "inflation fighters."

**Detroit's failure and . . .**

How did Detroit get into its present fix? A partial answer is provided by columnist George Will—"In 1973 Egypt attacked Israel and devastated Detroit." The massive change in the world petroleum market after 1973 favored auto producers who made fuel-efficient cars (Japan) and worked against those who made gas-guzzling monsters (Detroit). Until 1973, the North American market was the province of the large V-8, and the economies of large-scale production effectively protected this country from substantial import sales. But the enforced shift to small cars then reversed that advantage.

Detroit generally failed to meet the challenge until after the second (Iranian) oil shock, for several reasons. The industry required long lead times (and massive amounts of money) for engineering and design of new models that were major departures from existing models. Also, its customers, with Detroit's encouragement, showed a continued preference for traditional models. And more importantly, Detroit responded somewhat slowly to the growing demand of some buyers for fuel-efficient models, simply because fuel didn't seem like much of a problem after the initial price shock. The pump price of gasoline (in real terms) remained practically stable for a half-decade, because of a government policy which kept gas prices artificially low through regulation.

**. . . Japan's opportunity**

Japan meanwhile offered a growing supply of products which offered high quality (with flawless paint jobs, for example) as well as reliability (with a low rate of warranty claims). With high gas mileage, plus those other selling points, Japan offered products which were perfectly positioned in the marketplace

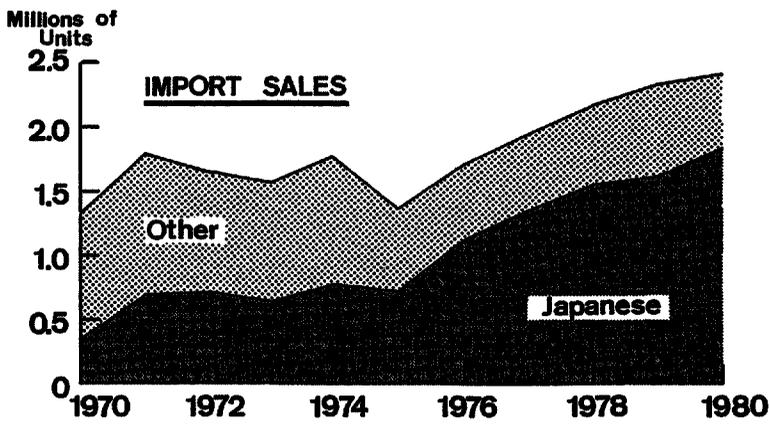
when American consumers recognized the meaning of the latest OPEC price shock and domestic price decontrol.

And the price of the Japanese product was right. Even after paying high transportation and insurance costs when shipping into the U.S. market, Japanese producers boasted a major production-line cost advantage of perhaps \$1,000 to \$1,500 per car, primarily because of wage differentials. The average Japanese auto worker makes only about half as much per hour as his American counterpart (compared with a two-thirds ratio in manufacturing generally). Given 1978 levels of hourly wage rates, and given an estimated 125 manhours of production time for a subcompact car, the comparative U.S. and Japanese production-labor costs in 1978 amounted to \$1,581 and \$817, respectively—a differential of \$764 for labor costs alone.

Japan's market share has not grown steadily, however, but rather in fits and starts since 1973, reflecting the changes in the relative strengths of the Japanese and American currencies. When the yen declined against the dollar in late 1979 and early 1980, the Japanese share of the U.S. market rose to a new peak; but when the yen turned around and rose against the dollar, Japan's auto-market share dropped from 23 to 16 percent between July and October 1980. From Detroit's standpoint, a cheaper dollar thus would be welcome—although that factor appears secondary in light of the major long-term cost advantages in Japan's favor.

**Detroit's response**

Detroit is moving to meet the challenge with the greatest restructuring of operations in the industry's history, featuring automated factories, downsized cars, and the latest forms of computer technology. By 1984, the industry plans to build 30 new engine lines, 19 new transmission lines, and 89 new assembly lines—and this will require more than \$70 billion that is hard to find in today's depressed market. But as a result, by 1985 every one of



Detroit's current models will be replaced with entirely redesigned vehicles offering greatly improved fuel economy. Automakers expect to push the average fuel economy of their fleets to more than 40 miles per gallon by the turn of the century—a vast improvement over the 14 mpg average of 1974. And practically every new model will feature front-drive, a concept that permits the largest possible passenger space within a given exterior shell.

For its investment, Detroit expects substantial increases in efficiency, with major declines in labor and resource inputs over the next half-decade. General Motors, for example, with its forthcoming S car, hopes to slash its current fastest assembly time almost in half, to about 10 hours from the 18 hours now required for an average equipped Chevette. (By comparison, Chrysler's 1979 average assembly time was over 36 hours per vehicle.) With productivity gains of five percent annually, about 200,000 auto-manufacturing jobs could be eliminated by 1985—roughly equivalent to the number of jobs lost during 1980's severe cyclical decline.

Downsizing and automation also have sobering implications for many supplier industries. Four-cylinder engines require the machining of only half the pistons, rings and valves of the eight-cylinder models they replace—and with these smaller and lighter engines, the demand for iron castings may drop by half within the decade. Again, each new compact weighs about one-half ton less than the model it replaces, so that the autos of 1990 may use only half as much steel as today's models use.

#### Whither Detroit?

Moreover, Detroit seems committed to producing more and more of its "domestic" cars in foreign plants. For example, Ford's new world car, although advertised as an "import fighter" in this country, contains parts produced in 12 different countries throughout the world. Much production is already shifting to developing countries, whose low wage

rates and favorable government subsidies help lower automakers' costs on a worldwide basis, enabling them to reduce production and jobs in higher-wage areas. In this respect, Mexican engine plants by 1985 should be capable of producing 1.7 million engines annually—about four times the number needed for the local market.

If U.S. auto demand grew rapidly enough, these various trends might appear less worrisome for Detroit. But with a national fleet of 110 million cars, and with one or more cars in 83½ percent of all households, the domestic market may be nearing saturation. Current estimates of market growth range between 1 and 2½ percent a year—the latter equalling the average industry growth of the past 50 years. The more optimistic estimates assume a strong replacement market, reasonably enough, with the scrappage rate rising as older gas-guzzling models are sent to the junkyard. But the question remains how the market growth of the next decade will be divided—whether Detroit's "import fighters" will take the lion's share, or whether Japanese and other imports will again (as in the 1970's) skim off the entire increase in sales.

By 1985 or 1990, Detroit will be completely transformed. (Ironically, this suggests that the mature American industry could logically use an infant-industry argument in fighting for quotas on imports, because Detroit's 1982-85 models actually represent an entirely new industry.) But the U.S. auto industry, continuing the recent trend, will manufacture more and more of its products in plants scattered around the world, rather than in those concentrated in the Great Lakes states. Locational shifts, plus downsizing and automation, thus presage redundant workers and redundant factories—in autos, steel, rubber, glass, etc.—in the nation's industrial heartland.

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**BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT**

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 4/29/81	Change from 4/22/81	Change from year ago	
			Dollar	Percent
Loans (gross, adjusted) and investments*	148,100	1,009	8,907	6.4
Loans (gross, adjusted) — total#	125,853	1,104	8,407	7.2
Commercial and industrial	37,264	528	2,541	7.3
Real estate	51,922	141	5,438	11.7
Loans to individuals	22,905	83	- 1,546	- 6.3
Securities loans	1,499	- 27	655	77.6
U.S. Treasury securities*	6,546	- 50	131	2.0
Other securities*	15,701	- 45	373	2.4
Demand deposits — total#	40,541	-1,383	- 3,680	- 8.3
Demand deposits — adjusted	28,914	-1,014	- 2,430	- 7.8
Savings deposits — total	30,263	- 731	4,191	16.1
Time deposits — total#	77,132	747	12,247	18.9
Individuals, part. & corp.	68,161	641	12,222	21.8
(Large negotiable CD's)	30,262	605	7,029	30.3
<b>Weekly Averages of Daily Figures</b>	<b>Week ended 4/29/81</b>	<b>Week ended 4/22/81</b>	<b>Comparable year-ago period</b>	
<b>Member Bank Reserve Position</b>				
Excess Reserves (+)/Deficiency (-)	n.a.	n.a.		34
Borrowings	400.8	228.0		88
Net free reserves (+)/Net borrowed(-)	n.a.	n.a.		- 53

\* Excludes trading account securities.

# Includes items not shown separately.

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