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IMPORTED AUTOMOBILES IN THE UNITED STATES: THEIR RISING MARKET SHARE AND THE MACROECONOMIC IMPACT OF A PROPOSED IMPORT RESTRICTION

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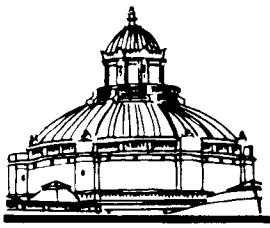

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IMPORTED AUTOMOBILES IN THE UNITED STATES: THEIR RISING MARKET SHARE AND THE MACROECONOMIC IMPACT OF A PROPOSED IMPORT RESTRICTION

INTRODUCTION

After two generations of almost unchallenged supremacy, the U.S. auto industry has recently faced plummenting sales, rising competition from imports, and mounting requirements for capital investment and structural change. This has resulted in massive spilling of red ink in the industry's profit and loss columns, further financial pressures on the ailing Chrysler Corporation, layoffs of nearly 250,000 workers (as of August 4, 1980 in the automotive industry alone according to the United Auto Workers Union) and soaring claims for unemployment compensation and trade adjustment assistance.

While the U.S. industry struggles through this period of major structural change, foreign automobile manufacturers, in particular those from Japan, 1/ are setting records in sales, production, and profits. During 1979 and 1980, sales of imported automobiles reached record highs in the U.S. economy both in terms of the number of units sold and their market share. In 1979, imports captured 21 percent of the U.S. market and tallied 2.3 million units sold. During the first half of 1980, imports accounted for 27 percent of the new car sales with 1.2 million units sold.

1/ For information on the Japanese auto industry, see U.S. Library of Congress, Congressional Research Service, Automobiles Imported From Japan, Issue Brief 80030, March 12, 1980, periodically updated and U.S. General Accounting Office, United States--Japan Trade: Issues and Problems. Washington, General Accounting Office 1979, p. 38-58.

Congress is considering measures to alleviate the situation and in June 1980 passed a concurrent resolution to promote the competitiveness of the U.S. automotive industry in world markets. Other legislative proposals introduced into the 96th Congress would assist the industry through (1) restricting imports, (2) encouraging foreign producers to locate in the United States, and (3) providing incentives for consumers to purchase domestically produced automobiles. On July 31, 1980, a bipartisan "Auto Task Force" was formed in the House to focus attention on and seek solutions to the problems of the auto industry.

On June 12, 1980, the United Auto Workers Union petitioned the International Trade Commission for import relief. On August 5, the Ford Motor Company submitted to the Commission a similiar petition requesting restrictions on shipments of Japanese-built cars and trucks to the United States. The Commission has decided to shorten its investigation by about three weeks and send its final report to the President by November 24, 1980.

On July 8, the President proposed a Federal aid package of nearly $1 billion to assist the industry and ease its transition into production of smaller cars.

This study focuses on import competition in the auto industry and the economic impact of proposals to limit such competition through either import quotas or agreements with foreign governments (Japan) to restrict automotive exports to the United States.

Section I discusses the major findings of this study. Section II examines the data on market shares for imports as well as individual automobile manufacturers. It analyzes changes in auto sales since 1973 and examines the factors contributing to increased demand for foreign autos. Section III provides general background on import restrictions along with a list of current proposals to limit imports of automobiles. Section IV gives detailed results of macroeconomic simulations performed on an econometric model. These simulations estimate the

impact of limits on auto imports under the fairly restrictive proposal that imports be kept to their 1976 level of 1.7 million units and under three different assumptions concerning the consumer's willingness to switch from imports to larger domestic cars.

I. SUMMARY OF MAJOR FINDINGS IN SECTIONS II, III AND IV*

A. The Demand for Automobiles

Production and employment in the U.S. automobile industry has fallen because of several basic factors, only one of which is increased imports. The 1980 recession, continuing inflation, the rising cost of car ownership, and the general downturn in total demand for new passenger cars have also cut deeply into domestic automobile sales.

As detailed in part II of this study, though generally increasing over time, overall automobile demand has shown considerable cyclical variation. Households are quick to postpone new car purchases when economic conditions deteriorate. Auto demand generally leads the rest of the economy into recession.

Since 1973, total automobile sales have risen by as much as 17.2 percent in 1976 and fallen by as much as 22.6 percent in 1974. The number of units sold fell by as much as 2.58 million in 1974 during the worst recession in the postwar period but grew by as much as 1.48 million units in 1976 as the economy recovered.

Viewed from this historical perspective, the drop in auto sales during the recession in 1980, while very severe, has been neither unique nor abnormally deep. Sales during the 1973-75 recession plummented similarly. The major difference for domestic auto producers, however, is that during the current recession,

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the tenacity of import sales in the face of declining total demand has meant that domestic sales have fallen even faster than total U.S. sales.

The demand for imported passenger cars has risen from 1.8 million units in 1973 to 2.3 million units in 1979. While import car sales have trended upward, from year to year their sales path has been quite irregular. Imports reached a peak in 1973, dropped over the next three years, and then in 1977 surpassed their previous peak. In 1978, import sales stagnated, but they surged in 1979 and have increased in 1980. Increases in imports also have not always been associated with decreases in domestic sales. During the seven years since 1973, import car sales rose while domestic car sales fell in only two of the years, 1975 and 1979. In 1973 and 1977, both import and domestic sales climbed, while in 1974 sales of both fell. In 1976 and 1978, import sales fell while domestic sales rose.

B. Market Shares

While the market share of imported passenger cars has climbed from 15 percent in 1973 (also in 1974 and 1976) to 21 percent in 1979, the most pronounced jump has occurred in 1980 when this share rose to 27 percent. Most of the increase in 1980, however, can be attributed to a shrinking of the total new passenger-car market and not to an increase in sales of imports. Import car sales rose only 50,477 units during the first half of 1980 over the first half of 1979, while total car sales fell by 996,523 units. Even if imports had remained at their 1979 level, the import market share in 1980 would still have risen to about 26 percent.

In terms of individual market shares, General Motors at 45.5 percent of the new-car sales still dominates the U.S. auto market. Ford and Chrysler, however, are losing their traditional share, while Toyota and Datsun are enlarging theirs. Still the increase in sales of 60,695 units by Toyota

and 45,158 units by Datsun during the first half of 1980 (compared to the first half of 1979) does not explain the decrease in sales of 392,218 units by Ford and 195,473 units by Chrysler.

Statistics of imports shares have certain weaknesses when they are applied to the automobile market. First, since they are based on units sold instead of retail value, they overstate the percentage of the consumer dollar accounted for by those manufacturers whose average car price is relatively low (in particular those from Japan). Second, they do not indicate the percentage of the consumer dollar going abroad, because about a fifth of the retail price of an imported car includes tariffs, dealer markup, internal transportation, and a variety of options that are added after the car reaches the United States. Third, a market share is a ratio, so it will rise whenever there is a relative increase in imports as compared to domestic sales. An import market share will rise, for example, if import sales decline less than total sales. It will also rise dramatically if total sales fall while import sales remain nearly constant, which is precisely what has been happening during 1980. A rapidly rising import share does not necessarily imply rapidly rising imports.

The outlook for automobile sales (according to Data Resources, Inc.) is for sluggish recovery with imports continuing to account for about one fourth of the unit sales. Total U.S. sales should recover their 1979 level by 1982, but domestic auto employment may not completely recover for years to come. The reason is that Detroit's new generation of fuel-efficient autos requires fewer workers to assemble, partly because of the increased use of robots but also because smaller cars take less work to produce.

C. Macroeconomic Simulations

Table 1-1 summarizes the major results of the macroeconomic simulations.

with regard to consumer response to the import restrictions.

The strong domestic production response simulation presents the most favorable case for import controls. It assumes that all consumers who would be unable to purchase an import because of the restrictions switch to domestic makes. Domestically produced cars would be substituted on a one-for-one basis for the reduced imports.

This strong production response implies that the same number of consumers who would have bought the imports eventually buy larger, less fuel efficient domestic cars. U.S. manufacturers still face capacity constraints in their modern, small car production lines, 2/ so not all consumers who would have bought imports are able to buy a comparable domestic make. Even if the potential purchaser of the import succeeds in obtaining a comparable domestically produced auto, some other customer is then bumped up into the market for a larger U.S. produced car. U.S. small car production is not expected to meet demand until the 1983 model year. 3/

Obviously this strong production response assumption is unrealistic, because current experience with imports (such as the Honda Civic) indicates that many consumers are willing to queue up and wait for the import they want. It does, however, set an upper bound on the economic impact that could be expected from import controls.

The moderate domestic production response assumes that about half of the customers unable to purchase an import because of the restrictions switch to a domestically produced car.

2/ In 1980, some slack appeared in the capacity to produce some rear-wheel-drive relatively fuel efficient U.S. models.

3/ U.S. Congress. House. Committee on Ways and Means. Subcommittee on Trade. Auto Situation: 1980. Committee Print. Gov't. Print. Off., 1980, p. 24-25.

TABLE 1-1. Macroeconomic Impact of Restrictions on Imports of Automobiles, Second Half 1980 to 1982.

Year	Increase in Domestic Sales From Restriction (million units)	Increase in Employment in Transportation Equipment Manufacturing Industry	Increase in Total Employment	Increase in Real GNP (%)	Reduction in Deficit in Merchandise Trade (billion dollars)	Reduction in Federal Government Budget Deficit (billion dollars)
			Strong Domestic Production Response:			
1980	0.3	12,000	34,000	0.2	4.2	1.9
1981	0.9	49,000	195,000	0.6	9.8	5.6
1982	1.0	59,000	264,000	0.6	9.7	6.9
			Moderate Domestic Production Response:			
1980	0.2	8,000	28,000	0.2	4.7	1.6
1981	0.4	24,000	133,000	0.4	12.0	3.9
1982	0.5	25,000	143,000	0.3	13.3	3.6
			Weak Domestic Production Response:			
1980	0.1	5,000	23,000	0.1	5.1	1.4
1981	0.1	9,000	72,000	0.2	13.8	2.2
1982	0.1	7,000	43,000	0.0	15.9	1.3

Note: Based on a reduction in auto imports of 300,000 units in 1980, 800,000 units in 1981, and 900,000 units in 1982.

The weak domestic production response assumes that restrictions on imports cause 100,000 customers per year to turn to domestic makes. While low, with the shortages of small, fuel efficient domestic cars, this assumption is not completely unrealistic. This case sets the lower bound on the economic impact of import controls.

The level of auto import restriction assumed in the simulations is the actual 1976 import level or 1.7 million units. This corresponds to the quota requested by the United Auto Workers' in their petition to the International Trade Commission. It is smaller than the proposed restriction analyzed by the Council of Economic Advisers which would limit imports to their 1979 level (2.3 million units) but larger than the approximately 1 million units if imports were restricted to 10 percent of the U.S. market (H.R. 6645).

The period covered in the simulations begins from the second half of 1980 and extends through the end of 1982.

D. Employment Effects

As shown in Table 1.1, if imports were limited to their 1976 level of 1.7 million units, 4/ domestic employment in the transportation equipment manufacturing industry would increase by an estimated 5 to 12 thousand persons in 1980, 9 to 49 thousand persons in 1981, and 7 to 59 thousand persons in 1982. The actual increase would depend on the extent of the domestic production response. The figures assume no other countries retaliate by imposing restrictions on U.S. auto exports.

These estimates of the increase in direct employment in the auto industry and suppliers imply an average of 17 vehicles per new employee. This is some-

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4/ Imports for 1980 would be 2.1 million units, because the restriction would apply only to the second half of the year.

what conservative, since estimates from the Department of Transportation indicate that historicially the U.S. Big Three automakers have averaged 0.072 labor years per unit or 12 to 14 vehicles per worker. 5/ With the reduced labor requirements of Detroit's new generation of cars, however, these estimates appear to be reasonable.

The estimated employment effects are important because they show that even under the most generous assumptions, the largest increase in the auto industry and supplier employment that could be generated by limiting imports to their restrictive 1976 level would be around 50,000 jobs. Considering that some 250,000 workers were reported to be on indefinite layoff in August 1980, import restrictions alone cannot be expected to eliminate or even greatly reduce current unemployment in the auto industry. Under the most pessimistic assumptions, according to the simulation, employment in the auto industry and its suppliers could rise by as few as 9,000 persons.

Employment in the auto industry is undergoing fundamental change. With the increase in gasoline prices, recession, inflation, high interest rates, increased uncertainty in society, and the large increases in the price of new cars, consumers are simply not buying as many new passenger cars. In addition, the new generation of smaller cars is taking fewer worker hours to produce.

At the end of December 1978, 2.04 million persons were employed in the transportation equipment manufacturing industry. Even with import limitations and the assumption of a strong production response, simulated employment in that industry rises to only 1.85 million persons by 1982 or 195,000 fewer

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5/ The U.S. Department of Labor estimates that in 1976, an increase in domestic auto production of $100 million creates 971 jobs. This implies about 16 vehicles per job in the auto and related industries. See U.S. Congress. House. Committee in Ways and Means. Subcommittee on Trade. World Auto Trade: Current Trends and Structural Problems. Hearings. March 7, 18, 1980. Washington, U.S. Gov't. Print. Off., 1980, p. 306.

than in 1978. Hence, even under highly restrictive import controls and assumptions most favorable to the domestic industry, the prospects for the bulk of the auto workers currently on indefinite layoff being rehired over the next two years is bleak.

With auto imports at the 1976 level, the increase in total U.S. employment (assuming no retaliation by trading partners) in the simulations ranges from 23 to 34 thousand in 1980, 72 to 195 thousand in 1981, and 43 to 264 thousand in 1982. Again the actual increase depends on the assumptions made about the willingness of the consumer to switch from a foreign to a domestically produced car.

These estimates imply about 2 to 4 vehicles per job created economy wide. This is in accord with estimates by the Bureau of Labor Statistics (BLS), which indicate that each job in the auto industry supports 2.2 jobs elsewhere in the economy. Hence, taking the Department of Transportation's figure of 12 to 14 vehicles per direct job and using the 2.2 figure for secondary jobs created, each 12 to 14 vehicles should generate 3.2 jobs in the whole economy. This implies a ratio of about 4 vehicles per worker economy wide. 6/

The simulations produce employment effects that are somewhat greater than those expected from the static ratios estimated by BLS. This can be attributed to two factors. First, the DRI model takes into account the secondary impact of rising income and GNP on further purchases of domestic cars. Second, the model assumes that the increase in demand for domestically produced automobiles is a net addition to total demand and not merely a diversion of consumer demand from the foreign to domestic sector. The later assumption is not totally accurate because most dollars spent on imports

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6/ In 1976 an average of 3.6 autos generated one job economy wide. (Based on U.S. Department of Labor Statistics in U.S. Congress, World Auto Trade, op. cit., p. 308.)

eventually find their way back into the U.S. economy through purchases of U.S. exports.

E. Effects on GNP, Trade, Prices, and Federal Budget Deficit

The effect of the import restrictions on GNP varies from an increase of 0.1 to 0.6 percent, again depending on the willingness of the consumer to switch to a larger domestically produced automobile. As is the case with economy-wide employment, however, these results are probably slightly high because the model assumes that the increase in demand for U.S. automobiles is autonomous and those dollars would have not been spent in the U.S. economy otherwise.

A major effect of the import restrictions would be to improve the balance in the merchandise trade of the United States. The U.S. deficit in merchandise trade is reduced by about 10 to 15 billion per year in 1981 and 1982 depending on the consumer willingness to switch to U.S. cars. The largest gains in net merchandise exports come in the simulation assuming a weak domestic production response, because with GNP and income rising less, consumers buy fewer imported goods.

The model, however, could be overestimating the effect on the balance of trade, because it assumes the decrease in sales of imports arises because of reduced demand and not import restrictions. The demand for small cars is considered to be such that a 10 percent reduction in availability is accompanied by a 10 percent increase in prices. (Elasticity of demand coefficient of -1.) 7/ Even if imports were restricted, their price could rise enough to compensate for reduced sales, so that improvement in the balance of trade could be slight until capacity constraints on domestic small car production

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7/ Toder, Eric. Trade Policy and the U.S. Automobile Industry, New York: Praeger Publishers, 1978.

are overcome. 8/

Unfortunately, the inflationary impact of auto import restrictions cannot be accurately estimated by the macroeconomic simulations. The problem is that the DRI model is not structured to account for excess demand for small cars that would be generated by import restrictions. It assumes that the drop in imported car sales stems from a fall in demand and not import quotas. Any price effects in the model, therefore, arise from excess demand economy-wide and not within the automobile market.

Based on separately estimated demand elasticities, however, the simulated import restrictions could increase small car prices by approximately 16 percent, large car prices by 0 to 5 percent, and all consumer prices by 0.4 to 0.6 percentage points. 9/

A cursory examination of imported car prices in the Washington D.C. area during the summer of 1980 and of advertisements in the automobile trade publications corroborate these estimates. Many hot selling imports in short supply command markup premiums of about 10 percent ($400 to $500). Formal import controls would push these premiums up further.

If imports were restricted, moreover, foreign producers would probably stop sending their smallest models to the United States. Because the foreign

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8/ Even with no domestic capacity constraints, the elasticity generally will not decrease unless domestic manufacturers are willing to underprice imports. If import licenses are auctioned, however, the increased profits from the higher prices would accrue to the U.S. Government.

9/ These estimates are computed from elasticities used by the President's Council of Economic Advisers. (See U.S. Congress. Senate. Committee on Banking, Housing, and Urban Affairs. Subcommittee on Economic Stabilization. The Effect of Expanding Japanese Automobile Imports on the Domestic economy. Hearings. 96th Congress, 2nd Session, April 3, 1980. Washington, Gov't. Print. Off., 1980, p. 77-80.) The computations assume no slack in domestic small car production, so that a reduction in imports of 31.5 percent in 1982 causes a 15.75 percent fall in the availability of small cars, since imports account for about half of the small car market.

company would be limited to exporting a certain number of vehicles to the U.S. market, it would tend to send the more expensive, higher profit, and less-fuel-efficient models. This is merely another way of raising prices.

The federal budget deficit would also be reduced by between $1.4 and $1.9 billion in 1980, $2.2 and $5.6 billion in 1981, and $1.3 and $6.9 billion in 1982 depending on the assumption concerning domestic production response. This effect is attributable to increased tax receipts and decreased expenditures for unemployment insurance benefits.

Section IV contains more detailed results of the simulations as well as the estimated impact on the unemployment rate, net exports, balance of payments, state and local government budget deficits, and national demand for energy.

II. SHIFTING MARKET SHARES IN AUTOMOBILE SALES 1973-1980*

Since the Model T Ford, automobiles have held a place in American life somewhere between football and apple pie. Certainly foreign countries have had their versions of cars too, but somehow those autos seemed to be designed either for royalty without regard to cost or for commonfolk without regard to comfort.

For many years Detroit seemed content to relegate about 15 percent of the U.S. passenger car market to imports. They appeared willing to relinquish the following of customers who bought either an expensive Mercedes-Benz which was unique or an inexpensive Volkswagen which was parsimonious both in fuel usage and in generating producer profits.

Imported cars, however, have now gained wide acceptance among U.S. consumers. In California, where many of the national trends are set, for example, imported cars account for about half of all new car sales.

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Much of the blame for the current problems in the U.S. automobile industry has been placed on these imports. The primary evidence of the increased competition from imports has been the rising share of total sales accounted for by imported passenger cars. This paper examines this market share to determine the major factors behind its rise. It also briefly reviews the determinants of demand for automobiles and provides data on past sales levels as well as an outlook for sales during the remainder of 1980 and for 1981.

A. Automobile Demand

The demand for new automobiles has grown substantially over the past thirty years, but it has done so with considerable cyclical variability. In the short term, in fact, automobile sales have been highly volatile. The main reason for this volatility lies in the nature of the product. New passenger cars are classified as durable consumer goods (or business investment). As such, buyers can often control both when and whether they purchase cars. While most households consider an automobile to be a necessity, they can vary the number of vehicles they own, their cost, and vintage according to income, tastes, expectations, and special needs.

Automobile demand can be examined from either a general or specific viewpoint. The general or macroeconomic level of demand deals with how many new passenger cars are sold in a given time period. The specific or microeconomic level of demand considers how particular manufacturers or groups of manufacturers are performing within the context of that total demand.

The overall demand for new automobiles generally depends on both macroeconomic (economy-wide) and microeconomic (industry or household) conditions. The relevant macroeconomic variables include changes in disposable personal income, the rate of unemployment, inflation, interest rates, and general consumer confidence

and expectations. Microeconomic variables include the price of new automobiles compared to other consumer purchases, the availability of consumer credit, the cost of operating a vehicle (in particular the price of gasoline), and product differences.

1. Macroeconomic Behavior

The way in which the various macroeconomic variables and conditions influence total automobile demand is mostly self-explanatory. When real disposable personal income declines or unemployment rises during a recession, for example, consumers will tend to buy fewer new cars. The same holds true when interest rates rise or credit is restricted. Expectations also play a key role in auto demand. Prior to and during recessions consumers become more uncertain about future income. They might even anticipate being laid off, so they shy away from purchases of durable consumer goods, such as cars. During the past four recessions, for example, the downturn in automobile sales has tended to lead the downturn in the economy. 11/

Economy-wide inflation, even if the price of new cars rises no faster than the general price level, tends to reduce demand for new cars. Inflation raises the cost of production and, therefore, the price of new vehicles but no longer affects the cost of production of used vehicles. In times of rapid inflation, therefore, used cars (in particular one owned by the prospective buyer) become relatively more attractive than new cars, because the cost per mile of usage remaining in used cars tends to be less than in new cars whose price is rising rapidly. Consumers, therefore, tend either to buy more used cars or retain the car they might already have.

11/ Turley, James E. Automobile Sales in Perspective, Federal Reserve Bank of St. Louis review, v. 58, June 1976, p. 14.

Inflation during the 1970s also fell more heavily on the cost of car ownership than all consumer purchases. By 1980, the cost of car ownership had risen 32.3 percent more than general consumer prices (using 1972 as the base year). In 1979 alone, car-ownership costs rose by 19.1 percent and are forecast to rise by 23.7 percent in 1980. 12/

The effect of varying macroeconomic conditions on the demand for new automobiles is illustrated in Table 2-1. The levels of new passenger car sales for the years 1973 to 1979 along with annual changes both in the level of sales and in percent are shown along with the market share for imports and the growth rate of real GNP. Note that the annual percentage change in total units sold varied from a high 17.2 percent increase in 1976 to a 22.6 percent decrease in 1974. The number of units sold fell by as much as 2.58 million in 1974 during the worst recession in the postwar period but grew by as much as 1.48 million units in 1976 as the economy recovered. Viewed from this historical perspective, the drop in auto sales during the recession in 1980, while they very severe, was neither unique nor abnormally deep. Sales during the 1973-75 recession plummented similarly. 13/

Since sales by domestic manufacturers comprise the bulk of total U.S. sales, domestic sales levels have generally moved in parallel to the pattern set by total sales. A decline in total sales has always meant a decline in domestic sales. At times, the percentage changes in domestic compared to total sales have been different, but as shown in Table 2-1, the direction of change has been the same.

12/ Data Resources Incorporated, Review of the U.S. Economy, July 1980, p. 1.28.

13/ See Turley, op. cit., for description of similar movements in car sales over the past four recessions.

The demand for imported cars, however, has not always tracked total U.S. demand. During 1975, for example, even though total sales fell by 2.7 percent, import sales rose by 11.4 percent. 14/ Conversely, in 1976 and 1978, while total sales were rising, import sales were falling. During 1979 and through the first half of 1980, import sales have risen despite the decline in total sales.

14/ From the peak to trough of the 1969-70 recession, import auto sales rose 40.9 percent while domestics fell 36.2 percent.

TABLE 2-1. U.S. and Import New Passenger Car Sales, Import Market Share, GNP Growth Rate. Units and Annual Changes, 1973-79

	1979	1978	1977	1976	1975	1974	1973
Total Sales	10,647,442	11,300,477	11,168,708	10,097,602	8,614,524	8,852,768	11,435,847
Annual Change	-653,035	131,769	1,071,106	1,483,078	-238,244	-2,583,079	498,149
Percent Change	-5.8	1.2	10.6	17.2	-2.7	-22.6	4.6
Domestic Sales 1/	8,328,055	9,307,563	9,104,454	8,606,573	7,050,120	7,448,921	9,669,689
Annual Change	-979,508	203,109	497,881	1,556,453	-398,801	-2,220,768	348,187
Percent Change	-10.5	2.2	5.8	22.1	-5.4	-23.0	3.7
Import Sales 2/	2,319,387	1,992,914	2,064,254	1,491,119	1,564,404	1,403,847	1,766,158
Annual Change	326,473	-71,340	573,135	-73,285	160,557	-362,311	149,962
Percent Change	16.4	-3.5	38.4	-4.7	11.4	-20.5	9.28
Import Market Share (%)	21.8	17.8	18.5	14.8	18.2	15.9	15.4
Real GNP Growth Rate (%)	2.3	4.4	5.3	5.9	-1.3	-1.3	5.5

1/ Domestic sales include imports from Canada.

2/ Import sales do not include cars imported privately by tourists.

Source: Based on Ward's Automotive Yearbook, annual issues.

In general, the demand for imports has risen since 1973, but whether their rise has been the primary cause of the decline in domestic car sales is difficult to ascertain from the data in Table 2-1. While the trend in import sales has been upward, from year to year their path has been quite irregular. Imports reached a peak in 1973, dropped over the next three years, and then in 1977 surpassed their previous peak. In 1978, import sales stagnated, but they surged in 1979. Increases in imports also have not always been associated with decreases in domestic sales. Of the seven years covered in Table 1, imports rose while domestic sales fell in only two of the years, 1975 and 1979. In 1973 and 1977, both import and domestic sales climbed, while in 1974 sales of both fell. In 1976 and 1978, import sales fell while domestic sales rose.

2. Microeconomic Behavior

The microeconomic aspect of automobile demand concerns the performance of particular manufacturers or groups of manufacturers in terms of their share of the total market or other criteria. This aspect is the demand for specific types of cars within the total automobile market and is determined by relative prices, fuel economy, quality, reliability, styling, safety, advertising, and other features. Of major interest to this study is the competition within the market for automobiles between domestic and foreign manufacturers. Recently imports appear to have been increasing their market share because of a combination of the microeconomic factors listed above.

Relative fuel efficiency has distinctly favored imports. In general, gas economy can both encourage and dampen the sales of new American passenger cars. With soaring gasoline prices, a new car that is more fuel efficient is more attractive than an old gas guzzler. Obviously, the greater the fuel economy of a new car, the more the consumer can reduce his cost of operation by trading

in his old and buying a new. While most new car buyers are currently switching from large, old American cars to smaller more efficient new American cars, they can usually achieve even larger reductions in operating costs by moving from large American cars to even smaller and more fuel-efficient foreign cars.

Of course, not all imports have higher gas economy ratings than comparable U.S. products. In the 20 to 30 miles-per-gallon range, for example, fuel economy of domestic autos compares favorably with that of imports. In terms of absolute levels of fuel efficiency, however, imports command a clear lead. In 1980, of the 25 models sold with EPA gas mileage ratings exceeding 30 miles per gallon, all were imports. 15/

The acquisition price relative to alternative makes is also an important factor in the consumer's decision. Next to a home, a car is the largest purchase most consumers ever make. The purchase price of an automobile combines with fuel economy to determine total monthly outlays for auto transportation. Except for high mileage users, even though a new car might be more fuel efficient, the lower fuel cost will probably not completely offset the increased monthly payments for the purchase of the new car. The consumer, therefore, looks for a combination of fuel efficiency and price in order to minimize his acquisition and operating costs. While this has increased the demand for most fuel-efficient domestically produced cars, in many cases, it has meant purchasing an import.

The price of some imports, such as Mercedes and Jaguar, far exceed those of domestic autos, but the prices of most imports, in particular those from Japan are concentrated at the lower end of the spectrum. In 1980, for example, all four models with suggested retail price less than $4,000 were imports. Of the 37 models retailing between $4,000 and $5,000, 25 were imports while

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15/ U.S. Environmental Protection Agency, EPA 1980 Gas Mileage Guide.

only 12 were domestics. Import dealers, however, are often reluctant to let the hottest sellers go off the lot without loading them with options that boost the sticker price considerably. 16/

An examination of Detroit's pricing pattern over the past few years indicates that it does not intend to compete with imports by greatly underpricing them. Inexpensive U.S. small cars have all but disappeared from the market. In fact, today's small cars can cost more than big cars that are not selling well. 17/ Chrysler's new K-model compact cars (Aries and Reliant), for example, are scheduled to cost about 20 percent more than the larger models they replace and appear to be priced to be competitive more with General Motors' X-cars than with imports. 18/

Quality and reliability have also become major concerns of the buying public. This heightened awareness stems from the adverse publicity about and rising cost of repairs, the time loss and inconvenience of auto breakdowns, and the anxiety associated with driving a car that is prone to mechanical failure--especially in traffic on an expressway.

In the quality of its products, the evidence from a variety of sources indicates that Detroit lags considerably behind imports from Japan and Germany. According to a survey conducted by Ward's Auto World, even engineers from the U.S. automobile companies considered the best quality cars in the world

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16/ Bohr, Peter. Are Imports Really Better? Money, v. 9, August 1980, p. 42-49.

17/ The Year Car Prices Turned Upside-Down, Consumer Reports, v. 45, April 1980, p. 219-20.

18/ Pasztor, Andy. Chrysler's 'K'-Cars to Cost Over $6,000; Some Versions to Retail for About $7,000. Wall Street Journal, August 12, 1980, p. 3.

to be produced in Japan. 19/ In Germany, the ADAC Motoring Club in an analysis of roadside breakdowns it attended in 1979, concluded that the vehicles requiring the least assistance were made by Toyota, followed by Honda and Mercedes-Benz. 20/

For reliability, one of the most frequently consulted sources for consumers is the magazine, Consumer Reports. Each year the magazine gathers data from its readers on the frequency of repairs for automobiles. Table 2-2 summarizes the overall ratings for passenger cars by showing the number of models falling into each repair frequency class. Note that autos produced by U.S. manufacturers are clustered around frequency of repair ratings of average, but there are a considerable number of models scoring worse or much worse than average. Imports from Japan and Germany, however, nearly all scored either better or much better than average. Particularly noteworthy is that with the exception of one Japanese car sold under a Chrysler nameplate, all Japanese cars scored in the much-better-than average category. 21/

Whether the quality differences between imports and domestics are real or imagined, Detroit may have difficulty convincing the consumer that its new generation of small, fuel-efficient cars are equal in quality to the imports from Japan and Germany.

19/ Waddel, Richard and Ervin Maus. U.S. Engineers Rank Imports Tops, Ward's Auto World, March 1980, p. 48.

20/ Japanese and German Cars Score High on Reliability, Automotive News, July 14, 1980, p. 14.

21/ Frequency of Repair Records, 1974-1979, Consumer Reports, v. 45, April 1980, p. 263-72.

TABLE 2-2. Reliability of Passenger Cars as Measured by Frequency of Repair Records. 1979 (or 1978)

MANUFACTURER	NUMBERS OF MODELS SCORING: Much Better Than Average	Better Than Average	Average	Worse Than Average	Much Worse Than Average
General Motors	--	8	22	8	6
Ford	--	4	13	4	3
Chrysler	--	2	3	3	5
AMC 1/	--	--	2	1	1
Total Domestics	--	14	40	16	15
Toyota	3	--	--	--	--
Datsun (Nissan)	5	--	--	--	--
Honda	3	--	--	--	--
Other Japan 2/	6	1	--	--	--
Total Japan	17	1	--	--	--
Volkswagen	2	1	1	--	--
Mercedes-Benz	2	--	--	--	--
Other German	1	3	--	1	--
Total German	5	4	1	1	--
Total Sweden/Norway	1	1	1	--	--
Total Italy	--	--	--	--	1
Total France	--	--	1	--	--
Total Imports	23	6	4	1	1
Grand Total	23	20	44	17	16

1/ Ratings for the Gremlin and Matador were for 1977.

2/ Includes captive imports sold under Chrysler Corp. nameplates.

NOTE: Data excludes pickup trucks, vans and recreational vehicles. 1978 data were used if 1979 data were unavailable.

Source: Based on Frequency of Repair Records, 1974-1979, Consumer Reports, April 1980, p. 263-272.

Domestically produced cars do, however, rate higher than imports in some respects. In tests of crashworthiness, comfort, as well as in costs of scheduled maintenance and collision repairs, U.S. produced automobiles generally score better than imports. The data compiled by the Highway Loss Data Institute bodes particularly well for the new generation of U.S. small cars. It shows that the 1980 cars with the lowest relative average loss payment per insured vehicle year were the Buick Skylark, Chevrolet Citation, and Pontiac Phoenix, which are all new X-body cars by General Motors. The cars with the highest relative average loss payment per insured vehicle year were the Toyota Celica, Mazda RX7, and Pontiac Firebird. 22/

For the American consumer, however, fuel efficiency, price, and the rising reputation for quality in imports appear to have more than offset the higher costs of scheduled maintenance and repairs from collisions or lower safety ratings. These factors appear to have converged in 1979 and 1980 to bolster the sales of imported passenger cars.

B. Market Shares

A market share or market penetration ratio measures the proportion of total sales accounted for by a seller or group of sellers. In the new passenger car market, the usual measure of market share is the percentage of units sold (not the percentage of the retail sales dollars).

22/ Highway Loss Data Institute, Automobile Insurance Losses Collision Coverages, Initial Results for 1980 Models, Washington, 1980, p. 6. U.S. Congress. House. Committee on Ways and Means. Subcommittee on Trade. Auto Situation: 1980. Committee Print. Washington, Gov't. Print. Off., 1980, p. 49-52.

1. Weaknesses of Market Share Measures

Market share data in terms of units sold are commonly used because they can be collected easily without revealing information about pricing strategies or costs of production for particular manufacturers. These data, however, have certain weaknesses as estimates of sales shares. One problem is that all cars do not cost the same. In 1980, new car prices ranged from a low $3,699 (Honda Civic) and $4,119 (Chevette Scooter) to $22,857 (Cadillac Fleetwood) and $36,886 (Mercedes-Benz 450SEL), not to mention a Rolls Royce. The average import does not cost the same as an average domestically produced car, so the market share based on units sold will not reflect the true proportion of the consumer dollar taken by imports.

In 1979, for example, the average customs value of an imported car at the U.S. port of entry ranged from $4,001 for those from Japan, $6,439 for those from Germany, $6,574 for those from Sweden, to $6,713 for those from the United Kingdom. The average for all imported cars (excluding imports from Canada) was $4,716. 23/ At the retail level, the average imported car sold for $6,760, while the average domestic car cost $7,032. 24/

Table 2-3 provides data on the value of retail sales of new passenger cars from 1973 through June 1980. Note that in 1973, 12.6 percent of the dollars spent on automobiles went to purchase imported cars. This is 2.8 percentage points under the 15.4 market share in Table 2-1 based on the number of units sold. The difference between the two measures of market share, however, narrowed during the 1970s until by 1979, the two were only 0.7 of a percentage point apart.

23/ Based on U.S. Department of Commerce, U.S. General Imports, December 1979, Washington, U.S. Gov't. Print. Off., 1980, p. 2-190.

24/ Based on unpublished data from the U.S. Bureau of Economic Analysis.

The explanation for this narrowing is not that the price of imported cars has been rising relative to the price of domestic cars. As of the second quarter of 1980, the price index for domestic autos stood at 160.5 while that for imported autos was 160.6 (based on 1972=100). Prices for both domestic and imported cars have risen at virtually the same rate since 1972.

A more plausible explanation for this narrowing of the difference between the two measures of market share is that the decline in the purchasing power of households combined with the soaring price of gasoline has forced consumers to buy less expensive, domestically produced cars. This brings the average amount spent on a new car into closer range whether it be imported or domestic.

TABLE 2-3. Value of U.S. Domestic, and Import New Automobile Sales With Market Shares, 1973-1980

	1980 1/	1979	1978	1977	1976	1975	1974	1973
Total U.S. Auto Sales ($ million)	67,384	74,243	72,811	65,730	55,502	43,120	39,484	46,700
Domestic Sales 2/ ($ million)	49,961	58,563	60,962	55,151	48,087	36,196	33,811	40,825
Share (%)	74.1	78.9	83.7	83.9	86.6	83.9	85.6	87.4
Import Sales ($ million)	17,423	15,681	11,849	10,579	7,415	6,924	5,673	5,875
Share (%)	25.9	21.1	16.3	16.1	13.4	16.1	14.4	12.6

1/ Seasonally adjusted annual rates, based on data through second quarter, 1980.

2/ Includes imports from Canada.

Source: Based on U.S. Bureau Economics Analysis, unpublished data. Summaries of this data are available in the Survey of Current Business.

The market share also overstates the percentage of the consumer's automobile-buying dollar that goes abroad. The country exporting to the United States receives only the wholesale price of the car. The tariff, internal shipping costs, dealer markup, and a variety of options (undercoating, paint sealer, rust-proofing, body mouldings, etc.) are performed with U.S. labor and usually with U.S. supplies. In 1978, for example, the imported auto industry is estimated to have spent $3.694 billion in the United States including $2.08 billion in payroll expenses, $627 million for services purchased, $607 million for taxes, and $380 million for materials and components purchased. 25/ Some of these expenditures, of course, went for servicing, and not selling, imported cars.

In 1979, the retail value of imported cars totaled $15.681 billion, of which about $12.058 billion represented the import value of the cars 26/ and $3.623 billion the value added after arriving in the United States. The share of the auto sales dollar going abroad in 1979, therefore, was approximately 16 percent and not the 21.8 percent one might infer from the market share based on units sold.

In summary, the market share based on units sold tends to overstate the percentage of the consumer's automobile dollar spent on imported cars. The amount of this overstatement, however, has been narrowing during the 1970s. The market share also overstates the percentage of the consumer dollar going abroad, because about a fifth of the price of the imported car represents value added after it entered the United States.

25/ Harbridge House, Inc. The Imported Automobile Industry, June 1979, p. 45.

26/ $10.982 billion customs valuation for imports in 1979 plus $1.076 billion decrease in inventories of imported cars.

2. Import Market Shares

With the aforementioned caveats in mind, the market shares for imports, domestics, and individual manufacturers can now be examined. As shown in Table 2-1, the market share for imports has grown from 15.4 percent in 1973, to 18.5 percent in 1977, and 21.8 percent in 1979. This share has increased even further to 26.9 percent for the first half of 1980 (see Table 2-4).

Most of the increase in the market share between 1979 and 1980, however, can be attributed to the shrinking of the total new passenger car market and not to an increase in sales of imports. Import sales rose only 50,477 units while total sales fell by 966,523 units. Even if imports had remained at their 1979 level, the import market share would have risen to about 26 percent.

The huge decrease in sales by domestic manufacturers during the first half of 1980 is shown in Table 2-4. Domestic sales dropped by 23.6 percent (1,047,000 units) to only 3,399,176 units. This rivals the severity of the slump at the bottom of the last recession (first half of 1975) when only 3,260,978 domestically produced units were sold.

During the first half of 1980, Japan and France registered the largest gains in sales and market share. France, however, sells so few cars in the United States that its sales have little effect on the entire market. Sales of imports from Japan, however, rose by 9.6 percent and accounted for 21.7 percent of the new passenger car market. 27/

27/ The number of vehicles imported from Japan during the first half of 1980 rose 31.8 percent over the first half of 1979. Many of these vehicles, however, went to build inventories and were not sold.

TABLE 2-4. Number of New Passenger Cars Sold, Percentage Changes, and Market Shares in the U.S. by Country

	First Half 1979 to First Half 1980		
	Jan. 1 to June 30 1980	Jan. 1 to June 30 1979	Percent Change (%)
Total U.S. Sales	4,651,081	5,647,604	-17.7
Domestic Sales	3,399,176	4,446,176	-23.6
Share	73.1%	78.7%	
Import Sales	1,251,905	1,201,428	4.2
Share	26.9%	21.3%	
From Japan	1,011,264	922,374	9.6
Share	21.7%	16.3%	
From Germany	150,446	165,379	-9.0
Share	3.2%	2.9%	
From Sweden/Norway	34,404	38,910	-11.6
Share	0.7%	0.7%	
From Italy	24,901	36,650	-32.1
Share	0.5%	0.7%	
From France	19,009	14,665	29.6
Share	0.4%	0.3%	
From United Kingdom	11,881	23,450	-49.3
Share	0.3%	0.4%	

Source: Based on Automotive News, July 14, 1980. p. 46.

Table 2-5, shows the units sold and market shares for individual manufacturers By far General Motors with its 45.5 percent market share dominates U.S. sales of new passengers cars. GM has even maintained its market share against imports. Although its sales have declined by 18.4 percent, they have fallen about the same rate as total U.S. sales.

TABLE 2-5. Number of New Passenger Cars Sold, Percentage Changes, and Market Shares in the U.S. by Major Producers

		First Half 1979 to First Half 1980		
		Jan. 1 to Jan. 30, 1980	Jan. 1 to June 30, 1979	Percent Change
Total U.S. Sales		4,651,081	5,647,604	-17.7
General Motors:	Sales	2,111,849	2,590,616	-18.4
	Share	45.5	45.9	
Ford Motor:	Sales	781,587	1,173,805	-33.4
	Share	16.8	20.8	
Chrysler Corp:	Sales	327,758	523,231	-37.4
	Share	7.1	9.3	
Toyota:	Sales	315,845	255,150	23.8
	Share	6.8	4.5	
Datsun (Nissan):	Sales	280,890	235,732	19.2
	Share	6.0	4.2	
Honda:	Sales	188,168	190,809	-1.4
	Share	4.1	3.4	
Volkswagen (Domestic)		96,194	85,533	12.5
(Imports)		43,796	48,573	-9.8
Total Sales		139,990	134,106	4.4
Share		3.0	2.4	
Mitsubishi 1/:	Sales	81,260	92,944	-12.6
	Share	1.8	1.7	
American Motors:	Sales	78,788	72,991	7.9
	Share	1.7	1.3	
Mazda (Toyo Kogyo):	Sales	74,297	78,193	-5.0
	Share	1.6	1.4	
Subaru (Fuji):	Sales	70,804	69,546	1.8
	Share	1.5	1.2	
Mercedes-Benz:	Sales	26,113	28,668	-8.9
	Share	0.6	0.5	

1/ Mitsubishi cars are sold as "captives" under Chrysler nameplates.

Source: Based on Automotive News, July 14, 1980, p. 46.

The U.S. manufacturers who are experiencing the greatest difficulties are Ford and Chrysler. Ford's sales have declined much faster (-33.4 percent) than total U.S. sales, which has resulted in a sharp reduction in Ford's market share from 20.8 percent for the first half of 1979 to 16.8 percent for the same period in 1980.

Chrysler, with sales levels about half of Fords, reported similar declines both in sales volume and market shares so that in the first half of 1980, it accounted for only 7.1 percent of the market. Chrysler, however, still outsold any foreign company in the U.S. market.

After the U.S. big three come imports from Japan. Toyota and Datsun (Nissan) both command similar market shares of about 6 percent and have been experiencing increasing sales. Each sells approximately one fourth of its production of automobiles in the United States.

Honda saw its sales decline during the first half of 1980, not because of lack of demand, but because of constraints on output capacity and possibly a corporate decision to tread easily in the U.S. market in which it plans to begin auto production.

Since Volkswagen has been shifting its production from Germany to the United States, Volkswagen imports have been declining. Total sales in the United States, however, are rising, so the company is recovering some of the sales lost when its beetle dropped in popularity.

Among the manufacturers with market shares of less than 2 percent are the remaining Japanese producers, American Motors, and the other European producers. Mitsubishi cars, sold as Chrysler captive imports such as the Dodge Colt and Plymouth Arrow, declined in sales. Since Mitsubishi reportedly plans to begin marketing its cars under its own name in the near future, and since Chrysler now has small, fuel-efficient cars of its own, Chrysler has not been pushing

sales of the Mitsubishi captive imports. Chrysler's financial troubles have probably also hindered sales.

American Motors has been holding its own, although it has previously lost much of its traditional market share and still faces considerable difficulty.

In summary, the market share data indicate that during the first half of 1980, GM has held steady while Toyota and Datsun have been increasing their shares mainly at the expense of Ford and Chrysler. Still the increase in sales of 60,695 units by Toyota and 45,158 units by Datsun does not explain the decrease of 392,218 units by Ford and 195,473 units by Chrysler.

While import competition continues to erode sales of domestically produced cars, Detroit has been hit even harder by the gasoline shortage in 1979, the rising cost of operating a car, high interest rates, dwindling consumer confidence, rising unemployment, and all of the other negative influences of the recession. Hence, the Detroit bumper sticker proclaiming that U.S. auto unemployment is made in Japan appears to be not altogether accurate, but the tenacity of import sales in the face of declining demand has certainly not helped domestic auto manufacturers or their workers.

The next section of this report addresses the questions of how much of the increase in the market shares of the manufacturers can be attributed to rising sales and how much is due to the shrinking market.

3. Decomposition of Market Share Shifts

A market share is determined by dividing the sales of a certain manufacturers by the total market sales. Hence, market shares can increase either by the manufacturer's sales rising faster than total sales, the manufacturer's sales rising while total sales fall (as is the case with Toyota, Datsun, Volkswagen, American Motors, and Subaru) or the manufacturer's sales falling less than total sales (as is the case with Honda, Mitsubishi, Mazda, and Mercedes-Benz).

Table 2-6 shows the two factors contributing to the increases in market shares for passenger cars for the first half of 1980. It divides the increases in the market share to that attributable to increased sales by the manufacturer and that attributable to decreased total sales.

Note that for all imports, only 17.5 percent of the rise in the market share in 1980 can be attributed to increased sales. The vast majority of the increase in the market share for imports stems from the shrinking of the total market for autos.

TABLE 2-6. Sources of Increases in Market Shares for Passenger Car Sales, First Half 1979 to First Half 1980

	Attributed to Increased Corporate Sales (%)	Attributed to Decreased Total U.S. Sales (%)
Total Imports	17.5	82.5
Imports from Japan	32.2	67.8
Toyota	52.4	47.6
Nissan (Datsun)	47.4	52.6
Subaru	8.5	91.5
Honda	-7.7	107.7
Mitsubishi (Chrysler)	1/	2/
Mazda	-35.7	135.7
Other		
Volkswagen (Include Domestics)	18.1	81.9
American Motors	28.2	71.8
Mercedes-Benz	-92.6	192.6

1/ Exceeds - 100 percent

2/ Exceeds + 200 percent

NOTE: The following manufacturers had decreasing market shares: General Motors, Ford, Chrysler, Fiat, Jaguar, MG, Opel, Porsche, and Triumph. Additional manufacturers with increasing market shares include Alfa Romeo, Audi, BMW, Lancia, Peugot, Renault, Rover, Saab, and Volvo.

Source: Based on data in Tables 2-4 and 2-5 using the method in the Mathematical Notes to Table 2-6.

For Toyota and Datsun, however, about half of their increase in market share can be attributed to higher sales or sharpened competitiveness in the U.S. market. Volkswagen and American Motors also indicate increased competititeness, albeit from a smaller base.

Since so much of the increase in market shares for imports can be attributed to the decline in total sales, the obvious question to ask is when, if ever, can sales be expected to recover.

C. Sales Outlook

According to a forecast by Data Resources Inc., for the remainder of 1980, auto sales are expected to improve slowly and reach a total of 9 million units (down 15 percent from 1979). Domestic sales are projected to fall to a low 6.6 million units (down 21 percent) which will make 1980 the worst sales year in almost two decades. Imports are expected to rise to 2.4 million units (up 3 percent) and account for about 28 percent of the units sold. 28/

This bleak outlook for domestic and total sales stems largely from normal recession effects and shortages of small, fuel-efficient cars produced domestically. Consumer attitudes have also deteriorated. In a recent survey by the University of Michigan, 61 percent of the consumers thought conditions were unfavorable for purchasing an automobile (compared with 48 percent a year earlier). Although credit is becoming more available and less costly, consumer debt continues at burdensome levels. The recession continues to reduce purchasing power. The cost of car ownership, meanwhile, continues to rise faster than the general price level.

28/ DRI, op. cit., p. 1.26-1.28.

In 1981, import sales are expected to increase only modestly as Detroit puts its new generation of smaller gas efficient cars into full production. Total car sales are expected to recover sluggishly and rise to 9.5 million units with imports accounting for 26.6 percent or 2.5 million units.

According to DRI total sales are not expected to recover to their 1979 level until 1982. By then, domestic sales should also regain the 8 million mark. Even with the recovery in domestic sales, however, auto worker employment may never rebound completely, because the new generation of autos requires fewer workers on the assembly line. This is partly because of increased use of mechanical robots to enhance quality but also because smaller cars take less work to assemble than large cars.

D. CONCLUSION (Section II)

Though generally increasing over time, overall automobile demand has shown considerable cyclical variation. Households are quick to postpone new car purchases when economic conditions deteriorate. Auto demand generally leads the rest of the economy into recession.

Import cars have become more popular with the U.S. consumer because of greater fuel economy, lower acquisition price, and high quality ratings. Domestic cars, however, have the advantage in terms of safety, comfort, and cost of scheduled maintenance and collision repairs.

The market share for imported cars has risen from 15.4 percent in 1973 to 21.8 percent in 1979 and 26.9 percent during the first half of 1980. Most of the increase in this share for 1980, however, can be attributed to the shrinking of the total new passenger-car market and not to an increase in sales of imports. Import car sales rose only 50,477 units over the first half of 1979 while total car sales fell by 996,523 units. Even if imports

had remained at their 1979 level, the import market share would still have risen to about 26 percent.

Statistics of import shares have certain weaknesses when they are applied to the automobile market. First, since they are based on units sold instead of retail value, they overstate the percentage of the consumer dollar accounted for by those manufacturers whose average car price is relatively low (in particular those from Japan). Second, they do not indicate the percentage of the consumer dollar going abroad, because about a fifth of the retail price of an imported car includes tariffs, dealer markup, internal transportation, and a variety of options that are added after the car reaches the United States. Third, a market share is a ratio, so it will rise whenever there is a relative increase in imports as compared to domestic sales. An import market share will rise, for example, if import sales decline less than total sales. It will also rise dramatically if total sales fall while import sales remain nearly constant, which is precisely what has been happening during 1980. A rapidly rising import share does not necessarily imply rapidly rising imports.

As far as individual producers are concerned, General Motors with its 45.5 percent market share still dominates the U.S. auto market. Ford and Chrysler, however, are slipping, while Toyota and Datsun are gaining. Still the increase in sales of 60,695 units by Toyota and 45,158 units by Datsun during the first half of 1980 (compared to the first half of 1979) does not explain the decrease in sales of 392,218 units by Ford and 195,473 units by Chrysler.

While import competition continues to erode sales of domestically produced cars, Detroit has been hit even harder by the recent gasoline shortage, soaring gasoline prices, the rising cost of operating a car, high interest rates, dwindling consumer confidence, rising unemployment, and all the other negative

influences of the recession. For Detroit, the recession could not have come at a more inopportune time.

The outlook for automobile sales is for sluggish recovery as imports continue to account for about one fourth of the unit sales. Total U.S. sales should recover their 1979 level by 1982, but domestic auto employment may not completely recover for years to come. The reason is that Detroit's new generation of fuel-efficient autos requires fewer workers to assemble, partly because of the increased use of robots but also because smaller cars take less work to produce.

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Mathematical Notes to Table 2-6

Changes in market shares can be attributed to either increased sales by individual manufacturers or decreased total sales as follows:

Let m = market share

c = sales by a corporation

s = total U.S. sales

$$m = c/s$$

$$\log m = \log c - \log s$$

$$d \log m = d \log c - d \log s$$

$$1 = \frac{d \log c}{d \log m} - \frac{d \log s}{d \log m}$$

The above equation says that the total percentage change in the market share can be decomposed into the percentage change in corporate sales and the percentage change in total U.S. sales. The natural logarithm is used to avoid problems of discrete time periods in compounding.

III. IMPORT RESTRICTIONS*

A. General Background

The import restrictions being proposed take either the form of formal quotas limiting the number (not value) of imported automobiles or a negotiated agreement with Japan to restrict automotive exports to the United States. Whether the restriction is administered on the U.S. or Japanese side makes little difference in terms of its impact on U.S. output, employment, and balance of trade (unless import rights are sold). It does, however, affect U.S. government revenues and expenditures.

The immediate economic impact of an import quota on automobiles would be to restrict the quantity and create and artificial shortage of imported cars. This shortage would drive up prices, first for imported cars, second for domestically produced cars directly competing with imports, and third, to a lesser extent, for domestically produced cars not directly competing with imports. The quota would, course, reduce sales of imports and would tend to increase sales of domestically produced automobiles.

The higher prices for imported cars would reflect only an artificial scarcity and not increased costs of production. Higher profits per unit, therefore, would accrue to both domestic and foreign producers selling in the United States.

The groups in the United States who would gain from an import restriction on autos would be the domestic automobile producers plus their employees, suppliers, and retailers. The groups who would lose would be the retailers and suppliers of the imported automobile industry plus consumers of both imported and domestic automobiles. Consumers would face higher prices and

* By Dick K. Nanto, Analyst in International Trade and Finance.

fewer choices in the automotive market. In essence, an import restriction on automobiles is equivalent to transferring income from all consumers and the imported auto industry to the domestic auto industry.

Economy wide, even though the immediate effect of import restrictions is to increase both employment and GNP, when possible retaliation by other countries and reduced U.S. exports are taken into account, total U.S. employment and GNP could fall. The highly restrictive Smoot-Hawley tariff in the early 1930s is a classic case in point.

A weakness of import restrictions is that they do not discriminate in their effect. The largest financial gains from them would likely accrue to General Motors even though Ford, Chrysler, and American Motors appear to be the companies most injured by foreign competition. General Motors holds a 45 percent market share and offers a wide range of passenger cars in the compact and subcompact range. In 1979, for example, General Motor's Chevrolet Division alone sold as many passenger cars as the entire Ford Motor Company and nearly as many as all of the imports combined. General Motors, however, has not publicly endorsed the proposed import restraints.

Even though import quotas are used by nearly all countries, they violate the spirit of the General Agreement on Tariffs and Trade. The Agreement does, however, allow for an "escape clause" by which quotas can be imposed to keep imports from severely disrupting domestic markets.

The justification for import restrictions is usually couched in terms of increased employment in a particular industry. For expanding economy-wide employment, however, traditional monetary and fiscal policies are probably more efficient and less damaging to external economic relations. In the case of automobiles, however, unemployment is geographically concentrated in the auto-producing States and among a group of workers many of whom do not have specific skills that are readily transferable to other industries.

Monetary and fiscal policies would generally require that a sizeable proportion of these workers move into other industries and possibly into other States.

In general, import restrictions tend to decrease the efficiency of an economy, 29/ since they encourage the misallocation of resources toward the protected industry. In the case of automobiles, however, the large number of unemployed workers along with low capacity utilization rates at some plants indicate that production could be increased without reducing the resources available to the rest of the economy. The increased employment in the domestic auto industry, however, would be offset, somewhat, by the displacement of workers in the imported auto industry.

A type of "infant industry" argument can be presented in favor of auto import restrictions. The premise is that domestic auto producers basically are able to compete successfully with imports, but they need some time to bring out their own line of high-mileage cars. During the late 1970s, the American automobile industry appears to have underestimated the impact of the soaring petroleum prices on the demand for small cars. In a sense, they were misled by a similar shift to small cars in 1973 which was transitory. The current shift, however, appears to be permanent. In a recent poll, 56 percent of the owners of a full-size domestic car said they wanted a small one. Domestic automobile producers are in the middle of an expensive program to downsize their product lines, but need more time to complete it. Import restrictions could buy that time.

29/ See for example, U.S. Federal Trade Commission. Staff Report on Effects of Restrictions on United States Imports: Five Case Studies and Theory. Washington, Govt. Print. Off., 1980.

Import restrictions could also force foreign producers to set up assembly plants in the United States. This would create more domestic auto industry employment.

B. Proposals to Restrict Automotive Imports

Several bills introduced into the 96th Congress would limit imports of automotive products. H.R. 6645 would impose a quota on imports of automobiles, trucks, and specified engines of 10 percent of the annual domestic consumption for a five-year period beginning in 1981. H.R. 6718 would impose an annual quota for those foreign manufacturers selling more than 200,000 units per year in the United States based on their actual 1979 market share as applied to 1.5 million units. H.R. 7803 would impose quotas on imports of automobiles, trucks and certain engines for a five year period. H.R. 7957 would authorize the President to enter into temporary agreements with foreign nations to limit the importation of automobiles and trucks.

Several Congressional resolutions, both joint and concurrent, would call for the President to enter into negotiations with the Japanese Government to restrain exports of automobiles to the United States. These include House Concurrent Resolutions 363 and 380, House Joint Resolution 580, and Senate Joint Resolution 193.

In the United Auto Workers petition to the International Trade Commission, one of the measures requested is a formal import quota based either on the 1976 import level of 1.71 million new passenger cars or on the smaller 1975 import level of 1.34 million cars. 30/

30/ See U.S. Library of Congress. Congressional Research Service. The United Auto Workers Petition for Relief From Import Competition in Automobiles: A Review and Analysis. By Dick K. Nanto. Typed report, August 18, 1980, 10 p.

IV. THE MACROECONOMIC IMPACT OF IMPORT RESTRICTIONS ON AUTOMOBILES: ECONOMETRIC SIMULATIONS*

This section will provide some basic information on the likely macroeconomic consequences of a policy imposing import quotas on automobiles under alternative assumptions as to the extent of the response of domestic auto production to such a policy.

The probable qualitative and quantitative macroeconomic impact of a policy to restrict automobile imports can be determined through the use of a large-scale econometric model of the U.S. economy. By reducing the assumed magnitude of auto imports in the model to the proposed level of restriction, it is possible to trace through the repercussions of this change on a variety of macroeconomic performance characteristics such as GNP, employment, Government expeditures, and the balance of payments over the next few years. The results of such an exercise are reported here.

The Data Resources Inc. (DRI) macro-econometric model is used to simulate the national economic response to the imposition of import quotas on automobiles. Specifically, it is assumed that auto imports are held to 1.7 million units (the 1976 level) for the period beginning in the third quarter of 1980 and ending in the fourth quarter of 1982.

In the DRI model the structure of the "unit auto sales" equation is such that any reduction in imported automobile sales causes an offsetting increase in domestic auto sales. The model's assumption is that the total demand for autos is not affected by the foreign-domestic product mix. This production response pattern, however, may not be very realistic. Limited domestic production capacity for small fuel efficient cars may preclude any sizable increase in

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domestic small car output in the near term. Some increased production of large domestic cars for which significant production capacity does exist may result. But on balance, the current situation in the auto industry indicates a domestic production response to import quotas that is far less than the one-for-one tradeoff implicit in the unadjusted DRI model structure would be more appropriate. At present, however, there exists no uncontested opinion as to what the domestic production response would be. For that reason, three alternative domestic production responses to imposition of an import quota will be structured into the DRI model and the macroeconomic performance of the economy examined in each of the three cases.

A. Constructing Three Alternative Simulations

The three alternative import quota simulations are developed from the July 1980 control solution of the DRI model named CONTROL 072280. This model solution represents DRI's most probable forecast as to the likely direction of the macroeconomy through 1982. The three import quota simulations were developed from the control solution in the following way. First, the unit sales of foreign automobiles was reduced to an annual rate of 1.7 million units for the entire solution interval. This change is the same in all three alternatives. Compared to the control solution this leads to a reduction in expected unit imported car sales of 300,000 units in 1980, 800,000 units in 1981, and 900,000 units in 1982. Second, the unit sales of domestic automobiles were changed to reflect three possible responses to the import quota. The first alternative assumes a strong production and sales response of one-for-one sales shift from foreign sales to domestic sales. The second assumes a moderate response with domestic sales increasing approximately one-half the change in the first case. The third assumes a weak production response

with domestic sales increasing only 100,000 units. 31/ Thus, three separate simulations were developed, all alike in the extent of import restriction, but different as to the domestic automobile production response.

B. Simulation Results

Alternative 1. Strong Response. As Table 4-1 reveals, in this simulation domestic auto sales and production increase (approximately) one-for-one with the assumed import restriction (the ultimate increase is somewhat greater because of the positive indirect effect on vehicle sales of rising income that results from increased domestic production). It is not surprising that in this alternative there is a strong increase in industrial production in the auto industry (up over 12 percent in 1981 and 1982) compared to the control solution and in turn an increase of employment in the tranportation equipment industry between 50 and 60 thousand workers over the interval between 1980 and 1982.

Table 4-2 presents the macroeconomic effects of this outcome in comparison to the control solution. By 1982, real GNP increases by better than one half percent over the control; economy-wide employment is up 300,000 workers, and the unemployment rate down by two tenths of a percentage point. The most sizable impact, not surprisingly, is on the balance of payments with large reductions in the payments deficit (on each of the major bases). A further result, also revealed in Table 4-2 is a significant reduction in the budget deficits (or increase in the surplus) of the Federal, State and local Governments. This improvement results from increased tax receipts that accompany increased personal and corporate income and reduced expenditures for unemployment benefits that occur in this simulation.

31/ This domestic production response is consistent with estimates made recently by the President's Council of Economic Advisors. See footnote 9.

The DRI simulations show no significant increase in the price level mainly because of the way the model is structured. The model does not account for excess demand for small cars. It assumes that the drop in imported car sales stems from a fall in demand and not import quotas. Any price effects in the model, therefore, arise from excess demand economy-wide and not within the automobile market. The direct impact of import quotas on the rate of inflation, therefore, cannot realistically be estimated by the DRI model.

TABLE 4-1. Case 1: Strong Domestic Production Response, Industry Effects

Key: A = Case 1, B = Control, D = A - B, % = D/R * 100.

Imported Car Sales (Units)

	1980	1981	1982
A	2.1	1.7	1.7
B	2.4	2.5	2.6
D	- 0.3	- 0.8	- 0.9
%	-11.9	-31.5	-33.6

Domestic Car Sales (Units)

	1980	1981	1982
A	6.8	8.1	9.3
B	6.5	7.3	8.3
D	0.3	0.9	1.0
%	4.8	12.2	11.9

Total U.S. Car Sales (Units)

	1980	1981	1982
A	8.9	9.8	11.0
B	8.9	9.7	10.9
D	0.0	0.1	0.1
%	0.3	1.1	1.1

Industrial Production, Autos (Index)

	1980	1981	1982
A	1.017	1.242	1.502
B	0.970	I.103	1.340
D	0.047	0.139	0.163
%	4.8	12.6	12.1

Employment, Transportation Industry (Millions)

	1980	1981	1982
A	1.820	1.733	1.850
B	1.808	1.684	1.791
D	0.012	0.049	0.059
%	0.7	2.9	3.3

TABLE 4-2. Case 1: Strong Domestic Production Response, Macroeconomic Effects

Key: A = Case 1, B = Control, D = A -B, % = D/B * 100.

Real GNP (1972 $)

	1980	1981	1982
A	1413.2	1434.5	1497.7
B	1410.3	1426.4	1489.4
D	2.9	8.2	8.3
%	0.2	0.6	0.6

Consumption Price Deflator (Index)

	1980	1981	1982
A	1.554	1.668	1.778
B	1.554	1.668	1.780
D	0.000	0.000	0.002
%	0.0	0.0	-0.1

Employment (Millions)

	1980	1981	1982
A	96.956	97.793	100.732
B	96.922	97.598	100.468
D	0.034	0.95	0.264
%	0.0	0.2	0.3

Unemployment (Rate)

	1980	1981	1982
A	7.5	8.3	7.5
B	7.5	8.4	7.7
D	-0.0	-0.2	-0.2
%	-0.4	-2.0	-2.8

Net Exports (Exports-Imports $)

	1980	1981	1982
A	0.8	-2.5	-12.4
B	-3.6	-12.9	-22.1
D	4.4	10.4	9.7
%	-122.2	-80.7	-43.8

TABLE 4-2. Case 1: Strong Domestic Production Response, Macroeconomic Effects (continued)

Key: A = Case 1, B = Control, D = A - B, % = D/B * 100.

Balance of Payments, Current Account

	1980	1981	1982
A	3.0	2.7	-4.1
B	-1.4	-7.7	-13.8
D	4.4	10.4	9.7
%	-309.4	-135.5	-70.5

Balance of Payments, Merchandise Account

	1980	1981	1982
A	-25.5	-28.9	-36.2
B	-29.7	-58.7	-46.0
D	4.2	9.8	9.7
%	-14.2	-25.4	-21.2

Federal Government Budget Deficits (-)

	1980	1981	1982
A	-48.9	-61.8	24.3
B	-50.9	-67.4	-31.2
D	1.9	5.6	6.9
%	-3.8	-8.4	-22.0

State and Local Government Budget Deficits

	1980	1981	1982
A	18.7	18.9	22.9
B	18.3	17.6	22.0
D	0.4	1.3	0.9
%	2.2	7.3	4.2

National Demand for Energy (Quadrillion BTU)

	1980	1981	1982
A	75.8	75.6	77.1
B	75.7	75.4	76.8
D	0.1	0.3	0.3
%	0.1	0.4	0.4

Alternative 2. Moderate Response. This simulation incorporates a more moderate domestic production and sales increase approximately amounting to one-half the number of imports eliminated. The results show industrial production in autos would increase by about 5 percent by 1982 and sector-wide employment would increase by about 25,000 persons above the result of the control solution.

The broader macroeconomic effects are presented in Table 4-4. Qualitatively the macroeconomic results for GNP and employment are similar to Alternative 1, but, as would be expected, the magnitude of changes that occur in this case are significantly smaller. Real GNP is up 3 to 4 tenths of a percentage point, and employment economy-wide is up 100,000 workers. The balance of payments continues to exhibit significant improvement.

The simulations show a small reduction (0.2 to 0.3 percent) in the rate of inflation. This is unrealistic and occurs because in this alternative domestic sales do not increase by the equal amount that imports are decreased. The model assumes there is a net reduction in the total demand for autos which in turn takes some upward pressure off of the price level.

Alternative 3. Weak response. In this final simulation domestic automobile production is allowed to increase by a small 100,000 units. The industry's specific results are presented in Table 4-5 and the macroeconomic results in Table 6. Again, the import quota leads to substantial improvement in the balance of payments, but the greatly reduced domestic production response in this simulation greatly reduces the impact on real output (real GNP) employment, and Government budget deficits. The average increase of 100,000 units of domestic sales pushes up real GNP no more than 0.2%. Employment economy wide increases by about 100,000 persons in 1981. As in the previous case the price effects are unrealistic.

Again the model assumes the net reduction in the demand for automobiles leads to moderate deceleration of the rate of climb of the price level as measured by the consumption component of the GNP price deflator.

TABLE 4-4. Case 2: Moderate Domestic Production Response, Macroeconomic Effects

Key: A = Case 2, B = Control, D = A - B, % = D/B * 100.

Real GNP (1972 $)

	1980	1981	1982
A	1412.6	1431.5	1493.1
B	1410.3	1426.4	1489.4
D	2.3	5.1	3.7
%	0.2	0.4	0.3

Consumption Price Deflator (Index)

	1980	1981	1982
A	1.554	1.665	1.774
B	1.554	1.668	1.780
D	-0.000	-0.003	-0.006
%	-0.0	-0.2	-0.3

Employment (Millions)

	1980	1981	1982
A	96.9	97.7	100.6
B	96.9	97.6	100.5
D	0.0	0.1	0.1
%	0.0	0.1	0.1

Unemployment (Rate)

	1980	1981	1982
A	7.5	8.3	7.6
B	7.5	8.4	7.7
D	0.0	-0.1	-0.1
%	0.0	-1.4	-1.5

Net Exports ($ Exports - $ Imports)

	1980	1981	1982
A	1.3	-0.3	-8.9
B	-3.6	-12.9	-22.1
D	4.8	12.6	13.3
%	-135.2	-97.7	59.9

TABLE 4-4. Case 2: Moderate Domestic Production Response, Macroeconomic Effects (continued)

Key: A = Case 2, B = Control, D = A - B, % = D/B * 100.

Balance of Payments, Current Account

	1980	1981	1982
A	3.4	4.9	-8.9
B	-1.4	-7.7	-22.1
D	4.8	12.6	13.3
%	-342.4	-164.0	-59.9

Balance of Payments, Merchandise Account

	1980	1981	1982
A	-25.0	-26.8	-32.6
B	-29.7	-38.7	-46.0
D	4.7	12.0	13.3
%	15.7	-30.9	-29.0

Federal Government Budget Deficit

	1980	1981	1982
A	-49.2	-63.5	-27.5
B	-50.9	-67.4	-31.2
D	1.6	3.9	3.6
%	-3.2	-5.7	-11.7

State and Local Government Budget Deficit

	1980	1981	1982
A	18.5	17.9	21.5
B	18.3	17.6	22.0
D	0.2	0.2	-0.5
%	1.0	1.2	-2.3

National Demand for Energy (Quadrillion BTU)

	1980	1981	1982
A	75.8	75.5	76.9
B	75.7	75.4	76.8
D	0.1	0.2	0.1
%	0.1	0.2	0.1

TABLE 4-3. Case 2: Moderate Domestic Production Responses, Industry Effects.

Key: A = Case 2, B = Control, D = A - B, % = D/B * 100.

Imported Car Sales (Units)

	1980	1981	1982
A	2.1	1.7	1.7
B	2.4	2.5	2.6
D	-0.3	-0.8	-0.9
%	-10.7	-37.5	33.6

Domestic Car Sales (Units)

	1980	1981	1982
A	6.6	7.7	8.8
B	6.5	7.3	8.3
D	0.2	0.4	0.5
%	2.7	5.1	4.6

Total U.S. Car Sales (Units)

	1980	1981	1982
A	8.8	9.3	10.5
B	8.9	9.7	10.9
D	-0.1	-0.4	-0.4
%	-0.9	-3.3	-3.9

Industrial Production, Autos (Index)

	1980	1981	1982
A	0.997	1.162	1.402
B	0.970	1.103	1.340
D	0.027	0.059	0.062
%	2.8	5.3	4.6

Employment, Transportation Equipment (Millions)

	1980	1981	1982
A	1.816	1.709	1.816
B	1.808	1.684	1.791
D	0.008	0.024	0.025
%	0.4	1.5	1.4

TABLE 4-5. Case 3: Weak Domestic Production Response, Industry Effects

Key: A = Case 3, B = Control, D = A - B, % = D/B * 100.

Imported Car Sales (Units)

	1980	1981	1982
A	2.1	1.7	1.7
B	2.4	2.5	2.6
D	-0.3	-0.8	-0.9
%	-11.6	-31.5	-34.8

Domestic Car Sales (Units)

	1980	1981	1982
A	6.6	7.3	8.4
B	6.5	7.3	8.3
D	0.1	0.1	0.1
%	1.4	1.0	1.0

Total U.S. Car Sales (Units)

	1980	1981	1982
A	8.7	9.0	10.1
B	8.9	9.7	10.9
D	-0.2	-0.7	-0.8
%	-2.1	-7.2	-7.5

Industrial Production, Autos (Index)

	1980	1981	1982
A	0.984	1.114	1.353
B	0.970	1.103	1.340
D	0.014	0.012	0.013
%	1.5	1.1	1.0

Employment Transportation Equipment Industry (Millions)

	1980	1981	1982
A	1.813	1.693	1.798
B	1.808	1.684	1.791
D	0.005	0.009	0.007
%	0.3	0.6	0.4

TABLE 4-6. Case 3: Weak Domestic Production Response, Macroeconomic Effects

Key: A = Case 3, B = Control, D = A - B, % = D/B * 100.

Real GNP (1972 $)

	1980	1981	1982
A	1412.1	1428.5	1489.8
B	1410.3	1426.4	1489.4
D	1.8	2.2	0.4
%	0.1	0.2	0.0

Consumption Price Deflator (Index)

	1980	1981	1982
A	1.553	1.663	1.771
B	1.554	1.668	1.780
D	-0.001	-0.005	-0.009
%	-0.1	-0.3	-0.5

Employment (Millions)

	1980	1981	1982
A	96.945	97.670	100.511
B	96.922	97.698	100.468
D	0.023	0.072	0.043
%	0.0	0.07	0.04

Unemployment (Rate)

	1980	1981	1982
A	7.5	8.4	7.6
B	7.5	8.4	7.7
D	-0.0	0.0	-0.1
%	-0.3	-0.0	-0.4

Net Exports (Ex - Im)

	1980	1981	1982
A	1.7	1.7	-6.3
B	-3.6	-12.9	-22.1
D	5.3	14.6	15.9
%	-147.6	-112.8	-71.6

TABLE 4-6. Case 3: Weak Domestic Production Response, Macroeconomic Effects (continued)

Key: A = Case 3, B = Control, D= A - B, % = D/B * 100.

Balance of Payments, Current Account

	1980	1981	1982
A	3.9	6.9	2.1
B	-1.4	-7.7	-13.8
D	5.3	14.6	15.9
%	-373.6	-189.5	-115.2

Balance of Payments, Merchandise Account

	1980	1981	1982
A	-24.6	-24.9	-30.0
B	-29.7	-38.7	-46.0
D	5.1	13.8	15.9
%	-17.2	-35.7	-34.6

Federal Government Budget Deficit

	1980	1981	1982
A	-49.5	-65.2	-29.8
B	-50.9	-67.4	-31.2
D	1.4	2.2	1.3
%	-2.7	-3.2	-4.3

State and Local Government Deficit

	1980	1981	1982
A	18.3	16.9	20.6
B	18.3	17.6	22.0
D	0.0	-0.8	-1.4
%	0.0	-4.5	-6.6

National Demand for Energy (Quadrillion BTU)

	1980	1981	1982
A	75.8	75.4	76.8
B	75.7	75.4	76.8
D	0.2	0.0	0.0
%	0.1	0.0	0.0

C. Conclusion (Section IV)

Beyond the improvement in the balance of payments other favorable macroeconomic effects on output and employment depend critically on what the actual domestic production and sales response would be to the imposition of an auto import quota.

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