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MEASURING EXTERNAL OPENNESS:
THE INDEX OF EFFECTIVE EXPOSURE

by

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**Measuring External Openness:
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Abstract

An index is developed to account for both the import and export dependence of sectors of an economy. Analogous to the Index of Effective Protection, the Index of Effective Exposure (IEE) considers both the share of output ascribed to exports and the share of imported intermediates in total production costs. Preliminary estimates of the IEE index are provided for the 1974 to 1986 interval for a range of two and three digit manufacturing categories in United States industry. The most striking result is the sharp increase in recent history of the number of manufacturing sectors which, although exporters, have dominating exposure to external markets through their reliance on imported intermediates into production. While these results should be cautiously interpreted due to limitations of the data, they nonetheless underscore an important point: dollar depreciations may reduce rather than increase the international competitiveness of many United States industries when these industries rely heavily on imported inputs into production.

Preliminary. Comments welcome.

Introduction¹

The effectiveness of exchange rates as tools of macroeconomic policy has come under increasing criticism as economists refocus their attention on the real effects of exchange rate movements. Recent efforts aimed at uncovering the effects of exchange rate patterns have considered the responsiveness of employment [Branson and Love (1988)], pricing and output decisions of producers [Mann (1986), Dornbusch (1987), Giovannini (1988), Feinberg (1989) and Knetter (1989)], industrial structure [Baldwin (1988), Dixit (1989a,b), and Baldwin and Krugman (1989)], foreign direct investment flows [Froot and Stein (1989)], and business activity and real investment across sectors of the US economy [Goldberg (1990)]. While the theoretical effects of depreciations can be posited, the extent of sectoral reliance on imported intermediates in production may dramatically alter the implications of theoretical models. For example, it is generally presumed that devaluations trigger expansions of demand for US exports. Yet, if the devaluations increase the cost of imported intermediates into production, a consequent supply contraction may overwhelm the stimulating effects from the demand side. Especially for industries with low elasticities of demand, devaluations may end up damaging rather than strengthening the competitiveness of industries. This is an argument frequently voiced against using devaluations in developing economies, but which is generally not given much credence in the context of highly industrialized countries such as the United States.

This paper develops and estimates a measure which quantifies an industry's exposure to exchange rate variations through both sales and inputs into production.

¹The support of the C.V.Starr Center for Applied Economics at New York University and a Research Challenge Fund Grant from New York University are gratefully acknowledged. Yvonne Manu provided valuable research assistance.

This Index of Effective Exposure is computed to provide the time history of sectoral exposure to external activity both through measuring reliance of production output and inputs on external markets. The results are extremely interesting and suggest a guarded acceptance of the conventional wisdom that devaluations will necessarily increase the competitiveness of our traded goods industries. It is extremely important that models and policy-makers address the much neglected role of imported intermediates in production.

Section I of this paper defines the Index of Effective Exposure and computes its values for aggregate manufacturing industries across the 1970s and 1980s. Section II extends the analysis to a range of two and three digit SIC manufacturing categories, comparing the import exposure, export exposure and IEE measures over time for these sectors. Section III suggests refinements of the IEE index.

I. The Index of Effective Exposure

The purpose of The Index of Effective Exposure of a sector or a commodity is to measure the exposure of a sector to exchange rates, both through reliance on imported inputs into production and through sales to external markets. Such an index is extremely important since industries typically described as nontraded goods sectors are directly affected by exchange rates beyond the indirect avenue of capital reallocation in response to altered profitability of traded goods production. If nontraded final products rely on imported inputs into production, a depreciation can have a strong and perhaps unexpected depressing effect on investment in US industry. This result would be missed by traditional measures of economic openness such as the ratio of exports to domestic sales or imports to domestic consumption.

Intuitively, this index improves upon its predecessors (such as export sales ratios) much as the creation of the Index of Effective Protection improved our

understanding of the actual incidence of tariffs. The Index of Effective Protection measures the extent to which value added in an industry can alter as a consequence of the entire tariff structure.² Analogously, the Index of Effective Exposure is defined to measure the share of a firm's revenues and costs exposed to exchange rate shocks. The form of the Index of Effective Exposure estimated in this paper is the following:

$$IEE_{i,t} = x_{i,t} - \frac{\sum_j m_{j,t} \cdot p_{j,t} q_{ij,t}}{\sum_j p_{j,t} q_{ij,t}} \quad (1)$$

where i = the commodity index
 j = the input index, $j=1, \dots, n$
 t = the time index
 $x_{i,t}$ = share of exports in total sales of commodity i in period t
 $m_{j,t}$ = share of imports in domestic consumption of commodity j in period t
 $p_{j,t} q_{ij,t}$ = total expenditure on input j in production of i in period t

For this simple form of the index it is important to note that some of the inputs into production are categories of laborers. If workers are indexed as input types $j = j_L \dots n$, and if workers are all domestically supplied at wages not indexed to exchange rate patterns such that $m_j = 0$ for $j = j_L \dots n$, we can rewrite the index as

$$IEE_{i,t} = x_{i,t} - \frac{\sum_{j=1 \dots j(L-1)} m_{j,t} \cdot p_{j,t} q_{ij,t}}{\sum_{j,t} p_{j,t} q_{ij,t}} \quad (2)$$

where the employee wage bill would be used in the denominator of the input side to capture the costs of inputs indexed j_L and beyond.

While complexities such as those discussed in Section III should ideally be introduced into such an index, the basic message the index relays is quite straightforward. When there are no imported inputs into production, the sectoral level of exposure is identical to the traditionally used export to production ratio. $IEE_{i,t}$ equals

²The development of the effective protection concept is generally ascribed to Barber (1955), Corden (1966), Balassa (1965) and Johnson (1965). Greenaway (1988) provides a comprehensive review of the effective protection indices.

zero either when there is no exposure of sector i through imports or exports, or when the sales exposure equals the input exposure. When $IEE_{i,t}$ takes on positive values, it can be stated that production of commodity i has net export exposure; when $IEE_{i,t}$ takes on negative values, it can be stated that production of commodity i has net import exposure. When $IEE_{i,t}$ takes on a negative value, a trend depreciation is more likely to lead to a backward shift of the supply curve. The more negative the $IEE_{i,t}$ the more likely that domestic investment will contract in response to trend depreciations.

Data used in construction of this index are the following:

- $\chi_{i,t}$ = exports/shipment ratios (US Department of Commerce)
- $m_{j,t}$ = import/sales ratios (US Department of Commerce)
- $P_{j,t}q_{ij,t}$ = input-output expenditure data (Bureau of Economic Analysis) and wage bill expenditures (US Department of Commerce; Bureau of Labor Statistics)

Despite the obvious utility of this measure, there are problems in its measurement and interpretation that will certainly require refinement over time. For example, while this index does indicate the direction of exposure, it does not represent the elasticity of unit profits to exchange rate changes. As shown in the derivation of Section II, more refined measures could be developed. Refinements could introduce: (i) sensitivity of dollar prices of domestic goods sold in foreign markets and foreign goods sold in US markets; (ii) substitutability of factors of production rather than fixed factor shares; and (iii) substitutability between domestic and foreign inputs into production. Measuring price elasticities with respect to exchange rates is a reasonable and feasible improvement to the index and is consistent with its overall short term nature.

Introducing altered technologies as a function of exchange rate fluctuations is more difficult to quantify³ and less plausible as a significant short term effect of

³The BEA benchmark input-output tables are not available at very short intervals. To date, they cover the years 1947, 1958, 1963, 1967, 1972 and 1977. The 1982 data are projected to be released in mid-1990.

exchange rates on profitability. To capture substitutability of domestic and foreign inputs, one could potentially use time series of import and export shares, however such usage is at best a crude representation and could be misleading if the changes in shares reflect forces other than those induced by exchange rates. Realistically, an extended index could capture elasticities of export revenue and import bill response to exchange rates. The export revenue elasticities depend on a firm's pass-through response to exchange rate changes (as well as demand elasticities of response to the relative price movement) and the pass-through of exchange rate changes into import prices. If import elasticities are much smaller than export elasticities of response to exchange rates, the Index of Effective Exposure represented by equation (1) will understate the net exposure of a commodity to exchange rate changes.

The input data a_{ij} are constructed from the Bureau of Economic Analysis benchmark table for 1977 and represent the share of input i expenditure out of total expenditures on inputs into production of good j . In gross form, the input-output entries are compiled by the BEA based on detailed industry statistics collected by the Census Bureau in the 1977 economic censuses. The commodities are valued at producers' prices which include excise taxes but exclude distribution costs. Figure 1 shows the sectoral input expenditure shares for the total manufacturing category from the 1977 input-output table. Although the IEE indices will be constructed only for industries with manufacturing outputs, the inputs into these industries are from both manufacturing and nonmanufacturing sectors, including labor inputs through wage bills. Figures 2 and 3 show the sectoral inputs into manufacturing durables and manufacturing nondurables, respectively.

Figure 4 provides export to production shipment data for the three aggregate industrial categories (total manufacturing, durables manufacturing, and nondurables

manufacturing) for 1975, 1980 to 1985.⁴ For each of these categories the share of output exported rose between 1975 and 1980, and then declined between 1980 and 1985. Since this ratio is often viewed as a measure of economic openness, it would suggest the overall manufacturing openness changed relatively little when 1975 is compared with 1985, while durables manufacturing reduced the share of exports in total shares.

Figure 5 presents weighted input shares for each of these aggregate manufacturing categories. The numbers are constructed by multiplying the input share of each manufacturing group by the import share. The data for aggregate manufacturing clearly reflects the startling increase in the share of imported inputs into production between the mid 1970s and the mid 1980s. By 1985, as computed, the share of imported intermediates rose to 11.4 percent for aggregate manufacturing, to 13.2 percent for durable goods manufacturing, and to 8.2 percent for nondurables manufacturing.⁵

At this point it is extremely important to highlight a problem with the data used in constructing the weighted input shares. The appropriate import shares are those for commercial, not private household consumption. Thus, our import share statistics are biased proxies for the desired measures to the extent that the household sectors consume the imported inputs. Specifically, the data utilized reflect the sum of household and business imports over total consumption. If the data were available, it would be more appropriate to use a measure of business imports divided by business consumption.

Figure 6 shows the export and import ratios combined to form the IEE series for the aggregate manufacturing categories. Even a cursory examination of these data

⁴These data compiled from the Product Shipments and Trade Statistics series generated by the International Trade Administration. Export data are valued on a f.a.s. basis (freight alongside ship) which is defined as the transaction price, including inland freight, insurance, and other charges incurred in placing the merchandise alongside the carrier at the US port of exportation. The import data also are valued as f.a.s. with the foreign port as the recording point. Where available, the series used are imports to apparent consumption (product shipments plus imports less exports).

⁵Ideally, pure production imports should be used in these calculations. Instead, the indices are computed based on the assumption that the share of imports in industrial consumption of a good is the same as the share of imports in private consumption.

for 1975, 1980 and 1985 suggests a strong pattern of higher international exposure of aggregate manufacturing through imported inputs than through export shares. If these measures even broadly reflect actual sectoral tendencies, they shed new light on the curious perverse responsiveness of the trade accounts to devaluations in the 1980s: While devaluations are conventionally viewed as contributing to expanded demand for domestic tradables, devaluations could also be associated with the supply contractions that are triggered by increased costs of imported inputs into production. The transmission of exchange rate depreciations into increased production costs could actually dominate the price advantage attributed to devaluation, leading to a worsening rather than improvement of the competitive position of domestic products on world markets.

This point is further illustrated in Figures 7 through 9, which show the annual histories of these IEE indices (for manufacturing, manufacturing durables, and manufacturing nondurables).⁶ If one considers all of US manufacturing in one index (Figure 7), it is clear that the US was a relatively weak net exporter (using the IEE definition) through the end of 1979. In the early 1980s the US was a strong net exporter, but this position markedly changed in 1983 and worsened gradually through 1986. In 1986, the negative net export exposure of manufacturing was as great in absolute value as the positive net export exposure that characterized manufacturing in its peak year of 1980.

To begin to unravel the sectors responsive for this overall shift, consider the behavior of the IEE for durables manufacturing (Figure 8) and nondurables

⁶All of the years for which the indices are computed use the International Trade Administration annual data on exports/shipments and imports/new supply. The input-output shares are based on the BEA benchmark census data for 1977 and BEA projections/estimates for 1980 to 1985. These projections use the 1977 benchmark for constructing projections consistent with data drawn from annual industry surveys. For 1978 and 1979 our constructions use the 1977 benchmark, rather than projections for those years. The reason for this choice is that the 1978 and 1979 projections are based on the 1972 benchmark data rather than the 1977 benchmark data, and are therefore somewhat inconsistent with the other input-output data used for the other years examined.

manufacturing (Figure 9). The data show that the sharp changes in the exposure of durables manufacturing occurred in 1982 through 1984, a period of dollar strength and US recession. At this time the US sharply increased its reliance on imported inputs into production and reduced its exports of durables. This pattern did not reverse itself when the economy recovered from the recession or when the dollar turned around in 1985. In fact, the durables sector of the US gradually worsened its negative net exposure.

In nondurables manufacturing, the story is somewhat different. Even in the early part of the sample, 1974 through 1978, nondurables manufacturing had negative net exposure. Thus, 1979 and 1980 were exceptional years, marked by unusually strong export performance. The negative exposure evident in 1981 through 1983, therefore, departed from the behavior of observed in the prior two years, but was consistent with activity through the 1970s. However, 1984 onwards also reflected a strong increase in reliance on imported intermediates into production and a retained decline in export performance.

II. Industry Exposure Histories

Which durables and nondurables manufacturing sectors dominate the behavior observed in the aggregates? This section attempts to answer this question by presenting results for specific manufacturing sectors. Figures 10 through 12 present industry breakdowns of the IEE results, the export shares, and the weighted input shares for eight durable goods manufacturing sectors for 1975, 1980, and 1985. These include primary metals, fabricated metal products, nonelectrical machinery, electrical machinery, transportation equipment, motor vehicles, aircraft and parts, and stone, clay and glass. Figures 13 through 15 provide comparable data for the six nondurables sectors, including food and

kindred products, textile mill products, paper and allied products, chemical products, petroleum, and rubber and plastics.⁷

Three clear categories of sectors surface immediately: the historic net importers; the historic net exporters; and the net exporters turned net importers. In all cases, the 1985 interval is marked by a dramatic rise in imported input exposure. Five sectors had net import exposure in 1975 through 1985. Two of these consistent net importers were in nondurables manufacturing: petroleum, and rubber and plastics.⁸ The other three consistently exposed primarily through the cost side were: primary metal products, fabricated metal products, and stone clay and glass.

The sectors consistently characterized as net exporters were chemical products (a nondurable) and nonelectrical machinery, and aircraft and parts (two durables sectors). Many more sectors were net exporters in 1980, but became net importers by 1985. These include both nondurables and durable goods, including food and kindred products, textile mill products, electrical machinery, transportation equipment, and motor vehicles. In sum, the IEE indices show that in 1975 seven sectors had net exposure through the demand side ($IEE > 0$) while seven had net exposure through the cost side ($IEE < 0$). In 1985 only three manufacturing sectors had net exposure through the demand side ($IEE > 0$) while eleven manufacturing sectors had net exposure through the cost side. This latter group was comprised of manufacturers in both durables and nondurables sectors. The only industries which retained net demand side exposure were chemical products, nonelectrical machinery and aircraft and parts.

⁷Annual histories of the IEE for these two digit industries are available by request. These have been computed for all fourteen manufacturing categories for the 1974 to 1986 interval.

⁸In 1980 this sector was a slight net exporter.

III. Refinements of the IEE

Numerous refinement of the IEE can be constructed. In this section the IEE concept is derived in the context of the decision rule of a profit-maximizing domestic producer. Step by step, the assumptions underlying the constructed IEE are spelled out, and therefore highlight the assumptions which may be relaxed in future constructions.

The producer unit profit function is

$$\pi_j = y_j [(1 - \chi_j)p_j + \chi_j p_j^*] - \sum_i a_{ij} [(1 - m_i)p_i + m_i p_i^*] \quad (3)$$

where a_{ij} is the input share of different productive factors, indexed by i ; π_j , y_j , p_j and χ_j are the profits, output, prices and export shares of industry j ; and m_i and p_i are the import shares and prices of inputs i . Differentiating (3) with respect to the exchange rate, and assuming that all sectors use the same share of inputs in their overall consumption of any commodity, yields

$$\begin{aligned} \frac{\delta \pi_j}{\delta S} = & \frac{\delta y_j}{\delta S} \pi_j + y_j \left[(1 - \chi_j) \frac{\delta p_j}{\delta S} + \chi_j \frac{\delta p_j^*}{\delta S} \right] + y_j [(p_j - p_j^*) \frac{\delta \chi_j}{\delta S} \\ & - y_j \sum_i \left\{ \frac{\delta a_{ij}}{\delta S} [(1 - m_i)p_i + m_i p_i^*] + a_{ij} \left[(1 - m_i) \frac{\delta p_i}{\delta S} + m_i \frac{\delta p_i^*}{\delta S} + (p_j - p_j^*) \frac{\delta m_i}{\delta S} \right] \right\} \end{aligned} \quad (4)$$

If it is assumed that output quantities, input shares and technology are invariant to exchange rates, at least in the short run, then equation (5) reduces to

$$\begin{aligned} \frac{\delta \pi_j}{\delta S} = & y_j \left[(1 - \chi_j) \frac{\delta p_j}{\delta S} + \chi_j \frac{\delta p_j^*}{\delta S} \right] + [(p_j - p_j^*) \frac{\delta \chi_j}{\delta S} \\ & - y_j \sum_i \left\{ a_{ij} \left[(1 - m_i) \frac{\delta p_i}{\delta S} + m_i \frac{\delta p_i^*}{\delta S} + (p_j - p_j^*) \frac{\delta m_i}{\delta S} \right] \right\} \end{aligned} \quad (5)$$

If it is assumed that domestic currency prices are largely independent of exchange rates, equation (5) further reduces to

$$\frac{\delta \pi_j}{\delta S} = y_j(p_j - p_j^*) \frac{\delta \chi_j}{\delta S} - y_j \sum_i \left\{ a_{ij} \left[(p_j - p_j^*) \frac{\delta m_i}{\delta S} \right] \right\} \quad (6)$$

If, instead, it is assumed that export and import shares are constant in the short run, the sectoral exposure of profits reduces to

$$\frac{\delta \pi_j}{\delta S} = y_j \left[(1 - \chi_j) \frac{\delta p_j}{\delta S} + \chi_j \frac{\delta p_j^*}{\delta S} \right] - y_j \sum_i \left\{ a_{ij} \left[(1 - m_i) \frac{\delta p_i}{\delta S} + m_i \frac{\delta p_i^*}{\delta S} \right] \right\} \quad (7)$$

Equation (6) provides the first practical level of improvement upon the index of effective exposure defined by equation (1). It suggests that the domestic currency price elasticities of response to exchange rates for exports and domestic goods should be used in construction of the Index of Effective Exposure. If it were assumed that both types of prices were insensitive to exchange rates, then unit profits would be insensitive to exchange rates. If it were more generally assumed that home currency valued domestic and foreign goods shared the same sensitivity to exchange rates such that $\delta p_j / \delta S = \delta p_i / \delta S$ then equation (6) would be rewritten as

$$\frac{\delta \pi_j}{\delta S} = y_j \frac{\delta p_j}{\delta S} \left[1 - \sum_i a_{ij} \right] \quad (8)$$

If it were assumed that domestic goods prices were insensitive to exchange rate changes while export and import prices were sensitive to exchange rates, equation (6) becomes

$$\frac{\delta \pi_j}{\delta S} = y_j \left[\chi_j \frac{\delta p_j^*}{\delta S} - \sum_i \left\{ a_{ij} \cdot m_i \frac{\delta p_i^*}{\delta S} \right\} \right] \quad (9)$$

If it were further assumed that these elasticities were symmetric, equation (9) is proportional to

$$\frac{\delta \pi_j}{\delta S} = y_j \cdot \frac{\delta p_j^*}{\delta S} x_j - \sum_i \{ a_{ij} \cdot m_i \} \quad (10)$$

This expression is similar to that used in the construction of the IEE in Section I. Given that an exposure index will be constructed using some set of simplifying assumptions, the task on hand is to determine which of the assumptions are least objectionable for a short to medium run measure. The fixed nature of technology ($\delta a_{ij}/\delta S=0$) is a reasonable assumption, as is the short run stickiness of the substitutability of domestic and foreign inputs into production ($\delta m_i/\delta S=0$). While it may not be reasonable to assume that output, prices and foreign residual demand are independent of exchange rate changes ($\delta y_j/\delta S \neq 0$, $\delta p_j^*/\delta S \neq 0$, $\delta x_j^*/\delta S \neq 0$), it may be reasonable to assume that there are short term laws of one price deviations which insulate home currency prices of home produced goods from exchange rates ($\delta p_j/\delta S \neq 0$). Expressed as the proportionate change in profits induced by exchange rate movements this yields

$$\pi_j = \frac{\delta y_j}{\delta S} + \frac{y_j}{\pi_j} \left[(p_j - p_j^*) \frac{\delta x_j}{\delta S} + x_j \frac{\delta p_j^*}{\delta S} - \sum_i \left\{ a_{ij} \cdot m_i \frac{\delta p_i^*}{\delta S} \right\} \right] \quad (11)$$

So that the proportionate change in profits is a function of the output response to exchange rates and the adjustment of unit profits by changes in export share and domestic currency prices of exports and imported inputs into production. As derived, the IEE presented in Sections I and II do not capture short term output adjustment to exchange rates, or adjustment of export share to exchange rates. The distortion induced by not distinguishing between the pricing activities of US exporters and foreign importers is small as long as the price elasticities are proportionate to each other. A refinement of the existing index will include these specific elasticities terms to the extent that they can be estimated.

IV. Concluding Remarks

This paper presents a measure which reflects the exposure of an industry both through its export side, thereby reflecting the role of demand in profits, and through its imported input side, thereby reflecting the role of imported inputs in costs. When considering whether exchange rates will improve or worsen the competitive position of an industry, it is insufficient to look only at the exports of the industry. If import costs are more responsive to exchange rates than export revenues, a dollar depreciation may worsen rather than improve the international status of United States industries. Although the Index of Effective Exposure can be greatly refined, as constructed it represents an interesting first pass at measuring the exposure of industries. Refinements and extensions of the index are suggested in the text.

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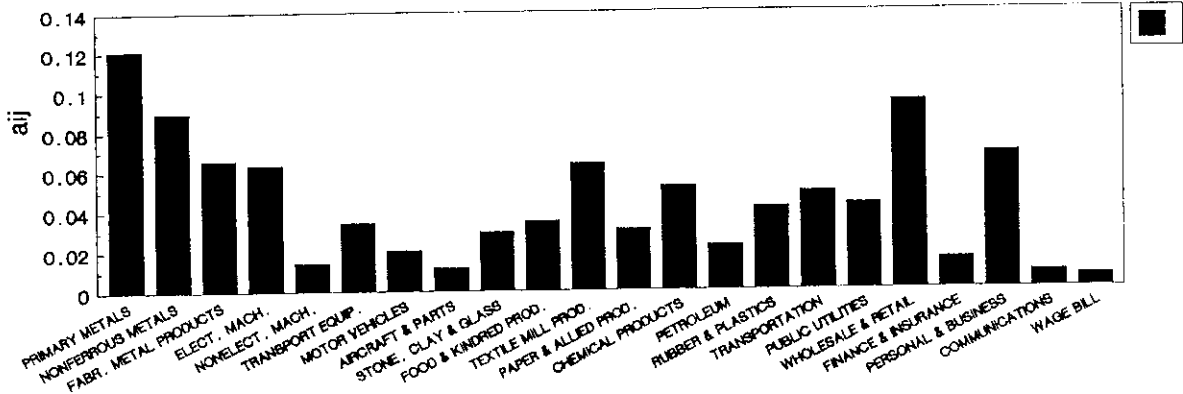
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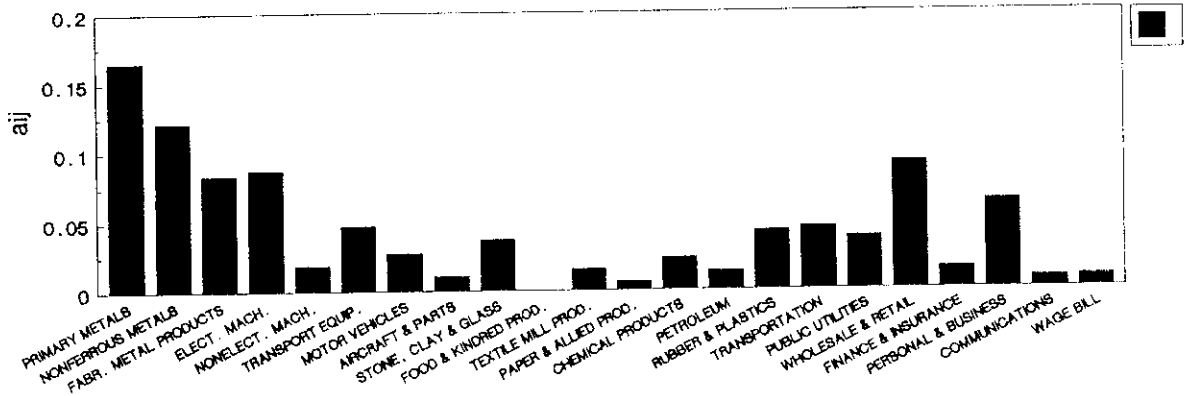
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Figure 1
1977 Input Expenditure Shares
Manufacturing: Inputs



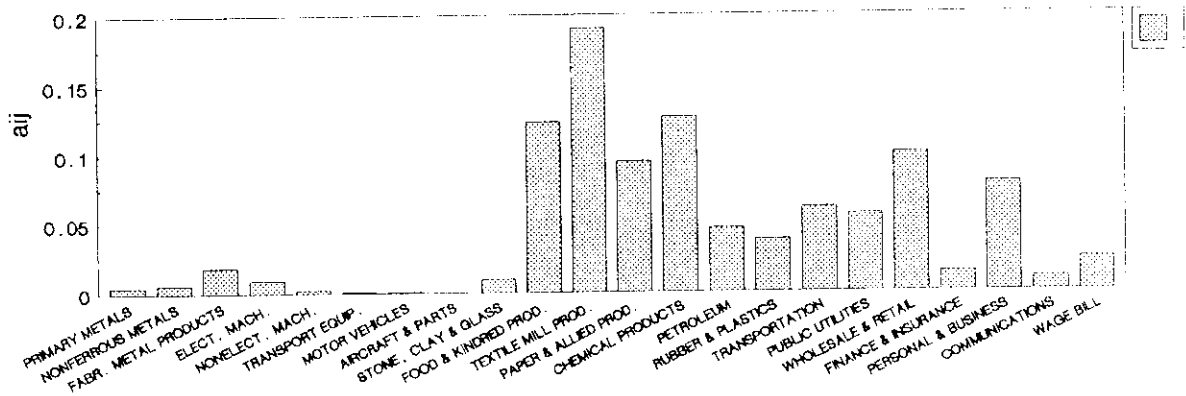
1977 wage bill used

Figure 2
Manufacturing
Durables: Inputs



1977 wage bill used

Figure 3
Manufacturing
Nondurables: Inputs



1977 wage bill used

Figure 4
Export Shares in Total Sales
1975, 1980, 1985

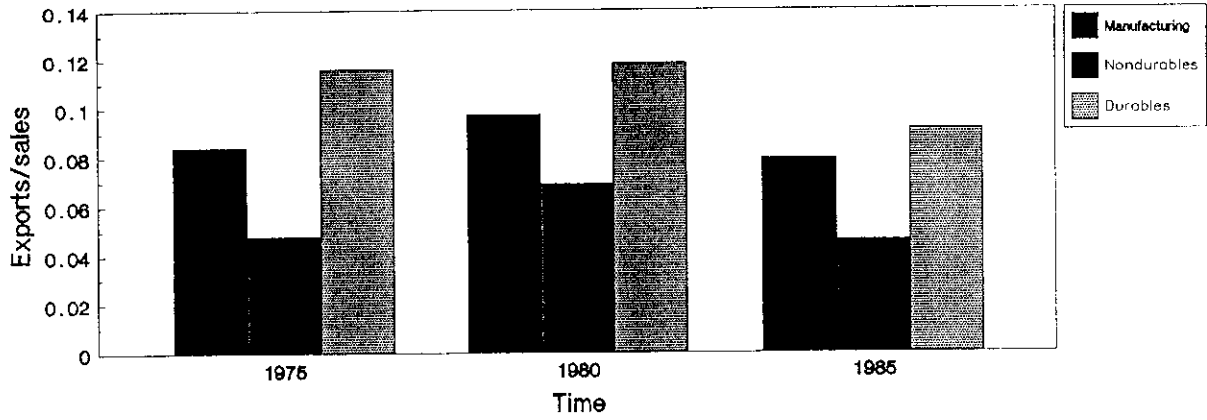


Figure 5
Weighted Input Shares
1975, 1980, 1985

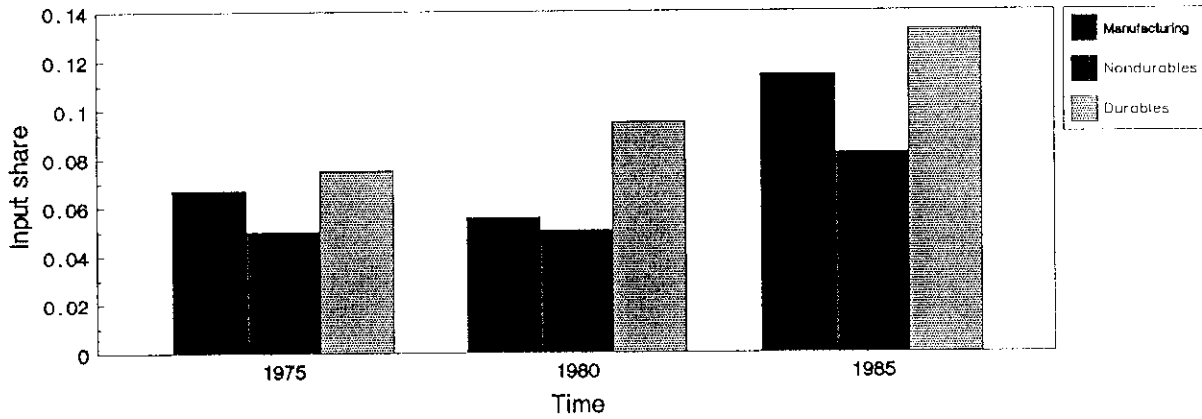


Figure 6
Effective Exposure
1975, 1980, 1985

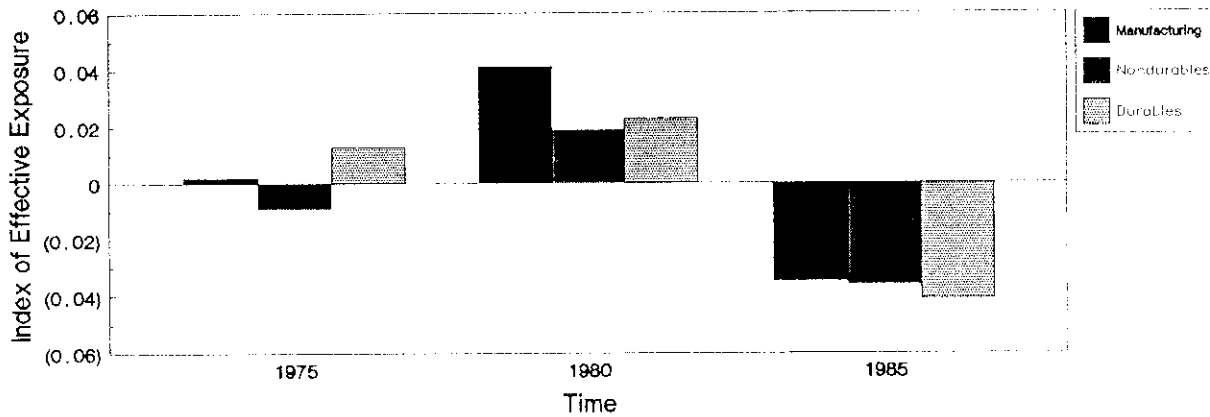


Figure 7
 Index of Effective Exposure: 1974-1986
 Manufacturing

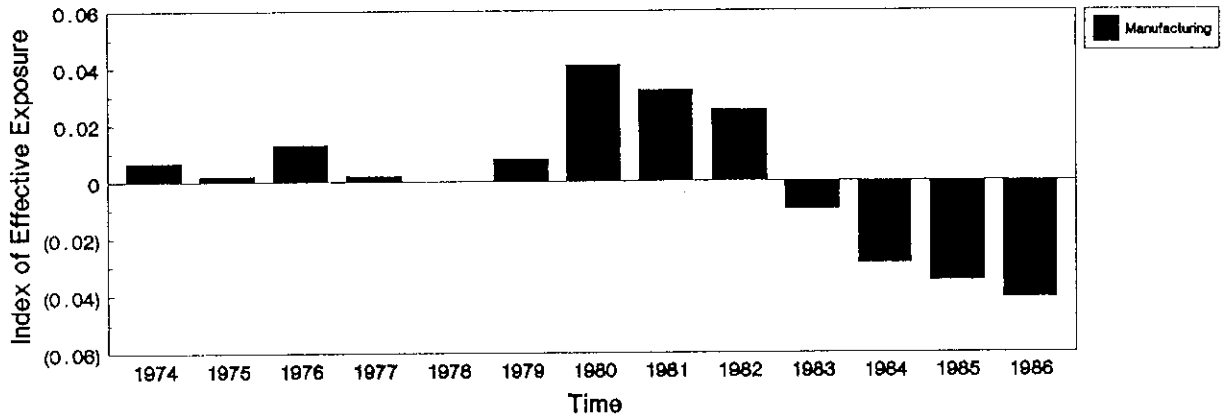


Figure 8
 Index of Effective Exposure: 1974-1986
 Durables

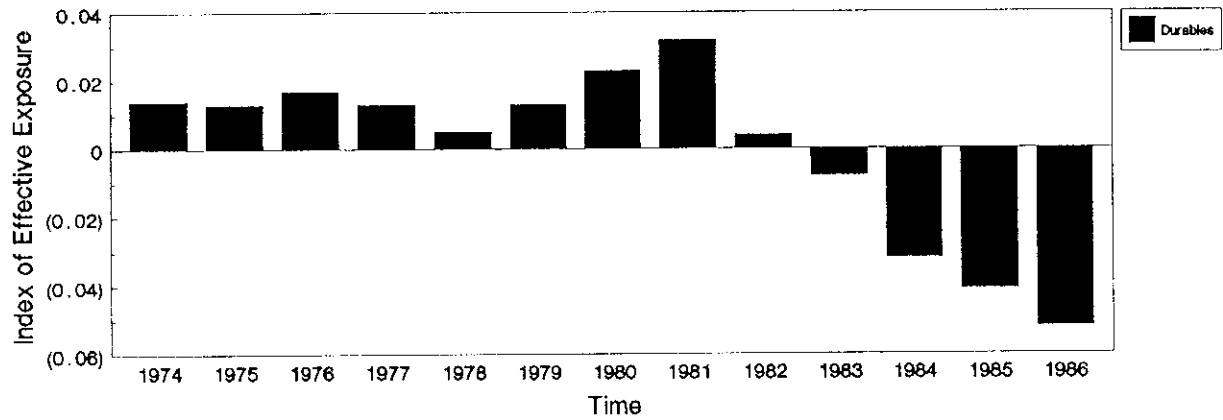


Figure 9
 Index of Effective Exposure: 1974-1986
 Non Durables

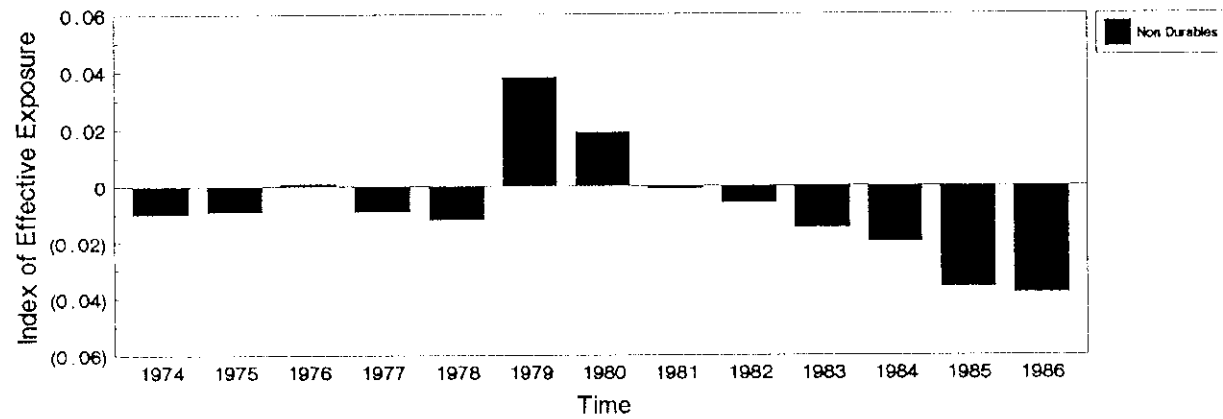


Figure 10
Effective Exposure: Durables
1975, 1980, 1985

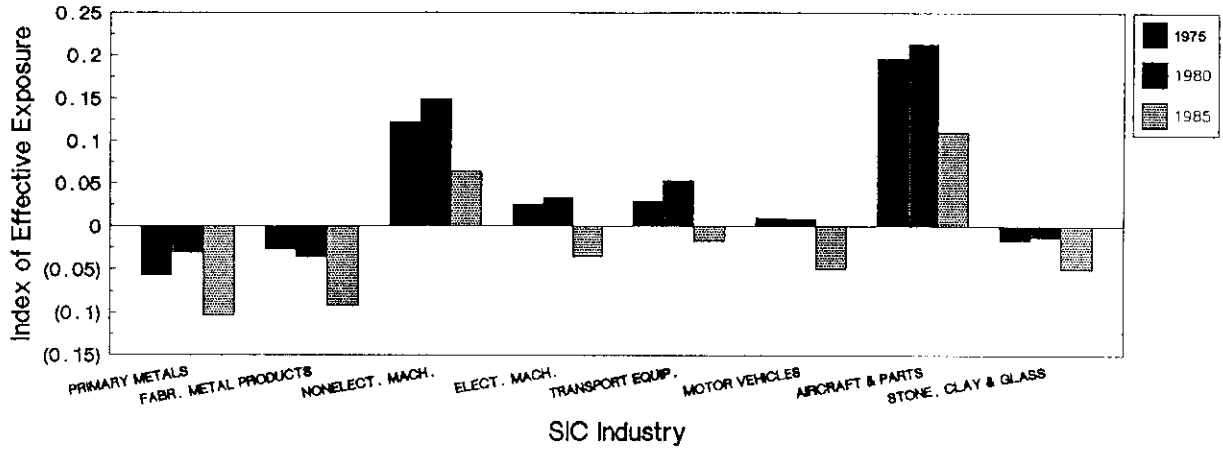


Figure 11
Export Shares in Total Sales: Durables
1975, 1980, 1985

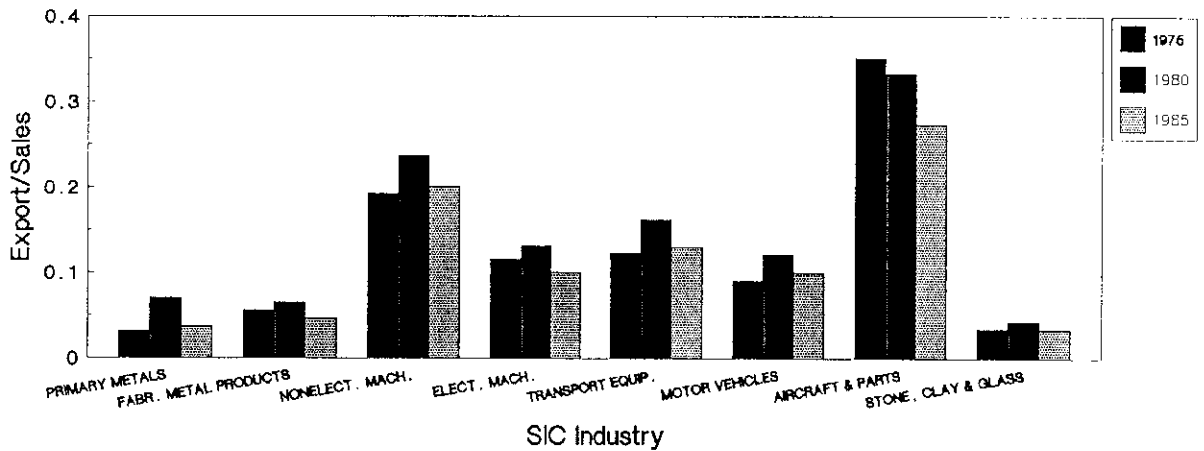


Figure 12
Weighted Input Shares: Durables
1975, 1980, 1985

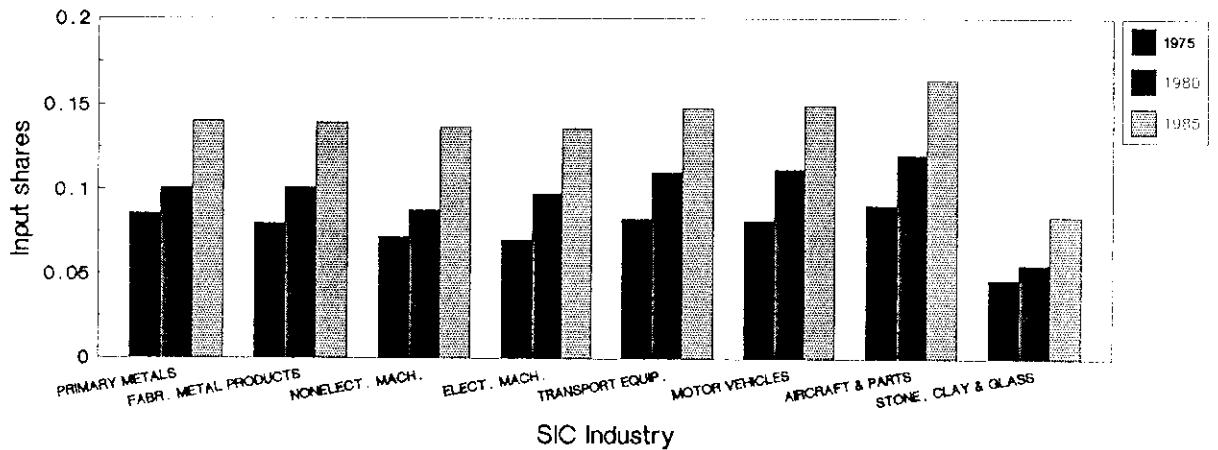


Figure 13
Effective Exposure: Non Durables
1975, 1980, 1985

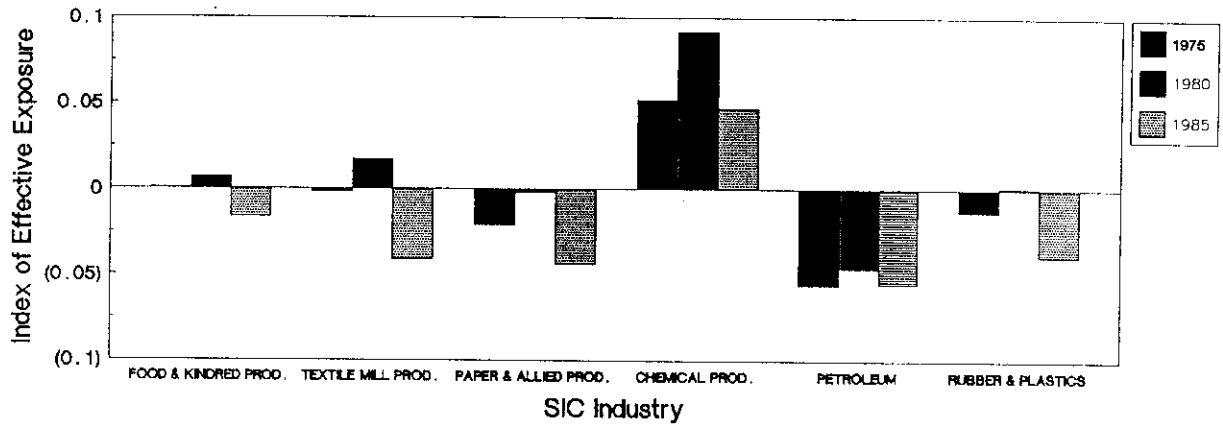


Figure 14
Export Shares in Total Sales: Non Durables
1975, 1980, 1985

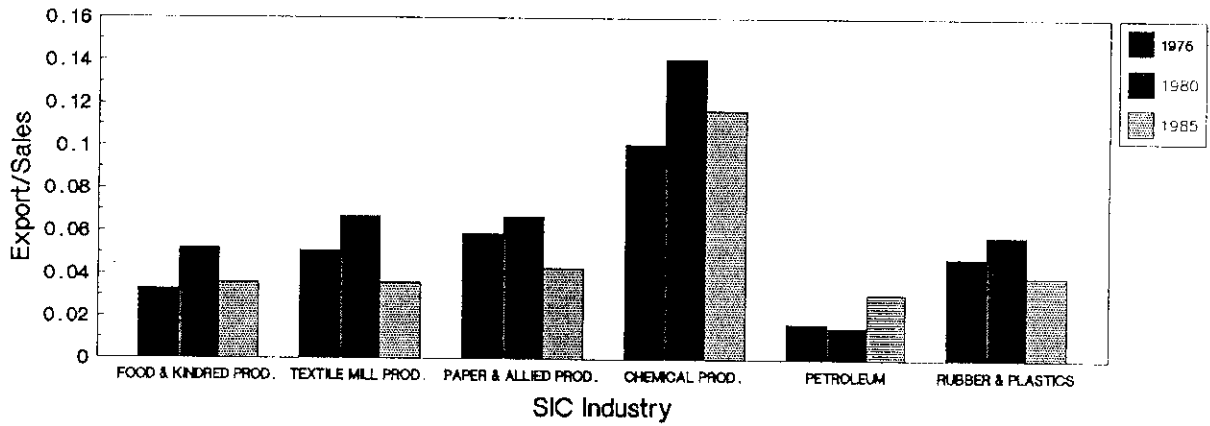


Figure 15
Weighted Input Shares: Non Durables
1975, 1980, 1985

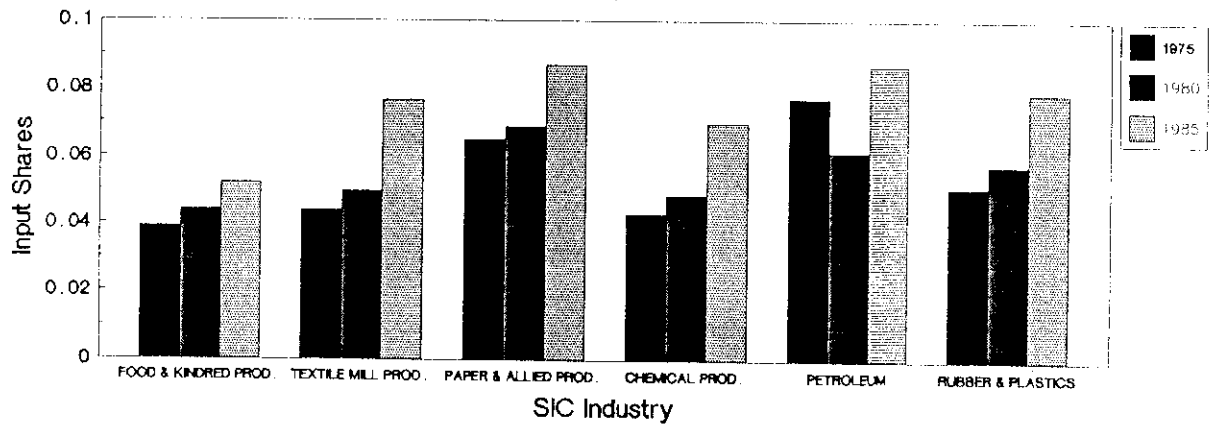


Table A1: Industrial Categories Used in Constructing the Index of Effective Exposure

All Industries

Manufacturing

Durable Goods

Primary Metals

Blastfurnaces and Steelworks

Nonferrous Metal Products

Fabricated Metal Products

Electrical Machinery

Nonelectrical Machinery

Transportation Equipment

Motor Vehicles

Aircraft and Parts

Stone, Clay and Glass Products

Other Durables (Lumber, Furniture, Instruments and Misc.)

Nondurable Goods

Food including Beverages

Textile and Textile Mill Products

Paper and Allied Products

Chemical Products

Petroleum and Petroleum Products

Rubber and Plastics

Other Nondurables (Apparel, Tobacco, Leather and Printing-Publishing)

Nonmanufacturing

Mining

Transportation

Public Utilities

Commercial and Other

Wholesale and Retail Trade

Finance and Insurance

Personal and Business Services

Communications

Wages