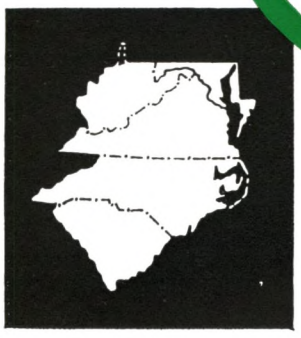
FEDERAL RESERVE BANK OF RICHMOND

MONTHLY REVIEW

Domestic International Sales Corporations

The World Trade Matrix

Virginia Manufacturing



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Encouraging U. S. Exports . . .

DOMESTIC INTERNATIONAL SALES CORPORATIONS

THE NEED FOR EXPORT EXPANSION

During the past several years U. S. exports have grown rapidly but not as rapidly as the exports of its major trading partners and, in particular, not as rapidly as U. S. imports. The traditionally large export surplus of the United States, which is necessary to finance foreign investment and other capital outflows, became progressively smaller in the latter 1960's. The export surplus disappeared entirely in 1971, as this country experienced its first annual trade deficit since 1935 by one measure and the first since 1888 by another.

Paralleling the decline in the U. S. trade position, and perhaps contributing to some of it, has been a continued rise in U. S. overseas production. U. S. firms have increasingly supplied foreign markets through foreign-based subsidiaries. Foreign sales of overseas manufacturing affiliates of U. S. companies in 1970 were over twice the amount of direct exports of manufactured goods from the United States, and have grown about twice as fast as direct exports over the past decade.

Some Export Problems U. S. exporters have operated under several handicaps in recent years. One of the most important has been domestic price and wage inflation, which, in addition to attracting increasing imports, has eroded the competitive position of some important U. S. exports in world markets. The U. S. trade surplus reached a peak of $6.8 billion in 1964 and then began to decline as inflationary pressures intensified. While demand inflation was brought under control in mid-1969, cost-push pressures continued to undermine the competitive position of U. S. exporters and domestic producers confronted with a challenge from imports. Reinforcing these pressures were the problems caused by having the cyclical positions of the United States and foreign countries out of phase. Of course, the realignment of exchange rates in 1971 was intended to compensate partially for this.

United States exporters have traditionally been able to compete effectively in world markets, despite relatively high U. S. wage levels, largely because productivity gains held down unit labor costs. In the early 1960's, labor costs per unit of output actually declined in the United States, while rising substantially in other major trading nations. From 1965 through 1970, however, unit labor costs in the United States rose more than 20%, which was above the average for this country's trading partners. This rise meant that higher wages were translated into higher, and often noncompetitive, export prices. The relative U. S. cost position improved in 1971, however, as inflation in Western Europe and Japan surged ahead of that in the United States, although there has not been sufficient time for this improvement to show up in the trade figures. The devaluation of the dollar should prove to be a more important immediate factor improving the relative U. S. cost position.

In addition to the problems of domestic inflation, U. S. exports have been denied full access to foreign markets by certain discriminatory foreign practices. The European Community's Common Agricultural Policy, for example, has limited U. S. agricultural exports to that market. The growing use of preferential trading arrangements by the EC and other trading groups has also discriminated against U. S. exports. So have the many quantitative import restrictions and other types of nontariff barriers to trade that have become more prominent on the world trading scene as tariff barriers have been lowered. These nontariff barriers to trade include administrative regulations, measurement standards, health and safety regulations, and other restrictions that have little apparent relation to international trade but have been instrumental in distorting world trade patterns. Of course, other countries have no monopoly on barriers to trade. Foreign exports have also been denied access to the U. S. market as a result of discriminatory U. S. practices. Most prominent, recently, have been extensive U. S. import restrictions, which include "voluntary" foreign export restrictions on important traded items. There may, in fact, be some question as to whose barriers are more restrictive.

In addition to erecting barriers to imports, many nations have also sought a competitive advantage over U. S. exports in third countries through vigorous

export promotion and subsidy policies. Many foreign governments, as well as foreign businessmen, have paid more attention to export expansion than the United States, because their international trade sectors are larger relative to their total economies. Even though the United States is the world's largest trading nation in absolute terms, it exports a smaller share of its production and imports a smaller share of its consumption than any of its major trading partners. The United States exports only about 4% of its GNP, compared to an average of 15% for the rest of the world. Since many nations rely more heavily on their international trade, they have over the years geared many of their policies to favor exports. In addition to substantial export promotion programs, exports receive special treatment in foreign antitrust, labor, and transportation policies.

Foreign efforts to encourage exports are most prominent in the areas of export financing and favorable tax treatment. Countries that rely heavily on indirect taxes, such as sales taxes, excise taxes, or value added taxes, are able to offer their exporters more favorable tax treatment under the rules of General Agreement on Tariffs and Trade than countries that rely more on direct taxes, such as the income tax. U. S. exporters, for example, have to pay the full income tax rate on their export profits, while many European exporters receive rebates on the value added tax paid on exported goods.

Meeting the Competition Even though its efforts have lagged far behind foreign practices, the United States has taken some steps to encourage exports. The Department of Agriculture promotes U. S. agricultural exports in various ways. The Department of Commerce and, to a more limited extent, other government agencies have various programs to encourage exports of manufactured goods. Its promotion efforts include numerous overseas commercial exhibits and trade missions abroad and marketing assistance and information to U. S. exporters and potential exporters.

The United States has also attempted to provide export financing on terms comparable to the favorable terms available to foreign exporters. The primary purpose of the Export-Import Bank is to encourage U. S. exports through its export financing programs. Its programs are intended to supplement and encourage private export financing rather than to compete with private sources. The Exim Bank guarantees and insures export credits extended by banks and other financial institutions, discounts their export paper, joins in cooperative financial arrangements, and extends direct credits out of its own resources. Under the auspices of the Export-Import Bank, the Foreign Credit Insurance Association—an association of private insurance companies—also insures export credits against commercial credit risks. The Department of Defense guarantees loans to foreign buyers of certain U. S. military goods. The Commodity Credit Corporation, an agency of the Department of Agriculture, conducts several export financing programs as a by-product of its function of supporting U. S. farm prices and disposing of U. S. agricultural surpluses abroad.

In an effort to facilitate export financing further, Congress, in the Export Expansion Finance Act of 1971, removed Export-Import Bank disbursements from federal budget expenditures and expanded its lending capacity by about one-half. Increased borrowing and lending authority permitted expansion of the Export-Import Bank's discount program into short-term as well as medium-term export paper. Congress also removed export credits from the foreign lending ceilings applicable to banks and other financial institutions under the Voluntary Foreign Credit Restraint Program. Export credits guaranteed or participated in by the Export-Import Bank, insured by the Foreign Credit Insurance Association, or guaranteed by the Department of Defense were already exempt under the Voluntary Foreign Credit Restraint Program.

While the United States has provided favorable export financing, its export promotion efforts have fallen short of those of its main competitors. The United States' major trading partners spend roughly twice as much on export promotion in proportion to their exports as does the United States.[1] Moreover, many countries' promotional efforts have been only one part of an integrated program of export expansion. The United States has relied more on its technological superiority to remain competitive in world markets. While this has sufficed in the past, recent experience suggests that it may not be sufficient in the future. In today's highly integrated world of multinational corporations, computerization, and rapid communication and transportation, technological advantages are short-lived. New realities have forced a reassessment of the U. S. competitive position and its approach to world competition in the future. With such considerations in mind, Congress included in the Revenue Act of 1971 an important program for export expansion. It provided for the establishment of Domestic International Sales Corporations, or DISCs.

[1] Harold B. Scott, "Export Expansion for the Seventies . . . and Beyond," *United States International Economic Policy in an Interdependent World* (Washington, D. C.: Government Printing Office, July 1971), p. 556.

THE DISC PROGRAM

The purpose of the DISC program is to encourage U. S. exports by providing tax incentives for exporters utilizing DISC subsidiaries. Specifically, federal income tax will be deferred on the export profits of a DISC as long as these profits are retained and used in export-related activities.

The tax advantages offered by the DISC program are designed not only to increase the profitability of foreign sales relative to domestic sales, but also to encourage U. S. firms to produce domestically for export, instead of locating their manufacturing operations abroad. By exporting through a DISC subsidiary, U. S. exporters will receive tax treatment that compares favorably to the treatment afforded foreign subsidiaries of U. S. firms. The ultimate objective is not only to restore a strong international trade and payments position but also to stimulate the domestic economy by expanding output and increasing employment in the export sector.

A DISC's operations are limited to export-related activities. Such a corporation may purchase export goods from its shareholders (parent firm) or other U. S. manufacturers and resell them abroad. Or a DISC may export for its suppliers as an agent on a commission basis. It may also lease or sublease U. S. property to foreigners. Although a DISC may not manufacture its own products for export, it may perform limited processing, packaging, or assembly operations on the products it sells. It may also render services in connection with its export transactions and perform a limited number of other services for foreign concerns.

Tax Advantages of a DISC A DISC itself is not subject to federal income tax on any of its profits. The tax is imposed on the shareholders, or parent firms, when the profits are distributed to them. The DISC shareholders are treated as having received half of the DISC's earnings currently, whether they are actually distributed or not. This half of the profit is deemed to be attributable to the manufacture of the product rather than its export. The remaining half, considered the export profits, may be retained by the DISC with no shareholder tax liability as long as those earnings are reinvested in its export business, invested in certain Export-Import Bank obligations, or loaned to U. S. producers to finance export-related assets. It is important to note that through these "producer's loans" the earnings of the DISC may be made available to its parent company or other export producers without sacrificing their tax-deferred status. If a foreign subsidiary made such a loan to its U. S. parent company, the loan would be taxed as a dividend. The shareholders of the DISC are taxed on the formerly deferred earnings when these earnings are distributed as dividends or when the corporation loses its status as a DISC.

Since half of the total profit of a DISC is eligible for tax deferral, an important question is how much of the total combined profits of the DISC and its related producer or supplier can be allocated to the DISC. Special tax treatment for the profits of a DISC would be meaningless if those profits were severely limited by restrictive rules governing the prices charged by the parent to the DISC. The general rule on pricing between a parent company and its subsidiary is an "arm's length" rule that requires that sales or transfers be made at the price that the parent would have charged an outside party for the product. The DISC program, however, includes a more favorable special pricing rule that permits a DISC to purchase goods from its parent at a price lower than required by the "arm's length" rule and thus claim a larger share of the combined profit for itself. Under the special rule, the transfer price can be low enough to enable the DISC to earn the greater of 4% of its sales or 50% of the combined income attributable to the manufacture and sale of the products through the DISC. The DISC would also be permitted to earn an additional profit equal to 10% of its export promotion expenses. This favorable pricing rule permits the DISC to claim for tax deferral purposes a portion of the earnings that would have been considered domestic manufacturing profits subject to tax if the products had been sold abroad through a foreign sales subsidiary or marketed domestically.

Other Tax Breaks Ordinarily, a loan by a foreign subsidiary to a domestic parent is treated, for tax purposes, as a dividend subject to tax. But a DISC may lend its retained earnings to the parent company or to any other domestic export producer without forfeiting the tax-deferred status of those earnings. An important qualification, however, is that a DISC's "producer's loans" must be used to finance the borrower's export assets and are thus limited by the size of the borrower's export business. In calculating the amount of loans permissible, export assets are assumed to be the same percentage of total assets as the percentage of the borrower's export sales to total sales. If the loans of a DISC to its parent company exceed the parent's export assets, the DISC must distribute that amount of its earnings as a taxable dividend. This limitation on the use of tax-deferred earnings by the parent or other

export manufacturer is fairly lenient. It is not likely to become restrictive as long as the recipient's export activities are sizable in relation to the lending DISC's profits.

Unlike foreign subsidiaries of domestic companies, a DISC does not have to pay foreign taxes in order to receive its U. S. tax deferral. While U. S. taxes on the earnings of a foreign subsidiary are deferred until those earnings are remitted to the U. S. parent corporation, the subsidiary has to pay current foreign tax. Since foreign income taxes paid may be credited against the U. S. tax liability, the deferral is of significant benefit only when the U. S. corporate tax rate is higher than the foreign rate. But even then the deferral applies only to any excess of the ultimate U. S. tax liability over the foreign taxes paid. This differential is usually a small portion of the total tax liability to both governments. A DISC, on the other hand, does not have to pay a foreign tax to have its domestic taxes deferred.

Legal Requirements A DISC may be incorporated under the laws of any state or the District of Columbia. It must have a minimum of $2,500 of capital and only one class of stock. All shareholders must consent to treatment of the corporation as a DISC. The DISC must maintain a separate set of records and bank accounts, but it may otherwise operate as a "shell corporation" without its own premises or employees. The officers and employees of the parent or shareholder companies are expected to conduct businss on behalf of their DISC subsidiaries.

A DISC may have any number of shareholders and may handle the export sales, as a principal or on a commission basis, of any number of producers whether they are shareholders or not. It is anticipated that many small producers will export through jointly owned DISCs and that many large export producers will export through wholly owned DISC subsidiaries. Many existing corporations engaged primarily in export sales may qualify for treatment as a DISC for tax purposes.

In order to qualify as a DISC, a corporation must derive at least 95% of its revenues from export sales and export-related investments, and 95% of its assets must be "export related." If a firm fails to meet these two crucial tests it can retain its status as a DISC by distributing its unqualified earnings or assets to its shareholders as a taxable dividend. Otherwise, it loses its status as a DISC. If a corporation ceases to be a DISC for any reason, its retained earnings become taxable to its shareholders over the same number of years as the DISC has been in existence, or a maximum of 10 years.

As indicated above, a corporation must derive at least 95% of its gross receipts from exports or export-related activities to qualify as a DISC. Qualified receipts include receipts from the sale or leasing of export goods and the performance of related services, dividends from investments in qualified foreign sales subsidiaries, and interest income on any qualified export asset, such as accounts receivable from export sales, producer's loans, and Export-Import Bank obligations. Qualified receipts also include receipts from performing architectural and engineering services on foreign construction projects and from export management services provided for unrelated DISCs.

In addition to the gross receipts requirement, 95% of the total assets of a corporation must also be export related for it to qualify as a DISC. Qualified export assets include the DISC's inventory of export goods and goods held for lease abroad, business assets used in connection with the DISC's export business, trade receivables, necessary working capital, producer's loans, Export-Import Bank obligations, and investments in foreign sales subsidiaries and other related foreign export corporations.

Impact of DISC The Treasury has estimated that, when the DISC program becomes fully effective in two or three years, it will raise U. S. exports by about $1.5 billion annually and create about 800,000 new jobs. The cost in terms of foregone tax revenue is estimated to be approximately $600 million.

As these estimates suggest, the Treasury is counting on the tax incentives of the DISC program to encourage exporters and potential exporters to undertake significant efforts to expand their export markets and to supply those markets to a greater extent from U. S. plants. The Treasury recognizes that foreign demand for U. S. exports is probably too insensitive to price changes for the projected expansion of exports to be achieved solely through price reductions made possible by tax savings. This estimate is consistent with most empirical estimates of demand elasticities for U. S. exports. Supplementary nonprice competitive measures will probably be necessary in the form of increased promotion efforts, better financial terms, better servicing facilities, delivery schedules, and quality control.

In the Congressional Hearings of the Revenue Act of 1971, critics of the DISC proposal emphasized what they considered to be its high cost relative to expected benefits. Several witnesses estimated a higher revenue loss than official estimates and a smaller stimulus to exports. In addition to the tax

costs of the program, several critics objected on grounds of tax equity. They contended that the program could virtually exempt an entire sector of the economy—the export sector—from income taxation. They also argued that the largest U. S. corporations would be the program's chief beneficiaries since these firms dominate exporting. To eliminate what some people considered to be a windfall tax benefit, an effort was made to limit the tax advantages of the DISC program to incremental exports over some base period level, so that export *increases* would be singled out for preferred treatment. The Treasury maintained that the DISC program does not favor large corporations since they are already receiving the tax benefits of foreign subsidiaries and foreign tax credits. The more likely beneficiaries, according to the Treasury, are the smaller and medium-sized firms whose earnings are not already being shielded from U. S. taxes. The Treasury argued that DISC benefits should not be limited to incremental exports since that approach would penalize firms for a good past performance in exporting. It also argued that many firms have recently experienced declining export sales, and an incremental approach would do nothing to arrest this decline. It is just as important to maintain export levels against erosion as it is to raise export levels.

Critics of the DISC proposal maintained that the special tax treatment of a DISC is tantamount to a permanent tax exemption rather than a deferral, since the DISC may make its retained earnings available to its parent company without losing their deferred status. Partly for this reason, critics questioned the legality of DISC under the General Agreement on Tariffs and Trade rules and anticipated foreign emulation or other forms of retaliation. Proponents of DISC countered that DISC, in most cases, merely goes part way toward giving U. S. exports as favorable a treatment as foreign exports have received for some time.

Conclusion The DISC program is just getting under way, and at this point estimates of its impact on exports and on tax revenues are necessarily tentative. Evaluation of its effect will have to await at least two or three years of operation. Newspaper reports indicate that the Treasury is receiving many inquiries about the program and that many DISCs are being formed. Anyone interested in the legal details of the program or anyone contemplating forming a DISC subsidiary should consult the Treasury booklet, *DISC, Domestic International Sales Corporation, A Handbook for Exporters.*

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THE WORLD TRADE MATRIX

In analyzing the flow of trade among nations, economists sometimes find it convenient to employ a world trade matrix. This matrix, which depicts the interrelated network of world commerce, provides information useful in examining the effects of tariff changes, currency devaluations, and the creation of regional trade blocs on the pattern or direction of trade.

Matrix presentation of world export-import data is of relatively recent origin. The use of world trade tables, although anticipated in a famous 1942 League of Nations study, *The Network of World Trade,* did not become widespread until after World War II, when economists began to require increasing amounts of export-import data, both for forecasting purposes and for the empirical testing of theoretical trade models, and when the development of high-speed computers made the analysis of large volumes of data feasible. Since then, such matrices have been the conventional means for organizing trade data. Official publications of the United Nations (UN), the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD), the General Agreement on Tariffs and Trade (GATT), and other international economic organizations customarily present trade data in matrix form. The purpose of this article is to familiarize *Monthly Review* readers with matrices of this type and to indicate certain significant trade patterns revealed in the 1970 world trade matrix.

Figure 1

TRADE MATRIX FOR A HYPOTHETICAL THREE-COUNTRY WORLD

Exports From ↓ / Exports To →	Country A	Country B	Country C	Total
Country A		6	7	13
Country B	3		5	8
Country C	10	2		12
Total	13	8	12	33

The Network of Trade in a Hypothetical Three-Country World Figure 1 shows a matrix for a hypothetical three-country world. All the countries are listed both as exporters vertically along the left-hand side of the matrix and as importers horizontally along the top of the matrix. Each row shows the exports of the particular country listed at the left, and each column shows the imports of the country designated at the top. The numbers appearing in the compartments of the matrix are the dollar values of exports from the country listed at the left delivered as imports to the country designated at the top. Each country is treated as a trading entity; intra-country trade is ignored. Thus, the compartments along the diagonal are left blank to indicate that no nation exports to itself.

In the example given, trade is in multilateral, but not bilateral, balance. Although each country's total exports to all the other countries equal its total imports from them, no such equality is exhibited in any country's separate trade balance with a single trading partner. In a system of multilateral trade, the deficits that a country runs with some of its trading partners are offset by surpluses with other partners. For example, Country A's $3 trade deficit with Country C is offset by A's $3 surplus with Country B. Similarly, B's deficit with A is balanced by B's trade surplus with C, and, finally, C's deficit with B just equals C's surplus with A, thereby clearing the system. In general, a multilaterally-balanced, bilaterally-imbalanced world trade pattern is more efficient than one constrained by the requirement of strict bilateral balancing. In limiting trade between partners to transactions that will just balance, the requirement of bilateral balancing tends to restrict the volume of trade, thereby inhibiting

international specialization and division of labor.

As shown in the lower right compartment of the matrix, exports must equal imports for the world as a whole. The world export-import equality would exist purely as a matter of accounting even in the absence of multilateral equilibrium, i.e., even if no single country's total trade balance exhibited such an equality. This global equality between exports and imports necessarily results if all countries use the same basis for valuation of imports as they use in accounting for exports, e.g., the value of the commodities exclusive of shipping cost from the exporting to the importing country. In such a case the value of the traded goods appearing on importers' foreign trade accounts must be the same as the value recorded in exporters' external accounts.

Actual World Trade Network Figure 2 shows the 1970 world trade matrix prepared by the economics staff of the United Nations. This version differs from the hypothetical world matrix in three respects. First, instead of a complete listing of all nations as exporters and importers, only the major trading countries are listed, with the rest aggregated into regions or trading blocs. Notice, however, that trade among the nations comprising a particular bloc or region is shown. Thus, for example, the measured volume of intraregional and intrabloc trade appears in the compartments marking the respective intersections of the "Latin America" and "EEC" rows and columns. Intranational, i.e., purely domestic trade, is, of course, not reported; no data appear in the compartments marking the intersection of the "United States" or "Canada" row and column.

Second, the condition of all-country export-import balance is absent. In contrast to Figure 1's hypothetical case of multilateral balance, Figure 2 indicates that, in 1970, some countries and regions—notably the U. S., Canada, EEC, and Japan—were net exporters, while others—notably EFTA, Other Europe, and Other Asia—were net importers.

The third difference between the two matrices is that in the U. N.'s version the reported export figures are not necessarily identical to the value of imports received, as recorded in the trade statistics of importing countries, i.e., "exports to" is not synonomous with "imports of." In the real world, as opposed to the hypothetical, exports and imports are not defined consistently and, therefore, are not identical. Whereas exports are universaly valued at their cost before shipment to the importer, imports are valued in many countries at this cost *plus* the freight and insurance costs involved in transporting the goods from the exporting to the importing country. Because exports and imports are valued differently, the world total of exports does not equal the world total of imports. The latter exceeds the former by the amount of shipping and insurance charges. For consistency, the UN is constrained to report only the value of exports by destination instead of the import figure shown in a nation's balance of payments statistics.

Trade Patterns To examine the pattern of trade of a particular country or region in 1970, one has only to isolate the row and column of Figure 2 corresponding to that country or region. For example, the first row of the matrix reveals that Canada and the European Economic Community (EEC) were the most important foreign markets for U. S. goods, purchasing 20.7% and 19.6% respectively, of total U. S. exports. The European Free Trade Association (EFTA) and Japan accounted for another 21%. These four areas, which together purchased 61.2% of our exports, were also our major suppliers, providing 70.2% of all goods exported to this country in 1970. The first column of the matrix indicates that Canada accounted for 28.1% of the foreign exports sent to the U. S. The EEC, Japan, and EFTA followed with shares of 17%, 15.5%, and 9.6%, respectively.

Two aspects of the world trade pattern are especially noteworthy. The first is the prominence of the U. S. in Canada's foreign trade picture. Almost two-thirds of Canada's exports go to the U. S. which, in turn, is the source of more than 70% of the goods exported to Canada. Propinquity, similarity of markets, and the relative lack of trade barriers between Canada and the U. S. account for the latter's preponderance in Canadian export-import trade.

A second point of interest is the remarkably high proportion of total EEC trade carried on within the EEC. The nations comprising the European common market trade as much with each other as they do with the entire rest of the world. By contrast, intraunion trade in the EFTA, the other major European trade bloc, was less than 25% of its total trade. In 1970 the nations comprising the EFTA traded more with the EEC than with themselves. In fact, trade with the EEC accounted for the largest proportion of total EFTA trade, suggesting that EFTA nations may find it advantageous either to join the EEC (as Great Britain, Norway, Ireland, and Denmark currently are in the process of doing) or to establish closer trading arrangements with the EEC. As the common market expands, the intraunion proportion of its total trade is likely to rise even higher.

Trade Flows Among Developed, Developing, and Planned Economies In some cases it may be useful to impose an even more severe degree of aggregation on the world trade data than that shown in Figure 2. Further consolidation may be necessary to bring into sharp focus interesting trade patterns obscured in larger matrices such as Figure 2. In the matrix of Figure 3, all of the countries of the world are classified into three mutually exclusive categories—developed market economies, developing market economies, and centrally planned or socialistic economies.

According to Figure 3, developed countries dominate world trade, accounting for almost three-fourths

Figure 2

WORLD EXPORTS BY ORIGIN AND DESTINATION, 1970

Exports From \ Exports To	United States	Canada	Latin America	EEC	EFTA	Other Free World Europe	Soviet Bloc Europe	Africa & S. Africa	Japan	Asian Mid-East	Other Asia	CPE Communist Asia	Oceania	Rest of World	Total[1] World
United States	—	20.7 **8,810** 70.6	13.3 **5,650** 37.4	19.6 **8,330** 9.8	10.1 **4,300** 9.6	3.8 **1,640** 11.4	0.8 **350** 1.2	3.7 **1,560** 10.0	10.8 **4,610** 29.4	3.1 **1,330** 18.1	9.4 **4,000** 21.3	—	2.6 **1,120** 21.4	2.1 **900** 19.8	**42,590** 13.7
Canada	65.3 **10,920** 28.1	—	3.3 **560** 3.7	7.1 **1,190** 1.4	10.7 **1,790** 4.0	1.0 **163** 1.1	0.8 **135** 0.5	1.3 **220** 1.4	4.7 **790** 5.0	0.4 **61** 0.8	2.0 **340** 1.8	0.9 **145** 5.1	1.5 **245** 4.7	0.9 **155** 3.4	**16,710** 5.4
Latin America	30.1 **4,440** 11.4	3.4 **500** 4.0	11.5 **1,700** 11.2	21.2 **3,130** 3.7	8.8 **1,300** 2.9	3.8 **560** 3.9	4.7 **690** 2.4	0.8 **114** 0.7	6.9 **1,020** 6.5	0.4 **58** 0.8	1.0 **155** 0.8	0.7 **105** 3.7	0.1 **15** 0.3	6.6 **970** 21.4	**14,750** 4.7
EEC	7.5 **6,630** 17.0	0.8 **730** 5.8	3.2 **2,810** 18.6	48.9 **43,300** 50.9	16.8 **14,840** 33.1	5.6 **4,920** 34.3	3.4 **3,050** 10.7	6.0 **5,310** 34.2	1.1 **990** 6.3	2.1 **1,830** 24.9	2.2 **1,910** 10.1	0.4 **360** 12.8	0.7 **640** 12.2	0.9 **780** 17.2	**88,500** 28.4
EFTA	9.1 **3,730** 9.6	2.3 **960** 7.7	3.4 **1,400** 9.3	26.4 **10,770** 12.7	24.6 **10,050** 22.4	8.5 **3,490** 24.3	4.2 **1,720** 6.0	7.3 **2,970** 19.1	1.6 **650** 4.1	3.3 **1,360** 18.5	3.8 **1,550** 8.2	0.4 **175** 6.2	3.3 **1,340** 25.6	1.3 **550** 12.1	**40,820** 13.1
Other Free World Europe	9.0 **785** 2.0	0.9 **79** 0.6	4.6 **403** 2.7	29.9 **2,620** 3.1	29.3 **2,560** 5.7	3.1 **268** 1.9	13.7 **1,195** 4.2	3.8 **334** 2.1	0.8 **70** 0.4	2.0 **173** 2.3	1.3 **115** 0.6	0.2 **19** 0.7	0.6 **54** 1.0	0.5 **45** 1.0	**8,750** 2.8
Soviet Bloc Europe	0.7 **220** 0.6	0.2 **65** 0.5	3.1 **960** 6.4	7.1 **2,186** 2.6	7.2 **2,190** 4.9	4.9 **1,490** 10.4	60.4 **18,480** 65.1	3.1 **954** 6.1	1.5 **465** 3.0	2.4 **730** 9.9	1.8 **550** 2.9	3.2 **990** 35.1	0.1 **25** 0.5	0.0 **2** 0.0	**30,590** 9.8
Africa & S. Africa	5.9 **880** 2.3	0.8 **123** 1.0	0.7 **106** 0.7	42.5 **6,285** 7.4	19.8 **2,930** 6.5	3.7 **546** 3.8	5.1 **753** 2.6	8.5 **1,265** 8.1	5.9 **875** 5.6	1.0 **146** 2.0	2.0 **293** 1.6	0.6 **88** 3.1	0.4 **53** 1.0	0.7 **98** 2.2	**14,790** 4.7
Japan	31.2 **6,020** 15.5	2.9 **560** 4.5	5.1 **990** 6.5	6.7 **1,300** 1.5	5.5 **1,060** 2.4	2.9 **563** 3.9	2.3 **445** 1.6	7.2 **1,400** 9.0	—	2.8 **540** 7.3	25.2 **4,870** 25.9	3.1 **600** 21.3	3.8 **740** 14.1	1.1 **215** 4.7	**19,320** 6.2
Asian Mid-East	3.6 **355** 0.9	0.8 **81** 0.6	1.6 **165** 1.1	28.8 **2,870** 3.4	14.4 **1,440** 3.2	4.3 **426** 3.0	1.6 **160** 0.6	6.4 **635** 4.1	20.8 **2,080** 13.3	6.2 **620** 8.4	6.7 **670** 3.6	0.2 **24** 0.8	1.9 **195** 3.7	0.4 **43** 0.9	**9,980** 3.2
Other Asia	23.7 **3,370** 8.7	1.7 **245** 2.0	0.9 **135** 0.9	9.4 **1,340** 1.6	8.3 **1,180** 2.6	1.3 **186** 1.3	5.5 **780** 2.7	3.2 **450** 2.9	16.7 **2,370** 15.1	2.3 **325** 4.4	21.7 **3,080** 16.4	1.3 **185** 6.6	2.7 **385** 7.3	0.8 **110** 2.4	**14,190** 4.6
CPE Communist Asia	0.0 **1** 0.0	0.8 **19** 0.1	3.6 **85** 0.6	10.2 **245** 0.3	5.9 **140** 0.3	0.5 **13** 0.1	20.9 **500** 1.8	6.3 **150** 1.0	12.5 **300** 1.9	3.8 **90** 1.2	33.5 **800** 4.2	—	1.7 **40** 0.8	0.2 **6** 0.1	**2,390** 0.8
Oceania	13.5 **790** 2.0	3.0 **175** 1.4	0.7 **44** 0.3	9.9 **580** 0.7	17.3 **1,010** 2.2	1.6 **94** 0.6	2.3 **135** 0.5	2.7 **159** 1.0	23.4 **1,370** 8.7	1.4 **82** 1.1	13.2 **770** 4.1	2.4 **140** 5.0	5.6 **330** 6.3	2.4 **140** 3.1	**5,850** 1.9
Rest of World	44.4 **1,150** 2.9	5.6 **145** 1.2	4.2 **110** 0.7	9.8 **255** 0.3	15.8 **410** 0.9	0.8 **22** 0.1	0.0 **1** 0.0	1.2 **31** 0.2	4.6 **120** 0.8	0.1 **2** 0.0	1.5 **39** 0.2	—	2.9 **74** 1.4	7.3 **190** 4.2	**2,590** 0.8
Total[1] World	12.5 **38,910**	4.0 **12,480**	4.8 **15,109**	27.3 **85,030**	14.4 **44,930**	4.6 **14,350**	9.1 **28,390**	5.0 **15,530**	5.0 **15,670**	2.4 **7,360**	6.0 **18,810**	0.9 **2,820**	1.7 **5,240**	1.4 **4,540**	**311,260**

Note: Bold-face figures are F.O.B. values in millions of U. S. dollars. Figure in upper left corner is percent of row total; figure in lower right corner is percent of column total.

[1]May not equal the sum of the corresponding row and column figures because of approximation error and statistical discrepancy.

Source: United Nations, Statistical Office, **Monthly Bulletin of Statistics**, June 1971, Special Table B, pp. xii-xv.

Figure 3

TRADE AMONG DEVELOPED MARKET, DEVELOPING MARKET, AND CENTRALLY PLANNED ECONOMIES, 1970

Exports From ↓ / Exports To →	Developed Market Economies	Developing Market Economies	Centrally Planned Economies	Total[1] World
Developed Market Economies	76.8 **172,670** 78.4	19.1 **42,840** 74.2	3.8 **8,470** 27.1	**224,700** 72.2
Developing Market Economies	74.3 **40,230** 18.3	19.5 **10,580** 18.3	5.1 **2,780** 8.9	**54,160** 17.4
Centrally Planned Economies	23.8 **7,860** 3.6	13.1 **4,320** 7.5	60.6 **19,980** 64.0	**32,990** 10.6
Total[1] World	70.8 **220,240**	18.5 **57,700**	10.0 **31,220**	**311,260**

Note: Bold-face figures are F.O.B. values in millions of U. S. dollars. Figure in upper left corner is percent of row total; figure in lower right corner is percent of column total.

[1] **May not equal the sum of the corresponding row and column figures because of approximation error and statistical discrepancy.**

Source: United Nations, Statistical Office, Monthly Bulletin of Statistics, June 1971, Special Table B, pp. xii-xv.

of the total. Less developed countries, on the other hand, account for less than one-fifth. Several factors are responsible for the relatively minor role played by less developed countries in the world economy. Since the 1930's there has been a long-term tendency for the demand for primary products, the chief exports of underdeveloped areas, to shrink in relation to the demand for manufactured goods, the chief exports of developed economies. Part of this relative decline may be attributable to the relatively low income elasticity of consumer demand for agricultural commodities. Consumer spending for the latter tends to be less responsive to rises in income than does spending for manufactured products. Then, too, production in the developed countries has become less raw material-using than formerly, thereby contributing to the reduction in the relative demand for primary products. The development of synthetic substitutes, the realization of economies in the use of raw materials, and the increasing importance of complex, sophisticated finished products requiring a larger proportion of processing costs to materials costs than do simple products, all have tended to reduce the resource content per unit of output of manufactured products. In addition, the shift of the product-mix in developed countries toward services, a non raw material-intensive form of output, has further reduced the demand for primary products.

Figure 3 also indicates that developed countries trade almost four times as much among themselves as they do with less developed countries. Less developed countries, however, trade relatively little with each other but relatively much with developed countries. In 1970, trade of less developed countries accounted for only 3.6% of total world trade, whereas trade among developed countries amounted to 55% of world trade. Approximately three-fourths of the trade of less developed countries was with developed countries, but less than one-fifth of the developed countries' trade was with the poorer economies.

Why do developed countries do most of their trading with each other? Many explanations, none completely satisfactory, have been offered. One of the more plausible explanations is that only these nations possess endowments of capital, highly skilled labor, and advanced technical knowledge in sufficient abundance to supply the sophisticated products that other rich nations want. Moreover, only these nations, having similar per capita incomes and, therefore, similar demand patterns, can absorb the types of products other affluent nations produce.

As is the case with developed market economies, the major part of the trade of socialist nations is with other socialist nations. More than three-fifths of communist bloc trade is internal. About two-thirds of the remainder of communist bloc trade is with developed countries. Although communist bloc trade with developed economies is roughly twice that with underdeveloped market economies this situation does not necessarily conflict with the widely-held belief that communist-bloc nations use trade primarily to solicit allies in the less developed part of the world. Rather, the predominant share of the West in the external trade of the socialist bloc may indicate that the latter has found trade to be advantageous on economic as well as political grounds.

Still, East-West trade is but a minute proportion of both total world and free world trade, suggesting a potential for future expansion. The possibility of expanded trade between communist and developed market economies has been much discussed of late, and many observers feel that more liberalized trade relations would be beneficial to both sides.

Summary A world trade matrix summarizes, in tabular form, the interrelated structure of international and interregional commerce. This article has discussed certain features of such matrices and has examined some of the major patterns revealed in the 1970 world trade matrix. The main conclusion of the article is that trade of developed market economies dominates total world trade and largely determines the trade of less developed economies.

Thomas M. Humphrey

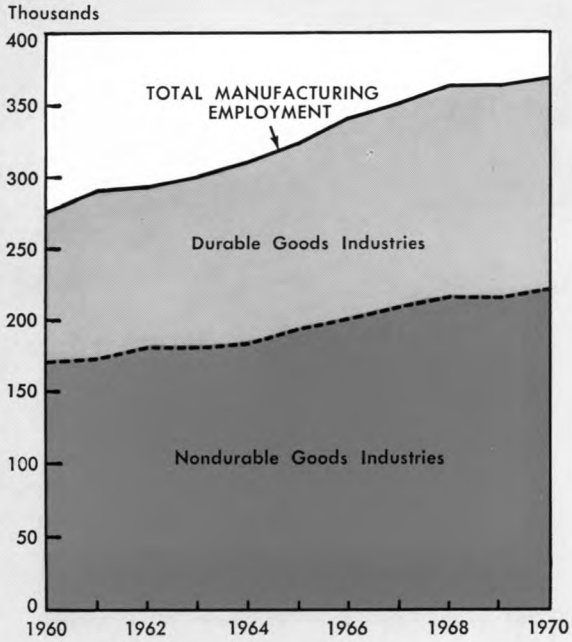
VIRGINIA MANUFACTURING:

A Profile of Growth

The story of Virginia manufacturing since the early 1950's is one of constant growth and diversification. Between 1958 and 1967, Virginia's manufacturing work force grew at an annual rate of 3.4%, compared with an annual average rate of 2% for the nation as a whole. Value-added in manufacturing in Virginia amounted to $4.1 billion, a 92% increase over 1958. From 1958 to 1967, Virginia's manufacturing establishments increased their expenditures for plant and equipment by 145%, reaching a level of $347 million in 1967. Nondurable goods industries accounted for 72% of the 1967 total. The chemical, food, and paper industries have consistently led Virginia manufacturers in expenditures for new plant and equipment.

Chart 1

MANUFACTURING EMPLOYMENT IN VIRGINIA



Source: Commonwealth of Virginia, Division of Industrial Development, **Manufacturing in Virginia.**

MANUFACTURING EMPLOYMENT AND WAGES

Manufacturing employment in Virginia increased by 34.7% from 1960 to 1969. This was in line with the South Atlantic region's growth of 34%, and was substantially above the national gain of 20.1%. In 1970, manufacturing in Virginia employed 365,000 workers and provided jobs for 20% of the civilian labor force. The percentage of the nation's manufacturing workers employed in Virginia has grown slowly but steadily for two decades. In 1950, 1.5% of manufacturing employees in the United States were employed in Virginia. By 1958, 1.6% of the nation's manufacturing work force was located in Virginia, and by 1967 the comparable figure was 1.9%. In percentage terms this appears to be a very small increase, but the 20% growth in Virginia's share of the nation's manufacturing workers represents 66,000 new manufacturing jobs and an increase of $350 million in the state's manufacturing payrolls. Among those manufacturers that have grown the fastest in terms of total employment are furniture, machinery, and transportation and electrical equipment industries.

Manufacturing wage rates in Virginia, as in the nation and the Southeast, have risen steadily since 1950. From 1950 to 1960, average rates climbed from $1.18 per hour to $1.77 per hour. By 1970, the average hourly earnings for manufacturing employees in Virginia had increased to $2.73 per hour. Employees in durables industries benefited from these wage increases more than nondurable industry workers. Between 1960 and 1970, wage rates in Virginia were consistently 80% of national rates and were in line with rates in other southeastern states. During the 1960's, wage rates were slightly higher in Maryland and Florida than in Virginia, but the hourly earnings of production workers on manufacturing payrolls in Virginia were significantly above those of North Carolina, South Carolina, or Georgia workers during the 1960's, as shown in Chart 2.

GEOGRAPHICAL DISTRIBUTION

Manufacturing employment in the state is widely distributed geographically, with all Virginia cities and counties sharing in the total. In 1969, more than one-third of the state's manufacturing employment was accounted for by five major metropolitan areas: Richmond, Norfolk-Portsmouth, Newport News-Hampton, Lynchburg, and Roanoke. The heaviest concentration in Piedmont and Western Virginia is in the cities of Danville, Martinsville, Lynchburg, and Roanoke. The major manufacturing centers in Eastern Virginia are the Hampton-Roads area and the Richmond-Petersburg-Hopewell triangle. The Shenandoah Valley has experienced considerable industrial development over the past 20 years and significant pockets of manufacturing employment extend from Winchester to Bristol. But Northern Virginia generally is dominated by agricultural, commercial and government activity and offers relatively little in the way of manufacturing job opportunities.

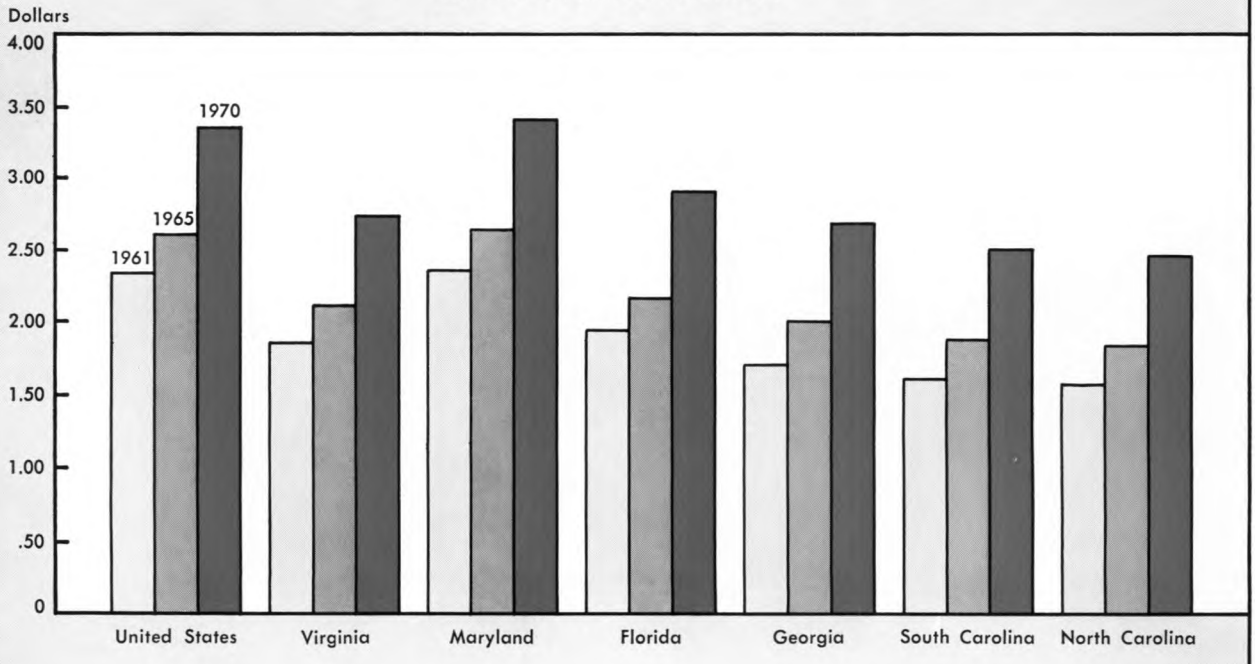
In recent years there has been a distinct tendency toward dispersal of manufacturing facilities over the countryside, away from the larger urban centers. Since 1966, two-thirds of new manufacturing jobs have been located in nonmetropolitan areas. This has provided the state with a manufacturing base that does not rest solely in the urban centers.

THE INDUSTRIAL MIX

Durable Goods Since 1958, durable goods industries have become increasingly important to Virginia's economy. The fraction of manufacturing employment accounted for by durables industries rose from 36% in 1958 to 40% in 1967, with almost all durable lines increasing their respective shares. The value-added from the manufacture of durable goods nearly tripled between 1958 and 1967, rising from $0.5 billion to $1.5 billion. The 1967 figure represented 37% of the total value-added by manufacturing in the state in that year. Virginia has increased its share of United States employment in manufacturing by 44% since 1950. The number of Virginians employed in the manufacture of durable goods has more than doubled since 1950, which is

Chart 2

AVERAGE HOURLY EARNINGS OF PRODUCTION WORKERS ON MANUFACTURING PAYROLLS



Source: U. S. Department of Labor, Bureau of Labor Statistics, **Employment and Earnings, 1939-1970.**

Table I

MANUFACTURING EMPLOYMENT IN VIRGINIA[1]

(thousands)

	1958		1963		1967	
	Number	% of Total	Number	% of Total	Number	% of Total
Total Manufacturing	251.9	100.0	302.1	100.0	339.8	100.0
Durable Goods	91.6	36.4	119.6	39.6	136.2	40.1
Lumber & Wood	22.3	8.9	20.9	6.9	19.2	5.7
Furniture & Fixtures	16.4	6.5	20.4	6.8	24.2	7.1
Stone, Clay & Glass	7.8	3.1	9.6	3.2	10.0	2.9
Primary Metal	4.8	1.9	5.4	1.8	6.6	1.9
Fabricated Metal	8.3	3.3	9.9	3.3	11.1	3.3
Machinery	3.8	1.5	5.8	1.9	8.8	2.6
Electrical Equipment	6.0	2.4	16.9	5.6	22.4	6.6
Transportation Equipment	17.0	6.7	25.4	8.4	27.9	8.2
Instruments	1.7	0.7	1.9	0.6	2.3	0.7
Misc. Manufacturing	3.5	1.4	3.4	1.1	3.7	1.1
Nondurable Goods	159.9	63.5	175.7	57.9	192.4	56.5
Food & Kindred Products	31.4	12.5	32.1	10.6	31.5	9.3
Tobacco Manufacturers	13.4	5.3	13.7	4.5	13.7	4.0
Textile Mill Products	34.9	13.9	36.0	11.9	38.4	11.3
Apparel & Related Products	21.5	8.6	26.6	8.8	30.4	8.9
Paper & Allied Products	11.0	4.4	12.1	4.0	13.2	3.9
Printing & Publishing	9.6	3.8	10.6	3.5	12.7	3.7
Chemicals & Allied Products	30.6	12.1	35.1	11.6	40.9	12.0
Leather & Leather Products	5.0	2.0	4.3	1.4	5.0	1.5
Other Nondurables[2]	2.5	1.0	5.2	1.6	6.6	1.9

[1] Figures will not add to totals because of data that are not available.
[2] Includes "Petroleum" and "Rubber."
Source: U. S. Department of Commerce, Bureau of Census, **Census of Manufactures,** 1958, 1963, 1967.

better than twice the national increase.

Among the durable goods industries in the state, transportation equipment led the field in 1967, accounting for 8.2% of employment in the state's durable goods industries. The state's shipbuilding industry is of national significance. One-eighth of all shipyard workers in the United States are employed by the state's largest single manufacturing establishment, a shipbuilding and dry dock company. This is the only United States shipyard capable of building and providing the full range of services required by nuclear powered vessels.

The electrical equipment industry, a relative newcomer in the state, grew rapidly in the 1960's. It provided 7% of total manufacturing jobs in the state in 1967, compared with only 2% in 1958. The value-added total for this industry in 1967 came to $300 million, larger than that for any other durable goods line. Production of industrial controls equipment is especially significant in the state's electrical equipment industry. Four Virginia plants of a large electrical company account for 10% of the nation's total employment in the manufacture of industrial controls equipment.

The furniture industry has long been a mainstay in the state's industrial base, although it has not shared in the recent rapid growth of other durables manufacturers. In 1967, 7.1% of the state's manufacturing workers were employed in this industry, making it the sixth leading source of manufacturing jobs. The value-added contribution of furniture and fixtures manufacturing in 1967 was $232 million, not much changed from its level in 1958. The state's industry concentrates heavily in the production of non-upholstered household furniture and office furniture. Virginia is the second leading producer of non-upholstered household furniture in the nation. This category plus the group of office furniture manufacturers accounted for 95% of employment in furniture manufacturing in the state in 1969.

During the past 20 years the relative importance of the lumber industry in Virginia has decreased. Even

Table II

VALUE ADDED BY MANUFACTURING IN VIRGINIA[1]

(millions)

	1958		1963		1967	
	Dollar	% of Total	Dollar	% of Total	Dollar	% of Total
Total Manufacturing	2,122.7	100.0	3,046.3	100.0	4,067.7	100.0
Durable Goods	499.6	23.4	1,083.9	35.5	1,483.6	36.4
Lumber & Wood	77.2	3.6	105.1	3.5	141.4	3.5
Furniture & Fixtures	104.7	4.9	173.8	5.7	232.4	5.7
Stone, Clay & Glass	75.8	3.6	107.5	3.5	128.0	3.1
Primary Metal	49.0	2.3	61.7	2.0	93.3	2.3
Fabricated Metal	57.6	2.7	100.6	3.3	130.8	3.2
Machinery	28.6	1.3	58.9	1.9	110.9	2.7
Electrical Equipment	69.8	3.3	180.7	5.9	299.9	7.4
Transportation Equipment	na	na	263.3	8.6	290.6	7.1
Instruments	8.8	0.4	na	na	21.6	0.5
Misc. Manufacturing	28.1	1.3	32.3	1.1	34.7	0.9
Nondurable Goods	1,474.5	69.5	1,935.5	63.4	2,540.5	62.6
Food & Kindred Products	241.0	11.4	326.5	10.7	392.7	9.7
Tobacco Manufacturers	265.3	12.5	308.0	10.1	421.8	10.4
Textile Mill Products	208.3	9.8	260.6	8.6	328.3	8.1
Apparel & Related Products	75.4	3.6	107.7	3.5	157.9	3.9
Paper & Allied Products	131.0	6.2	171.7	5.6	230.7	5.7
Printing & Publishing	66.2	3.1	91.3	3.0	139.4	3.4
Chemicals & Allied Products	452.5	21.3	609.3	20.0	762.0	18.7
Leather & Leather Products	19.2	0.9	19.7	0.6	28.1	0.7
Other Nondurables[2]	15.6	0.7	40.7	1.3	79.6	2.0

[1] Figures will not add to totals because of data that are not available.
[2] Includes "Petroleum" and "Rubber."
Source: U. S. Department of Commerce, Bureau of Census, **Census of Manufactures**, 1958, 1963, 1967.

so, in 1967 the lumber industry was the state's eighth leading employer in the manufacturing field. A number of new products that came on the market in the mid-1960's helped to stabilize the lumber industry nationally as well as statewide. The impact of these developments was greater at the state level, as might be expected, since the lumber industry is twice as important to the state's economy as it is nationally.

Nondurable Goods As in the nation, the fraction of total manufacturing employment accounted for by nondurable lines has been on a gradually declining trend in Virginia for some years. Nevertheless, nondurables lines combine to account for the majority of manufacturing jobs in the state as well as for the largest share of value-added by manufacturing. The nondurables sector has experienced considerable growth in recent years, but at rates below the rapid expansion in the durables sector. As a result, the state's industrial base has approached a close balance between durables and nondurables. In 1967, the nondurables sector accounted for 57% of manufacturing employment and 63% of value-added in the state. The comparable fractions for 1958 were 64% of employment and 70% of value-added. From 1958 to 1967, all categories of nondurable manufacturers increased their employment rolls; however, most nondurable lines accounted for a gradually diminishing fraction of total manufacturing employment.

Based on 1967 employment data, the top three nondurable goods industries in the state were chemicals, textiles, and food processing. Tobacco, which is a major industry in Virginia, supplied only 4% of the manufacturing jobs in the state in that year; but the industry ranked second in its contribution to value-added by manufacturing. The disparity between the industry's rank as a source of jobs and its rank in value-added results from its heavy concentration in cigarette production, a relatively capital-intensive operation.

The chemical industry is Virginia's leading source

Table III

INVESTMENT IN MANUFACTURING IN VIRGINIA[1]

(millions)

	1958		1963		1967	
	Dollar	% of Total	Dollar	% of Total	Dollar	% of Total
Total Manufacturing	141.6	100.0	231.8	100.0	347.0	100.0
Durable Goods	25.1	17.8	59.4	25.5	95.5	27.6
Lumber & Wood	7.5	5.3	11.8	5.1	12.4	3.6
Furniture & Fixtures	3.5	2.5	7.6	3.3	9.1	2.6
Stone, Clay & Glass	4.2	3.0	10.2	4.4	16.5	4.8
Primary Metal	1.8	1.3	4.5	1.9	6.3	1.9
Fabricated Metal	3.0	2.1	7.7	3.3	13.7	3.9
Machinery	1.7	1.2	4.0	1.7	8.2	2.4
Electrical Equipment	1.2	0.8	5.9	2.5	13.0	3.7
Transportation Equipment	na	na	6.8	2.9	13.5	3.9
Instruments	1.1	0.8	na	na	0.6	0.2
Misc. Manufacturing	1.1	0.8	0.9	0.4	2.2	0.6
Nondurable Goods	108.7	76.6	170.6	73.5	250.0	64.0
Food & Kindred Products	14.2	10.0	17.4	7.5	24.4	7.0
Tobacco Manufacturers	6.8	4.8	14.3	6.2	17.9	5.2
Textile Mill Products	7.0	4.9	16.3	7.0	25.6	7.4
Apparel & Related Products	1.1	0.8	2.9	1.3	9.2	2.7
Paper & Allied Products	32.2	22.7	27.7	11.9	28.6	8.2
Printing & Publishing	3.3	2.3	5.6	2.4	7.8	2.2
Chemicals & Allied Products	41.4	29.2	83.1	35.8	103.3	21.8
Leather & Leather Products	0.2	0.1	0.3	0.1	0.5	0.1
Other Nondurables[2]	2.5	1.8	3.0	1.3	32.7	9.4

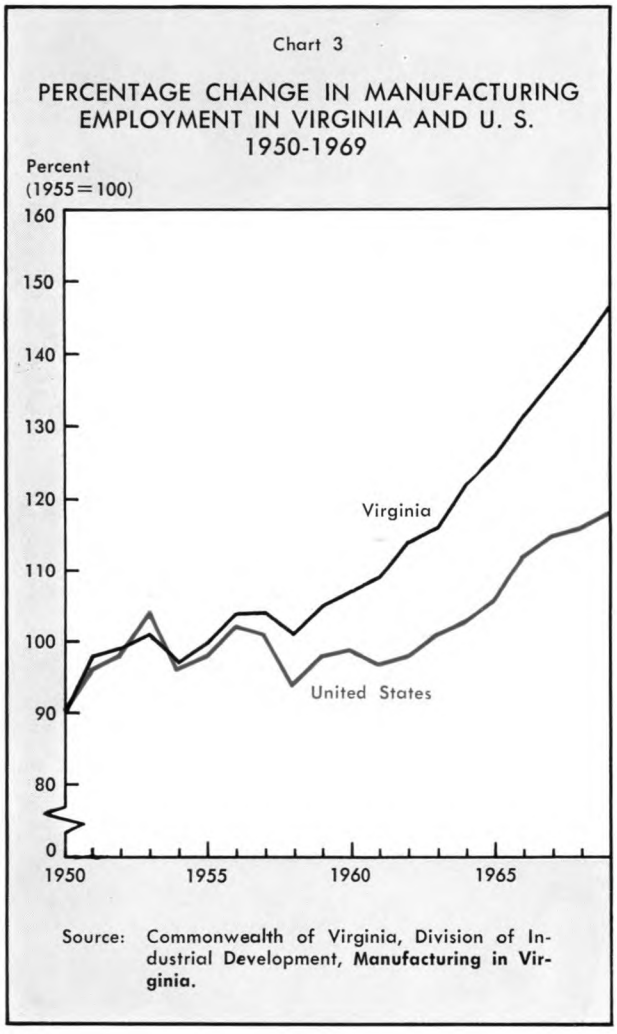
[1] Figures will not add to totals because of data that are not available.
[2] Includes "Petroleum" and "Rubber."
Source: U. S. Department of Commerce, Bureau of Census, **Census of Manufactures,** 1958, 1963, 1967.

of manufacturing jobs. Much of the state's chemical capacity has long been geared to the production of man-made textile fibers and, through much of the 1950's, to the production of rayon. With the decline in the use of that product in the 1950's, the state's chemical industry experienced a decline parallel to the rest of the nation's. But with the emergence of new synthetic fibers in the 1960's, the state's producers took on a new vitality. In 1967, for example, Virginia provided over 12% of the nation's new jobs in the chemical field. In 1969, 4.5% of total United States chemical employment and 3.6% of the total value-added by manufacture of chemical products originated in Virginia.

The textile industry has always been an important element in the state's industrial base and, until 1965, was the largest source of manufacturing employment. While the industry has declined in relative importance in the state's diversifying economy, it remains the second largest source of manufacturing jobs. Especially in the southern portions of the state, it is clearly a dynamic and important factor in the industrial prospects for the future.

In 1967, Virginia ranked sixth in the United States in textile manufacturing employment, with 4.4% of the national total. Based on value-added by the manufacture of textile products, Virginia accounted for 4.3% of the United States total.

An examination of the structure of Virginia's textile industry shows that more than one-half of the manufacturing activities are directed toward the production of broad woven fabrics. This branch of the industry requires rather highly skilled workers who command wages that are above the average for the industry. Thus, the wage scale in Virginia's textile industry is higher than in many of the industry's sub-classifications. The individual Virginia textile mill generally employs a relatively large labor force, with employment per mill averaging 404 persons. Six establishments, however, employ over 1,000 workers, and employment in one of Virginia's mills exceeds 10,000.



The third largest source of manufacturing employment in the state is the food processing industry. Like the textile industry, food processing has declined in relative importance in recent years, with much of the relative decline attributable to more rapid growth in other lines. In 1967, more than 32,000 persons, representing slightly over 9% of manufacturing employees in Virginia, worked in the food industry. Value-added by manufacturing in this industry in 1967 totaled $393 million, or 2% below the level in 1958. The composition of the industry has changed substantially in recent years and only the sharp increase in poultry processing has allowed the food industry to maintain its position as the third largest employer among the nondurable goods industries.

CONCLUSION

Virginia's manufacturing growth has been geographically well-dispersed and widely-diversified since the mid-1950's. Around 1955, the state's manufacturing industry began to grow faster than the national average. New industries were attracted to Virginia, and those manufacturers already located in the state expanded their plants and diversified their production. This process of expansion and diversification has resulted in the rapid growth of Virginia's manufacturing sector and the constant broadening of the industrial base of the state.

B. Gayle Burgess

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