

# MARKET DISRUPTION, THE NEW PROTECTIONISM, AND DEVELOPING COUNTRIES: A NOTE ON EMPIRICAL EVIDENCE FROM THE UNITED STATES

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## INTRODUCTION

FROM a historical viewpoint, the period following the culmination of hostilities in Korea up to the early years of the present decade marked a remarkable interval for international trade and economic relations. Over 1953–73, world trade grew at 8 per cent per annum, while trade in manufactures grew at 11 per cent per annum. In comparison, historical series compiled by Arthur Lewis show that the growth rate of trade prior to this period was much lower.<sup>1</sup> Specifically, Lewis found that the average annual growth rate was about 3.5 to 4 per cent during 1813–1900, and had fallen to about 1 per cent per annum over 1910–40. Thus, growth rates of postwar trade were unmatched by similar developments in previous eras.

Another feature peculiar to the 1950s and 1960s concerned the unprecedented accomplishments made in international trade liberalization. Following the successful completion of the Geneva (1955–56) and Dillon (1961–62) negotiations, the Kennedy Round concluded in 1968 with an agreement to reduce tariffs imposed on imports of industrialized countries by almost 40 per cent on average. While a failure to liberalize agricultural trade, or to make any progress on removal of non-tariff barriers was disappointing, the generally successful outcome of these negotiations resulted in an agreement that another trade negotiations (Tokyo Round) should be convened to secure even further reductions in trade barriers.

However, in the early 1970s several developments reversed much of the popular sentiment in favor of free trade. The unilateral pricing policy pursued by the Organization for Petroleum Exporting Countries (OPEC) was a factor contributing to the conditions of inflation and recession most Western economies experienced during 1973–80. The economic downturn, coupled with chronic over-capacity in industries such as steel, textiles, electronics, footwear, and shipbuilding resulted

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The views expressed in this paper are the authors' and do not necessarily reflect those of the United Nations or its staff.

<sup>1</sup> See A. Lewis, "The Rate of Growth of World Trade," paper presented to a symposium on the Past and Prospects of the Economic World Order, Stockholm, 1978.

in labor redundancies and reduced profits. In such an environment, low cost imports from abroad were more "visible" than they would have been in a period of economic expansion. In other words, the apparent influx of imports was a symptom of prevailing economic conditions rather than a cause of the problem. A failure to appreciate the proper lines of causation may have led representatives of both labor and management to initiate pressures for new protectionist measures to reduce imports.

While developing countries were often the target of these protectionist measures, particularly those countries exporting textiles and footwear, there is little evidence concerning the actual market disruption due to their exports. This lack of empirical evidence is surprising in view of the potential importance of trade expansion given in the overall industrialization programs pursued by developing countries. Specifically, many economists have strongly advocated development policies be geared to export expansion rather than import substitution. As such, it seems incongruous to find that export markets are being artificially closed now that developing countries have begun to reap the benefits of these outward oriented growth strategies.

Given the important tie between export expansion and development, this study assesses the actual degree of market disruption due to imports from developing countries. In doing so, we have a three-fold objective. First, an attempt is made to determine the degree of actual disruption which has occurred in "sensitive" industries and also identify the countries (industrialized or developing) primarily responsible. Second, we examine changes in measures of market disruption with the objective of placing demands for protection in proper perspective. Third, our analysis also attempts to point out some of the problems associated with the commonly used measures of market disruption since some inappropriate conclusions have been drawn using related data.

### I. MEASURING MARKET AND INDUSTRY DISRUPTION

A major problem associated with the empirical assessment of market or industry disruption or penetration concerns the statistical measures used for this purpose. One indicator, i.e., the import-consumption ratio, is not subject to several deficiencies associated with other possible measures. For example, the increase in the value of imports over time may be quite misleading as such a gauge. If demand (consumption) is expanding at a high rate, rapidly growing imports may be accommodated with little impact on domestic employment, capacity utilization, or profits. Conversely, if demand is stagnant or falling, even a modest import growth may have adverse economic consequences. To some degree these different underlying market situations would be distinguished through estimation of import-consumption ratios.

However, it is recognized that the import-consumption ratio is not without its potential limitations as a measure of industry disruption. Specifically, if an industry produces differentiated products for domestic and foreign markets and its exports grow, an import expansion at a similar rate may have a negligible disruptive effect. In other words, if the industry producing the differentiated

product is able to recoup lost domestic sales overseas, there is no reason why wages, employment, profits, and capacity utilization need be seriously affected. Thus, a different set of indicators are required to measure industry as opposed to market disruption.

These considerations lead us to advance two empirical measures for analyzing market disruption or penetration. Starting from the proposition that domestic (apparent) consumption  $C$  of a good can be approximated by,

$$C = V - E + I, \quad (1)$$

where  $V$  is the value of shipments,  $E$  is the value of exports, and  $I$  is the value of imports, it follows that the import-consumption ratio  $M$  is defined as,

$$M = I/C = I/(V - E + I). \quad (2)$$

While this ratio shows the percentage of domestic demand supplied by imports at any point of time, a key consideration may deal with increments. Specifically, if imports are capturing most of a market's growth, they may have a more serious disruptive effect than indicated by equation (2). In such a case, a measure of the marginal disruption effect of imports  $\Delta M$  defined as,

$$\Delta M = \Delta I/\Delta C = \Delta I/(\Delta V - \Delta E + \Delta I), \quad (3)$$

would be useful. If  $\Delta M > 1$ , the change in imports exceeds that in consumption. Given a positive inflow of imports ( $\Delta I > 0$ ), which is of interest in analyzing market disruption, equation (3) exceeds unity if  $\Delta I > \Delta C$ . This implies that,

$$\Delta I > \Delta V - \Delta E + \Delta I, \quad (4)$$

or

$$\Delta E > \Delta V. \quad (5)$$

In other words, as long as the change in exports is positive and exceeds that in the value of shipments, equation (3) would suggest that "market disruption" has occurred. As such, this equation would indicate that a successful export industry, which ships less and less to the domestic market, was being disrupted. As noted, such a conclusion may be incorrect if the industry is able to recoup domestic losses in the export sector.

These considerations indicated the need to examine the effects of imports at the industry level as well. Specifically, if a domestic industry is able to recoup domestic losses through foreign sales, the disruption should be smaller than where no export expansion occurs. This observation leads us to advance a measure of industry disruption  $D$  which takes the form of,

$$D = I/(V + I). \quad (6)$$

This ratio expresses imports as a percentage of total supply, while equation (2) measures imports in relation to total demand.<sup>2</sup> Since the marginal impact of imports at the industry level, defined as

<sup>2</sup> The secondary effects may differ depending on the extent to which the industry is geared to foreign as opposed to domestic sales. For example, imports displacing domestic sales may have important repercussions on domestic distributors and marketing establishments if foreign products are sold through different outlets. Import disruption due to linkage effects may also be important for some industries.

TABLE I  
TRADE IN MANUFACTURES AS A PERCENTAGE OF APPARENT CONSUMPTION  
IN THE EEC, U.S.A., AND JAPAN

Source of Imports	EEC*			U.S.A.			Japan		
	1959-60	1975	Change	1959-60	1975	Change	1959-60	1975	Change
All manufactures imports	14.13	26.85	12.72	3.28	7.13	3.85	6.02	5.97	-0.05
Imports from:									
Developing countries	1.46	1.78	0.32	0.73	2.01	1.28	1.16	1.81	0.65
Socialist countries	0.51	1.01	0.50	0.02	0.09	0.07	0.12	0.30	0.18
Developed countries of which:	12.16	24.06	11.90	2.53	5.03	2.50	4.74	3.86	-0.88
U.S.A.	1.81	2.11	0.30	—	—	—	3.08	1.78	-1.30
EEC	6.62	16.40	9.72	0.74	1.42	0.68	0.72	0.79	0.07
United Kingdom	1.02	1.53	0.51	0.33	0.41	0.08	0.31	0.26	-0.05
Japan	0.09	0.68	0.59	0.36	1.34	0.98	—	—	—
Others	2.62	3.34	0.72	1.11	1.85	0.74	0.64	1.02	0.38

Source: Adapted from [4, p. 286].

\* Includes intra-trade, and comprises of original six member countries.

$$AD = \Delta I / (\Delta V + \Delta I), \quad (7)$$

is of interest, this can be assessed through the use of equation (7). Several qualifications, or special situations should be noted. For example, given a positive inflow of imports ( $\Delta I > 0$ ), equation (7) exceeds unity if  $\Delta V < 0$ . Therefore, we could define industry disruption to have occurred if  $AD > 1$ . Disruption might be judged to be severe if  $0 > \Delta E > \Delta V$ .

## II. INDUSTRY AND MARKET DISRUPTION: THE DATA BASE

Aside from the fact that at least four different measures may be used to assess the disruptive effects of imports, a question concerns the level and types of data to which these indexes should be applied. Previous empirical studies suggest that the tests must be conducted at low levels of detail, at least the three- or four-digit Standard International Trade Classification (SITC) level. For example, Table I shows that total imports of manufactures from developing countries in 1975 accounted for only 1 or 2 per cent of apparent consumption in the European Economic Community (EEC), the United States, or Japan, while imports from other developed countries account for as much as 25 per cent of consumption in the EEC. In the United States the import-consumption ratio for imports from developing countries reaches 2 per cent, the highest in the three markets. These figures show how unimportant developing countries are in the aggregate as a source of manufactures. Thus, any study of market or industry disruption allegedly caused by developing countries requires an analysis at low levels of product detail where these shipments may be affected.

Given this need, we faced the problems of how to select items and markets

for our empirical tests. One factor requiring that some selection procedure be used is that foreign trade and production data are normally not compiled on the same classification system. Thus, any corresponding of trade to production statistics normally requires an extensive data processing operation involving considerable time and effort.

The magnitude of the data requirements associated with an extensive analysis of market or industry disruption in industrialized countries leads us to employ the United States for a case study. There are several reasons for this selection. First, the United States constitutes the largest single market, accounting for about 40 per cent of total industrialized country imports of manufactures from developing countries. Second, in addition to being largest in absolute size, the United States is the greatest importer from developing countries on a relative basis with the exception of Japan. In 1977, developing countries supplied approximately 23 per cent of the U.S. imports of manufactures, while their share in other industrialized countries averaged about 7 to 8 per cent. Thus, on both an absolute and relative basis the United States is a superior market for developing countries.

Given the selection of the United States as the importer, the fact that a number of items have no relevance for analysis of market disruption by developing countries reduced the number of industries or products to be examined. Specifically, developing countries have demonstrated limited or no export capacity, as yet, in most highly capital-intensive goods such as computers, aircraft, speciality steel, advanced industrial machinery, etc., but have made considerable gains in labor-intensive items in which they have a comparative advantage.<sup>3</sup> Table II shows that developing countries have performed considerably better in markets of industrialized countries for these goods than for other items. Overall, developing countries increased their market shares for labor-intensive exports to OECD countries by 4.4 percentage points (from 7.8 to 12.2 per cent), while their shares for other products declined by almost 8 percentage points over 1965-75. In particular, one-digit SITC data shows that the developing countries made their most impressive competitive gains in miscellaneous manufactures (SITC 8) where their market share for labor-intensive products increased by over 10 percentage points. Thus, for product selection, we concentrate on these labor-intensive items where developing countries have made their most impressive overall trade gains.

In gathering the export, import, and domestic shipments data, we have employed several different sources of information. Values of industry shipments, classified on the basis of the Standard Industrial Classification system were taken from United States Department of Commerce publications,<sup>4</sup> while export and import

<sup>3</sup> For a detailed discussion and analysis of how these products were chosen, see Lary [2]. For a related analysis of the use of labor intensity as a guide to the future composition of developing country exports, see Ho and Yeats [1].

<sup>4</sup> See United States, Department of Commerce, *1972 Census of Manufactures* (Washington, D.C.: Government Printing Office, 1976), and *Annual Survey of Manufactures, 1976* (Washington, D.C.: Government Printing Office, 1978).

TABLE II  
COMPARATIVE ANALYSIS OF OECD MEMBER COUNTRY IMPORTS OF LABOR-INTENSIVE  
AND OTHER PRODUCTS OVER THE PERIOD 1965 TO 1975

Description*	Value of OECD Imports (\$ Million)				Growth Rate (%)	LDCs Market Share (%)		
	1965		1975			1965	1975	Change
	LDCs	Total	LDCs	Total				
All products excluding fuels:†								
Labor-intensive products	2,571.3	33,254.8	20,674.7	169,520.1	17.7	7.8	12.2	4.4
Other products	17,395.3	75,210.6	42,490.8	277,528.9	14.0	23.1	15.3	-7.8
Total	19,966.6	108,465.4	63,165.5	447,048.9	15.2	18.4	14.1	-4.3
Manufactured goods (6):								
Labor-intensive products	1,072.6	10,144.0	5,456.4	45,185.3	16.1	10.6	12.1	1.5
Other products‡	2,239.9	15,446.3	4,502.7	49,874.0	12.4	14.5	9.0	-5.5
Total	3,312.5	25,590.3	9,959.1	95,059.3	14.0	12.9	10.5	-2.4
Machinery and transport (7):								
Labor-intensive products	73.9	12,380.1	3,675.5	68,919.8	18.7	0.6	5.3	4.7
Other products	116.0	11,310.9	1,213.2	67,163.6	19.5	1.0	1.8	0.8
Total	189.9	23,691.0	4,888.7	136,083.4	19.1	0.8	3.6	3.0
Miscellaneous manufactures (8):								
Labor-intensive products	692.0	6,637.8	9,355.8	44,394.4	20.9	10.4	21.1	10.7
Other products	75.3	1,758.6	55.3	5,214.6	11.5	4.2	1.1	-3.1
Total	767.3	8,396.4	9,411.1	49,609.0	19.4	9.1	19.0	9.9

Source: Adapted from [1].

\* SITC numbers are shown in parentheses.

† Includes products classified in SITC groups 1 through 8.

‡ The overall developing country market performance for this group is dominated by nonferrous metals (SITC 68). If these products were excluded, the developing countries' market share for non-labor-intensive products in SITC 6 would have fallen from 4.4 per cent in 1965 to 2.5 per cent in 1975.

statistics were drawn from OECD documents [3, 1967, 1976]. However, since the trade figures were tabulated based on the SITC system, a concordance published by Lary [2] was used to match the data on a common basis.

### III. RECENT CHANGES IN MARKET PENETRATION

Using these data sources, Table III examines recent changes in penetration of imports into U.S. markets. Shown here are total import-consumption ratios (equation 2) for the labor-intensive products in 1967 and 1976, as well as import-consumption ratios derived solely for exports of developing countries. To assist in evaluating this information, we also show the percentage change in the total import-consumption ratios due to exports of developing countries. Changes in the actual value of domestic shipments and imports are given to help assess their relative importance.

For all manufactures, the import-consumption ratio rose by 3 percentage points (from 3.6 to 6.4 per cent) over the period 1967-76 with approximately one-third of this increase due to imports from developing countries. This performance contrasts with the market penetration of developing countries for labor-intensive items where the import-consumption ratio increased by more than 6 percentage points. The role of developing countries was also more important as they accounted for almost half of the increase in the import-consumption ratio for labor-intensive items.

While a 6 percentage point increase in the overall import-consumption ratio for labor-intensive products appears relatively modest, there is considerable variation on an individual industry basis. For example, floor coverings, leather clothing, still picture equipment, radio broadcast receivers, and phonographs experienced an increase of at least 20 percentage points, while thirteen of the seventy-seven industry sectors registered an increase of at least 10 percentage points. Based on such evidence it seems the disruptive effects of imports may have been especially severe for floor coverings where the import-consumption ratio rose by over 35 percentage points, and domestic shipments actually declined by \$172 million over the 1967-76 period.<sup>5</sup> Table III also shows that the level of market penetration varies markedly across industries. For example, radio broadcast receivers, sewing machines, jute products, footwear, and floor coverings have import-consumption ratios of at least 50 per cent, while products like knit fabrics, orthopedic appliances, and railway vehicles have ratios of only 1 or 2 per cent.

By showing the percentage increase due to exports of developing countries, Table III provides specific information concerning the importance of developing countries as sources of market penetration, at least as measured by the import-

<sup>5</sup> A subsequent portion of the analysis argues that the import-consumption ratio provides a misleading index of the actual degree of disruption for floor coverings and other industry sectors. Specifically, while the import-consumption ratio rose by 38 percentage points, the import-supply ratio increased by only 13 percentage points. Thus, through product differentiation, U.S. firms seem to have been able to recoup domestic losses in foreign markets.

TABLE III  
CHANGES IN UNITED STATES IMPORTS, DOMESTIC SHIPMENTS, AND IMPORT-CONSUMPTION  
RATIOS FOR SELECTED MANUFACTURED PRODUCTS OVER THE PERIOD 1967 TO 1976

Product Group	1967-76 Change (\$ Million)		Import-Consumption Ratio (%)				Change in % due to LDCs*
	Domes- tic Ship- ments	Im- ports	LDCs		Total		
			1967	1976	1967	1976	
All manufactures	565,833	55,464	0.7	1.8	3.6	6.3	31.9
of which:							
Labor-intensive manufactures	97,212	21,044	3.7	6.7	4.6	10.9	47.6
of which:							
Textile yarn and thread	2,976	106	0.5	0.6	3.1	3.3	50.0
Woven cotton fabrics	-157	254	1.7	6.3	3.3	9.1	79.3
Woven wool fabrics	-520	-41	0.4	1.9	7.4	7.6	100.0
Woven silk or regenerated fibers	5,051	186	0.1	0.3	3.1	3.4	66.6
Knit fabrics	2,804	26	0.1	0.1	3.0	1.6	—
Textile small wares	3,361	251	0.8	2.2	2.7	4.5	77.8
Floor coverings	-172	93	5.0	22.6	15.2	53.6	45.8
Clothing & accessories, non-leather	10,971	2,661	1.3	7.8	2.9	9.6	97.0
Manufactures of leather	-20	14	0.2	5.7	0.9	6.4	100.0
Travel goods & handbags	541	277	2.6	16.2	7.9	20.2	100.0
Leather clothing	290	283	4.5	31.1	16.3	38.2	100.0
Footwear	n.a.	n.a.	n.a.	48.7	n.a.	92.9	—
Fur clothing	-104	20	0.1	5.5	0.9	9.3	64.3
Articles of rubber	863	507	2.1	13.6	8.0	23.6	73.7
Glassware and pottery	2,786	350	0.3	1.2	5.8	8.9	29.0
Furniture	n.a.	n.a.	n.a.	1.3	n.a.	4.4	—
Printed matter	n.a.	n.a.	n.a.	0.2	n.a.	1.9	—
Motorcycles, bicycles, & parts	468	538	0.1	2.7	33.2	47.3	18.4
Musical instruments & recorders	686	146	0.3	3.2	10.1	14.2	70.7
Toys, games, & sporting goods	2,252	662	1.6	9.0	8.1	16.3	90.2
Jewelry & silverware	1,306	298	1.4	5.7	5.2	12.6	58.1
Articles of paper	n.a.	n.a.	n.a.	0.3	n.a.	0.6	—
Pins & needles of iron	215	17	0.4	1.2	2.5	4.3	44.4
Pens & pencils	322	22	0.0	0.3	2.8	4.5	17.7
Imitation jewelry	293	91	2.5	10.2	5.6	14.6	85.6
Miscellaneous manufactures	1,894	68	8.8	3.6	15.6	8.2	—
Orthopedic appliances	1,880	15	0.0	0.0	0.4	0.6	0.0
Spectacles and frames	400	135	0.1	2.5	4.8	16.0	21.4
Still picture equipment	147	244	0.0	6.2	12.3	37.0	25.1
Medical instruments, n.e.s.	982	95	0.1	0.6	4.1	7.5	14.7
Watches and clocks	504	486	0.2	14.1	15.3	32.7	80.0
Fabricated pipe and fittings	975	57	0.1	0.2	3.8	5.0	8.3
Hand and edge tools	664	190	0.6	3.0	8.2	15.9	31.2
Cutlery	147	115	1.6	8.4	29.9	38.8	76.4
Household equipment of base metal	611	137	0.8	5.6	5.7	12.0	53.9
Locksmith's wares	600	88	0.3	1.6	4.7	9.1	29.6
Miscellaneous metal articles	2,030	246	0.1	1.1	3.2	7.1	25.6
Sewing machines	85	151	0.2	6.3	47.1	56.8	62.8



TABLE III (Continued)

Product Group	1967-76 Change (\$ Million)		Import-Consumption Ratio (%)				Change in % due to LDCs*
	Domes- tic Ship- ments	Im- ports	LDCs		Total		
			1967	1976	1967	1976	
Transformers, switchgears, etc.	1,090	1,094	0.4	6.8	5.2	18.7	47.4
Electrical insulating equipment	186	-1	0.0	0.0	4.5	2.8	—
Radio broadcast receivers	132	714	3.8	23.3	26.3	54.0	70.4
Telecom. equipment, n.e.s.	6,703	1,714	0.2	3.0	1.5	9.7	32.9
Electro-mechanical domestic appliances, n.e.s.	796	30	0.1	0.2	2.0	3.0	10.0
Electric housewares and fans	921	287	0.0	3.0	1.3	13.0	25.6
Batteries and accumulators	218	44	1.3	2.2	5.5	10.8	17.0
Electric lamps	628	56	0.4	2.6	2.8	5.3	88.0
Electronic components	3,539	1,138	0.3	8.5	1.4	10.3	92.1
Lighting fixtures and fittings	1,284	49	0.3	1.0	2.1	2.8	100.0
Phonographs, tape, & sound recorders	37	846	0.1	4.9	6.6	31.2	19.5
Agricultural machinery & implements	4,823	585	0.0	0.1	6.8	9.1	4.3
Statistical and office machines	4,648	1,023	0.2	2.2	4.1	12.3	24.3
Metalworking machinery	1,320	163	0.0	0.4	4.1	5.7	25.0
Textile machinery	113	252	0.0	0.2	21.5	37.9	1.2
Paper mill and pulp mill machinery	194	54	0.0	0.1	7.9	12.3	2.3
Food processing machines	562	39	0.0	0.1	1.8	3.8	5.0
Pumps and centrifuges	n.a.	n.a.	n.a.	0.6	n.a.	19.1	—
Miscellaneous nonelectrical machinery	n.a.	n.a.	n.a.	1.5	n.a.	26.2	—
Railway vehicles	1,358	51	0.0	0.0	0.5	1.8	0.0
Motor vehicle parts and accessories	13,672	3,329	0.0	0.5	3.8	13.5	5.2
Fish in airtight containers	818	140	3.4	4.8	16.7	15.4	—
Animal and marine oil products	75	-44	29.8	10.4	48.8	20.1	—
Canned or dried fruits & vegetables	3,050	257	1.9	3.5	4.6	6.1	100.0
Sugar confectionary	1,925	58	0.0	0.4	1.0	2.0	40.0
Food preparations, n.e.s.	670	25	0.4	1.1	4.1	3.8	—
Cigars and cheroots	-99	17	0.3	4.6	0.7	6.9	69.4
Jute products & other textile goods	-12	-49	84.8	89.6	88.1	91.1	100.0
Cordage, cables, ropes, and twine	104	40	8.0	18.5	18.8	22.4	100.0
Textile bags	16	1	0.1	0.2	0.4	0.6	50.0
Leather	359	116	2.2	8.2	7.7	13.5	100.0
Wood shaped and worked	n.a.	n.a.	n.a.	0.8	n.a.	10.4	—
Plywood and veneers	n.a.	n.a.	n.a.	7.5	n.a.	10.4	—
Wood and cork manufactures, n.e.s.	n.a.	n.a.	n.a.	2.0	n.a.	5.2	—
Cut stone and stone products	196	17	0.1	0.7	5.8	6.8	60.0
Building materials of asbestos-cement	1,739	0	0.0	0.0	0.2	0.1	—
Clay construction materials	402	51	0.1	0.8	1.4	3.2	38.9
Nonmetallic minerals, n.e.s.	89	78	3.9	5.4	362.	44.3	18.5
Flat glass	524	82	0.7	0.9	13.1	13.3	100.0

\* Only positive changes in the total import-consumption ratio are assessed. In cases where the change in the import-consumption ratio of developing countries exceeds that for the total, developing countries are termed to account for 100 per cent of the overall change.

consumption ratio. As noted, only about one-third of the increase in the import-consumption ratio for all manufactures is attributable to developing countries, but these countries account for close to 50 per cent of the increase for labor-intensive items. In a number of cases, i.e., wool fabrics, leather manufactures, travel goods, leather clothing, or lighting fixtures, developing countries accounted for all of the increase in the import-consumption ratio.

As indicated in the previous discussion, analysis of disruption cannot be solely based on import-consumption ratios, or on import-supply ratios. Specifically, if an industry produces a differentiated product, and recoups lost domestic sales overseas, the economic effects may be different than where no such export expansion occurred. For proper assessment, changes in the import-consumption ratio must be compared with those in the import-supply ratio.

Table IV shows the extent to which changes in the import-consumption and import-supply ratio may differ. Shown here are changes in import-consumption and import-supply ratios for selected industries over 1967-76, as well as differences between the two ratios (in percentage points). The industry sectors have been ranked in terms of descending order of differences between the two ratios, with the discrepancies ranging between positive 25 (floor coverings) and a negative 49 percentage points (leather manufactures).

Overall, Table IV illustrates the wide divergence that exists in changes in the import-consumption and import-supply ratios for given industries. For example, the import-consumption ratio for floor coverings and carpets rose by 38 percentage points over 1967-76 which would, by itself, imply a sizeable degree of market disruption. However, the import-supply ratio rose by only 13 percentage points, thereby indicating that this industry was able to recoup a considerable amount of lost domestic sales overseas. Still picture equipment is another industry reflecting much the same pattern. While the import-consumption ratio rose by 25 percentage points, the import-supply ratio increased by only 3 percentage points. The primary reason for these differences lies largely in the differentiated products being imported and exported. Specifically, U.S. industry seems largely to have shifted into the manufacture and export of more sophisticated and higher priced product lines, while low priced basic cameras, for example, made sizeable inroads into domestic markets.<sup>6</sup>

Table IV also shows that situations exist in which the import-consumption ratios may understate the actual degree of market disruption. For example, the 7 percentage points decline in the import-consumption ratio for miscellaneous manufactures masks a loss of export sales which resulted in the import-supply ratio rising by three-tenths of a per cent. However, the largest overall differences occurred for leather manufactures. Here a rather modest (5.5 per cent) increase in the import-consumption ratio couples with a 54 per cent increase in the import-supply ratio. Thus, loss of export sales seems to have been particularly severe although high tariffs and non-tariff barriers prevented such rapid competitive

<sup>6</sup> This observation is based on analysis of U.S. import and export unit values for still picture equipment over the 1960s and 1970s.

TABLE IV  
COMPARISON OF 1967-76 CHANGES IN UNITED STATES  
IMPORT-CONSUMPTION AND IMPORT-SUPPLY RATIOS

(%)

Industry Sector	Change in the Ratio of		Differences
	Imports to Supply	Imports to Consumption	
Floor coverings and carpets	13.1	38.4	25.3
Still picture equipment	3.4	24.7	21.3
Radio broadcast receivers	8.2	27.7	19.5
Leather apparel	4.8	21.9	17.1
Phonographs and tape recorders	8.2	24.6	16.4
Watches, clocks, cases, etc.	4.1	17.4	13.3
Rubber articles and goods	2.9	15.6	12.7
Textile machinery	4.6	16.4	11.8
Clothing of fur	-3.0	8.4	11.4
Transformers, generators, etc.	2.4	13.5	11.1
Electric housewares	2.2	11.7	9.5
Leather travel goods	3.3	12.3	9.0
Motorcycles, bicycles, and parts	5.2	14.1	8.9
Cigars and cheroots	-2.1	6.2	8.3
Motor vehicle parts	1.6	9.7	8.1
Electronic components	1.9	8.9	7.0
Imitation jewelry	2.2	9.0	6.8
Games and sporting goods	2.1	8.2	6.1
Jewelry and silverware	1.8	7.4	5.6
Fish in airtight containers	1.4	-1.3	-2.7
Jute and other textile goods	8.6	3.0	-5.6
Miscellaneous manufactures	0.3	-7.4	-7.7
Leather manufactures	54.4	5.5	-48.9

inroads in the domestic market. All in all, the evidence that emerges from Table IV is that the import-consumption ratio used alone may be a very inadequate measure of market disruption since it has the potential of differing markedly from the import-supply ratio. However, this is not meant to imply that the import-supply ratio, used by itself, may be any more reliable. Rather, the message that emerges from this investigation is that both measures must be consulted for any accurate assessment of the degree of disruption that has occurred.

### CONCLUSIONS

Based on this study's empirical analysis, three distinct conclusions emerge concerning recent market penetration and its measurement. First, for all manufactures, or labor-intensive items taken as a group, the role of developing countries as sources of supply is small, with these countries accounting for only about 6 to 10 per cent of apparent consumption in the United States. Furthermore, these figures probably represent the upper range of market penetration since evidence shows the United States is a superior market for exports of developing countries.

However, at lower levels of product detail more variation is observed. Import-consumption ratios of 50 per cent or more occur for different industries, and this ratio reaches over 90 per cent for manufactured jute products. Our analysis also showed that the market penetration of developing countries (at the margin) was generally higher than would be suggested by average import-consumption ratios. However, from the evidence that emerges from our study there is little general factual support for demands for protection against exports of developing countries on the basis that these shipments have been disruptive.

Concerning the use of individual ratios, the findings of our study question the utility of the import-consumption or import-supply ratio as a single measure of market disruption since tabulations showed the two ratios even experience opposite directional movements. While improved results may be experienced at lower levels of data analysis, we again have no real assurance of this. The message that emerges is that, at the three- to four-digit levels of the SITC, the import-consumption ratio (by itself) may be an inadequate gauge of market disruption, and may be very unreliable as an indication of the need for new protection.

#### REFERENCES

1. HO DAC TUONG and YEATS, A. "On Factor Proportions as a Guide to the Future Composition of Developing Country Exports," *Journal of Development Economics*, Vol. 7, No. 4 (December 1980).
2. LARY, H. *Imports of Manufactures from Less Developed Countries* (New York: National Bureau of Economic Research, 1968).
3. Organization for Economic Co-operation and Development. *Statistics of Foreign Trade, Series C, Trade by Commodities* (Paris).
4. United Nations Conference on Trade and Development. *Handbook of International Trade and Development Statistics: Supplement 1977* (New York: United Nations, 1977).