The Adding Up Problem*

Introduction

The "Adding Up Problem", or the "Fallacy of Composition", has been with us for sometime. In presenting the favorable economic results of countries following outward-oriented policies, or advocating the adoption of such policies in other countries, one often encounters the objection: "But what would happen if everyone did the same?" The implicit, or explicit, contention is that there would not be enough markets, or that protectionist reactions would be triggered in the developed world, as a result of the onslaught of exports by the developing countries.

The argument was to be given professional respectability with the publication of a paper by William Cline.[1] Cline claimed that other developing countries could not match the economic performance of the East Asian countries, because market limitations in the developed countries would not permit a sevenfold rise in developing country manufactured exports, necessary in order to attain the East Asian "norm" in terms of the ratio of manufactured exports to GNP (with allowance made for differences in population size and per capita income). Recognizing that low income countries cannot be expected to match the East Asian performance for some time to come, Cline immediately modified his analysis, limiting it to seven developing countries (Argentina, Brazil, Colombia, Mexico, Indonesia, Israel, and Malaysia) and postulating a fourfold increase in developing country manufactured exports, so as to permit these countries to reach the East Asian "norm".

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[1] W.R. CLINE, "Can the East Asian Model Be Generalized?", *World Development*, X (1982), pp. 71-90.

It was soon pointed out, however, that this estimate is also much exaggerated. Immediate reasons are the inclusion of Indonesia among countries with a potential for the rapid expansion of manufactured exports; the disregard of natural resources that require slower expansion of manufactured exports for economic growth, both because of the possibilities for primary exports and because of lower import needs; and the neglect of the potential for intra-LDC trade. Considering further the process of upgrading and export diversification as developing countries reach higher levels of industrialization, the possibilities for intra-industry trade between developed and developing countries, the use by the developing countries of increments in their export earnings to import from the developed countries, and the time element involved in any policy change, the Cline argument about the expansion of developing country manufactured exports hurting against import constraints in the developed countries is practically emptied of its content.[2]

The question has been formulated in a different way by Sir Arthur Lewis.[3] While Cline couched his argument in static terms as he failed to admit economic growth in the developed countries, Lewis resurrected the postwar argument of export pessimism in a growth context. He suggested that developed country markets are not growing rapidly enough to accommodate a desirable rate of economic expansion in the developing countries.

A further question, raised in a somewhat different form by Cline, is whether satisfactory rates of overall export expansion may create protectionist reactions in developed country industries, which are of particular importance to the developing countries. This, in turn, leads to a consideration of the employment effects of the expansion of trade in manufactured goods between developed and developing countries.

The questions just stated will be addressed in the following. This will be done by reformulating the "adding up" problem with reference to overall and sectoral import constraints. The analysis will be carried out in numerical terms, utilizing available information for recent periods.

[2] See B. BALASSA, "The Cambridge Group and the Developing Countries", *The World Economy*, VIII (1985), pp. 201-18.
[3] W.A. LEWIS, "The Slowing Down of the Engine of Growth", *American Economic Review*, LXX (1980), pp. 555-64.

Section I will consider the question if there is an overall constraint for developing country export expansion. This will be followed by an analysis of the sectoral and the geographical pattern of trade in manufactured goods between developed and developing countries (Sections II and III). Next, projections of the employment effects of this trade will be made and the implications of these projections will be drawn (Section IV and V).

I. An overall constraint for developing country export expansion?

In his Nobel Prize lecture, Sir Arthur Lewis suggested that a 6 percent rate of economic growth in the developing countries would require a 6 percent rate of expansion of their exports. He claimed, however, that the primary exports of these countries to the developed countries would rise by only 4 percent a year.[4]

Apart from the slowdown of economic growth in the developed countries, Lewis attributed this result to a historical relationship between the growth of industrial production and the exports of primary products, with an elasticity of 0.87 of the latter in regard to the former. In so doing he did not envisage the possibility that developing countries could gain export market shares in primary products or that they could rely on manufactured exports to promote their economic growth. Both of these assumptions are open to objections, however.

As Riedel correctly stated in a critique of Lewis' thesis, in primary products other than tropical beverages developing countries compete with developed countries and their market share should not be considered a datum. Correspondingly, the ratio between their primary exports and economic activity in the developed countries may change.[5]

This is, in fact, what happened following the quadrupling of petroleum prices in 1973. While the average rate of GDP growth in the developed countries fell from 4.7 percent in 1963-1973 to 2.5 percent in 1973-1984, the rate of growth of the non-fuel primary exports of the

[4] For a discussion, see "The Cambridge Group and the Developing Countries", *op. cit.*
[5] J. RIEDEL, "Trade as the Engine of Growth in Developing Countries, Revisited", *Economic Journal*, XCIV (1984), pp. 56-73.

developing countries to the developed countries rose from 2.5 percent to 4.6 percent between the two periods.[6] The rise in the growth rate was especially large for foods and beverages (from 2.1 to 5.9 percent), followed by nonferrous metals (from 3.5 and 3.9 percent), with a small decline for industrial materials (from 2.9 to 2.8 percent).

Considering the entire 1963-1984 period, and adjusting for changes in relative prices, a one percent increase in the gross domestic product of the developed countries appears to have been associated with a 0.5 percent increase in their imports of non-fuel primary products from the developing countries. But this was more than offset by a 1.9 percent rise in fuel exports and a 3.8 percent increase in manufactured imports for each one percent rise in GDP. All in all, the exports of the developing countries to the developed countries rose by 1.5 percent for each one percent increase in the latter's GDP.

It follows that there is no overall trade constraint for economic growth in the developing countries as Lewis postulates. In fact, these countries have been particularly successful in increasing their non-fuel exports after 1973, with average annual export growth rates of 5.3 percent in 1963-73 and 8.3 percent in 1973-84 whereas economic growth rates in the developed countries fell by nearly one-half. The experience of this period disproves the existence of any constant relationship between import expansion and economic growth in the developed countries.

It is further apparent that the neglect of manufactured exports is a fatal omission in Lewis' argument. With their rapid expansion, manufactured goods have assumed increasing importance in the exports of the developing countries. They accounted for 7 percent of the total exports of these countries in 1963, 13 percent in 1973 and 40 percent in 1984, when the ratio reached 59 percent exclusive of fuels. In turn, developing countries account for only 23 percent of the world exports of nonfuel primary products.[7]

Correspondingly, particular interest attaches to the prospects for the manufactured exports of the developing countries. This will be the subject of the rest of the paper.[8]

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[6] B. BALASSA, "The Importance of Trade for Developing Countries", in this *Review*, XL (1987), pp. 437-70.

[7] "The Importance of Trade for Developing Countries", *op. cit*, Table 1.

[8] The use of the International Standard Industrial Classification Scheme necessitates broadening the category of manufactured products somewhat to include also simple processed goods.

II. The sectoral pattern of trade in manufactured goods

It has been customary to concentrate on the developing countries' exports of textiles, clothing, and shoes. But, while clothing and footwear exports continued to rise rapidly in recent years, such was not the case for textiles. This is shown in Table 1 that provides information on constant price growth rates of manufactured exports for the developing countries in thirty industrial categories for the periods 1963-73, 1973-83, and 1963-83.

The data, summarized for eight industry groups, indicate that textiles, clothing, and shoes had export growth rates below the developing country average in both 1963-73 and 1973-83. By contrast, engineering products had above-average growth rates in the first period and exceeded the average nearly twice in the second. Above-average export growth rates were exhibited also by the miscellaneous group of other industries in the first period and paper and paper products and nonmetallic products in the second.

Growth rates depend on the point of departure, hence interest attaches to absolute figures. These show that, among the thirty industrial categories, clothing continues to lead, with developing country exports of $ 18.2 billion in 1983. It is followed by radios and television sets (including their parts and components) of $ 12.6 billion; other industries, $ 7.9 billion; spinning and weaving, $ 5.6 billion; basic chemicals, $ 5.0 billion; iron and steel and electrical machinery, $ 3.8 billion each; and footwear $ 3.7 billion.

Taken together, engineering products ($ 33.0 billion) surpassed textiles, clothing, and footwear ($ 32.1 billion) in the manufactured exports of the developing countries to the developed countries in 1983. Apart from other industries ($ 7.9 billion), major product categories include chemicals, $ 10.6 billion; wood products and furniture, $ 4.8 billion; iron and steel, $ 3.8 billion; nonmetallic products, $ 1.3 billion; and paper and paper products, $ 1.1 billion (Table 2).

These figures show the process of upgrading and diversification of developing country exports of manufactured goods that occurred during the past decade. They are also indicative of the increasing extent of intra-industry trade between developed and developing countries, which characterizes engineering products.

III. The geographical pattern of trade in manufactured goods

Further interest attaches to the geographical pattern of trade in manufactured products. For this purpose, developing countries

TABLE 1

GROWTH RATES OF MANUFACTURED EXPORTS OF DEVELOPING COUNTRIES TO DEVELOPED COUNTRIES

Industry Category	1963-73	1973-83	1963-83
32 Textile, apparel & leather products	18.73	8.08	13.28
33 Wood products & furniture	16.25	2.75	9.29
34 Paper & paper products	11.53	9.81	10.67
35 Chemicals	19.27	6.78	12.85
36 Non-metallic products	17.94	8.87	13.32
37 Iron and steel	18.82	5.01	11.70
38 Engineerings products	24.42	16.68	20.49
39 Other industries	25.55	0.71	12.44
3211 Spinning, weaving, etc.	12.86	2.17	7.38
321 - 3211 Textile products	13.62	1.78	7.54
322 Wearing apparel	29.84	11.08	20.09
323 Leather and products	17.33	5.88	11.46
324 Footwear	28.05	18.05	22.95
331 Wood products	16.10	−0.10	7.70
332 Furniture, fixtures	19.52	21.70	20.60
3411 Pulp, paper, etc.	9.63	9.57	9.60
341 - 3411 Paper products	37.60	10.90	23.53
3511 Basic chem. excl. fertilizers	16.26	6.31	11.17
3513 Synthetic resins, etc.	36.41	15.15	25.33
351 - 3511/13 Other industr. chemical	24.30	4.26	13.84
3522 Drugs and medicines	24.38	4.89	14.22
352 - 3522 Other chemical prod.	10.33	2.28	6.23
355 Rubber products	32.49	11.98	21.81
356 Plastic products n.e.s.	34.69	6.79	19.93
361 Pottery, China etc.	31.51	18.15	24.65
362 Glass and products	21.67	8.74	15.02
369 Non-metallic products n.e.s.	13.93	2.76	8.20
371 Iron and steel	18.82	5.01	11.70
381 Metal products	26.57	12.97	19.58
3825 Office, computing, etc.	63.08	17.19	38.25
382 - 3825 Machinery other	21.57	18.37	19.96
3832 Radio, television, etc.	33.39	19.79	26.40
383 - 3832 Electrical machinery	39.61	13.48	25.87
3841 Shipbuilding, repair	13.25	12.41	12.83
3843 Motor vehicles	26.74	21.44	24.06
384 - 3841/43 Transport equip.	9.76	10.52	10.14
385 Professional goods	31.18	17.87	24.34
390 Other industries	25.55	0.71	12.44
Total	20.19	8.54	14.21

Source: UNITED NATIONS' COMTRADE data base.

have been divided into newly-industrializing countries (NICs), newly-exporting countries (NECs), and less developed countries (LDCs), with a further breakdown based on their geographical location.

In an earlier study by the author, newly-industrializing countries were defined as countries having a share of manufacturing value added of 20 percent and higher in the gross domestic product in 1977 and per capita incomes of at least $ 1100 in 1978 (Balassa, 1984). The same list of countries is obtained by applying the 20 percent benchmark in 1984 and using a per capita income figure of $ 1700 for that year.[9] (The only exception is Turkey that falls below the $ 1700 benchmark in 1984 but was nevertheless retained in the NIC group).

The newly-exporting countries have been defined by the joint requirement that the share of manufacturing value added in GDP was at least 15 percent or manufactured goods accounted for at least 30 percent of total exports in 1984 *and* manufactured exports reached $ 250 million, *i.e.* 0.03 percent of world manufactured exports, and 0.2 percent of manufactured exports by the developing countries, in 1984.[10]

Among the newly-industrializing countries, the combined market share of the Far Eastern NICs (Hong Kong, Korea, Singapore, and Taiwan) in the manufactured exports of the developing countries rose from 17.1 percent in 1963 to 48.6 percent in 1983. The share of the Latin American NICs (Argentina, Brazil, Chile, Mexico, and Uruguay) increased to a much lesser extent, from 10.6 to 12.5 percent while that of the miscellaneous group, Israel, South Africa, Turkey, and Yugoslavia, declined from 20.1 to 8.3 percent (Table 2).

Among the newly exporting countries, only those of the Far East, (Malaysia, Philippines, and Thailand) gained market shares, from 1.9 percent in 1963 to 6.6 percent in 1983. The losses were especially pronounced in the South Asian NECs (Bangladesh, India, Pakistan, and Sri Lanka), whose market share fell from 17.8 percent in 1963 to 4.0 percent in 1983. They were followed by the Latin American NECs (Columbia, Costa Rica, Guatemala, Peru, and

[9] This is the lower limit for upper middle income countries in WORLD BANK, *World Development Report 1986* (Washington, D.C.: 1986) Table 6.1.

[10] For alternative definitions, see "The Importance of Trade in Developing Countries", *op. cit.*

Venezuela), with a decline from 1.8 to 1.0 percent, and the North African and Middle Eastern NECs (Egypt, Jordan, Morocco, and Tunisia), with a decrease from 2.3 to 1.5 percent.

Among the less developed countries, China made the largest gains, from 3.0 percent in 1963 to 5.0 percent in 1983, while the rest of the group lost ground (19.7 and 9.8 percent). Finally, the share of OPEC other than Indonesia and Venezuela declined from 5.8 to 2.7 percent.

The large variations in export performance among the three groups shows the importance of supply factors in the form of policy differences as against demand factors in the form of market constraints. Countries at similar levels of development faced essentially the same markets but performed very differently.[11]

The adoption of outward oriented policies and the maintenance of these policies in response to external shocks contributed to the rapid growth of manufactured exports by the Far Eastern NICs. Rather than biasing the system of incentives against exports, these countries provided similar incentives to exports and import substitution and maintained realistic exchange rates.

Among the Latin American NICs, Brazil came the nearest to the policies followed by the Far Eastern NICs and it was largely responsible for increases in export market shares by the group. By contrast, Argentina and Mexico followed inward-oriented policies, biasing the system of incentives against exports, and had repeated periods of overvaluation, with considerable losses in export market shares. Finally, having earlier followed inward-oriented policies, Chile and Uruguay reformed the system of incentives in response to the quadrupling of petroleum prices but, given their small size, the subsequent gains in export market shares did not appreciably affect the results for the group. Among the four other NICs, Israel and Yugoslavia reduced reliance on external markets after the mid-sixties. In turn, Turkey turned from an extreme case of inward orientation to outward-oriented policies in 1980. But, with little change occurring in South Africa's inward-oriented policies, the combined losses of export market shares by the group continued after 1973, albeit to a lesser extent than beforehand.

[11] The following discussion derives from B. BALASSA "Adjustment to External Shocks in Developing Countries", in B. Csikós-Nagy, D. Hague, and G. Hall (eds.), *The Economics of Relative Prices*, London: Macmillan, 1984, pp. 352-84.

TABLE 2

MANUFACTURED EXPORTS OF DEVELOPING COUNTRIES TO DEVELOPED COUNTRIES, 1963 AND 1983: EIGHT INDUSTRY GROUPS (1983 US$ MILLION)

		NIC Latin Am.	NIC Far East	NEC Latin Am.	NEC N. Africa	NEC S. Asia	NEC Far East	Isrl. S. Afr. Yugo. Turkey	China	Other non-oil LDC	OPEC	All LDC
32 Textile, apparel, leather products	1963	267.0	618.1	20.5	70.9	1000.5	40.6	200.8	122.1	139.7	175.6	2656.0
	1983	2249.5	16933.5	360.8	864.4	2645.2	1441.0	2372.9	3174.7	1664.7	441.1	32147.8
33 Wood products & furniture	1963	109.1	44.0	12.6	11.1	3.0	69.6	174.9	10.4	314.4	65.4	814.5
	1983	472.0	1718.5	16.0	8.0	23.2	1099.9	435.3	229.4	306.3	507.0	4815.8
34 Paper & paper products	1963	2.0	1.9	0.1	14.6	0.3	0.3	99.4	2.4	7.2	10.9	139.1
	1983	558.9	83.0	1.7	27.4	1.8	13.3	192.5	12.7	162.9	2.0	1056.2
35 Chemicals	1963	181.9	94.9	69.1	24.1	37.9	5.0	200.3	31.4	281.7	21.5	947.9
	1983	1452.0	3614.8	344.5	315.3	109.0	246.0	1379.7	706.9	1989.7	480.3	10638.1
36 Non-metallic products	1963	12.4	9.2	4.3	5.4	3.3	0.2	47.7	2.6	14.9	3.0	103.0
	1983	262.1	630.8	8.9	1.8	26.7	32.0	131.6	87.7	68.1	5.7	1255.5
37 Iron and steel	1963	60.8	4.5	0.6	3.9	7.0	0.0	220.2	12.1	90.1	21.8	421.1
	1983	1060.2	1363.2	27.6	4.7	20.8	26.1	783.6	16.4	375.8	171.1	3849.5
38 Engineering products	1963	36.8	104.3	6.4	15.1	57.5	4.2	159.1	3.1	336.1	70.9	793.7
	1983	5611.7	18245.8	74.2	139.5	302.8	3052.8	1569.9	320.8	2872.9	814.8	33005.3
39 Other industries	1963	33.7	256.5	8.2	4.6	69.1	7.8	230.4	12.1	123.2	15.6	761.1
	1983	209.2	3429.4	115.7	23.6	653.7	376.6	993.0	226.2	1806.5	112.5	7946.5
TOTAL	1963	703.8	1133.6	121.9	149.8	1178.7	127.6	1332.8	196.1	1307.3	384.8	6636.5
	1983	11875.6	46019.1	949.5	1384.8	3783.2	6287.7	7858.5	4774.8	9246.9	2534.6	94714.6
per cent	1963	10.6	17.1	1.8	2.3	17.8	1.9	20.1	3.0	19.7	5.8	100.0
	1983	12.5	48.6	1.0	1.5	4.0	6.6	8.3	5.0	9.8	2.7	100.0

Source: UNITED NATIONS' COMTRADE data base.

Among the newly-exporting countries, gains in export market shares in the Far Eastern NECs find their origin in the increasingly outward-oriented stance adopted by these countries. The other groups of NECs persisted in the application of inward-oriented policies, with consequent losses in market shares. The South Asian NECs, which suffered by far the largest losses in export shares, are dominated by India which lost its earlier market position by turning inward.

Among less developed countries, its opening to the world economy helped China make gains in exports. The rest of the group consists of a large number of countries of different size; their evaluation would necessitate further geographical disaggregation which has not been attempted here.[12] Finally, losses of export market shares by OPEC countries may be explained by the "Dutch disease", owing to the rise of petroleum prices.

The expansion of manufactured exports by the Far Eastern NICs has involved a considerable upgrading and diversification of exports. While in 1963 textiles, clothing, and shoes, together with simple manufactured goods (wigs, toys, sports goods), accounted for 77 percent of the manufactured exports of these countries, the combined share of these products fell to 44 percent in 1983. In the same year, engineering products came to surpass textiles, clothing, and shoes, with a share of 40 percent, four-tenths of which consisted of radios and television sets and the rest chiefly of machinery, office, and computing equipment, and metal products (Table 2).

Apart from textiles, clothing, and shoes (38 percent), natural-resource based wood products and furniture (16 percent) and chemicals (26 percent) dominated the manufactured exports of the Latin American NICs in 1963 while engineering products had a share of only 5 percent. By 1983, engineering products accounted for 47 percent of the total, with radio and television sets, motor vehicles, and electrical machinery being the most important items, which originated to a large extent from Brazil.

The decline in the share of the miscellaneous group of NICs (Israel, South Africa, Turkey, and Yugoslavia) between 1963 and 1983 was accompanied by a doubling in the share of textiles,

[12] Note further that this category is derived as a residual: the difference between the imports of manufactured goods from the developing countries reported by the developed countries and the sum of exports reported by individual developing countries.

clothing, and shoes in their manufactured exports, from 15 percent to 30 percent. The shares of engineering products (from 9 to 20 percent) and chemicals (from 15 to 18 percent) increased also, and the declines were concentrated in wood products and furniture (from 13 to 6 percent) and in iron and steel (from 17 to 10 percent).

Outward orientation in the Far Eastern NECs also brought with it a decline in the shares of textiles, clothing, and shoes from 32 percent in 1963 to 23 percent in 1983, and an increase in the share of engineering products from 3 to 49 percent. In 1983, textiles, clothing and shoes accounted for the largest percentage of manufactured exports in the South Asian NECs (70 percent, although below the 85 percent figure in 1963), followed by China (68 percent), the North African and Middle Eastern NECs (62 percent), the Latin American NECs (38 percent), and OPEC (17 percent).[13]

The results indicate the process of upgrading and diversification that occurred in the export structure of the Far Eastern NICs and the Latin American NICs. And while textiles, clothing, and shoes retained their importance in the former group of countries, these products have also undergone considerable upgrading. This has involved shifting from grey fabrics to printed fabrics and from low-quality clothing to fashion garments.

The process of upgrading and diversification has also occurred in the Far Eastern NECs. Again, the policies applied had largely determined the outcome. At the same time, increased concentration in engineering products in these countries has contributed to intra-industry trade with the developed countries.

Intra-industry trade limits the cost of adjustment in the developed countries as it does not involve the inter-industry shift of resources. In fact, the international division of the production process in the form of increased sourcing of parts, components, and accessories improves the competitive position of developed country industries.

Diversification in developing country exports also limits the cost of adjustment in the developed countries, compared with concentration in particular industries. Similar considerations apply to the shift of particular exports, such as textiles, clothing, and shoes,

[13] The group of other LDCs is not reported here because of the uncertainty relating to the figures.

from the NICs to the NECs as the developed countries are little affected by the replacement of one source of supply by another.

At the same time, an important aspect of adjustment in the developed countries is the employment effect of trade with the developing countries. This will be considered in the following. First, employment-output coefficients will be derived. Next, estimates on the prospective effects of trade in manufactured goods on employment in the developed countries will be presented.[14]

IV. Estimating labor coefficients

In the present investigation, labor coefficients (the ratio of employment to output) have been estimated for individual countries in the 30 industrial category breakdown used in the tables. As a first step, average employment-output ratios for several years have been calculated for each country, for which data are available,[15] and the results have been converted into U.S. dollars and expressed in terms of 1983 prices. The average labor coefficients thus obtained for particular industrial categories in the individual countries have next been regressed on average per capita incomes for the years 1979-81.[16]

The regression coefficients have the expected negative sign, ranging between --0.43 and --0.78, with a median of 0.60; [17] in the double-logarithmic form utilized in the estimation, the coefficients represent the elasticities of the employment-output ratios with respect to per capita incomes. All the regression coefficients are statis-

[14] For an earlier analysis, see B. BALASSA, "The Employment Effects of Trade in Manufactured Products between Developed and Developing Countries", *Journal of Policy Modelling*, VII (1986), pp. 371-90.

[15] While a complete coverage of all the developed and developing countries under review could not be achieved, data have been obtained for 27 to 44 countries in particular industry categories.

[16] Per capita incomes have been taken as an indicator of the relative price of labor in intercountry relationship. This has been done for lack of comparable information on wages in the individual countries.

[17] The regression coefficients are generally higher than those estimated by Lydall who used the same equational form. But, Lydall's estimates are limited to nine "genuine" manufacturing industries, only a few of which could be exactly identified with the industrial categories used in this paper. At the same time, Lydall does not report t-values and R^2s. Cf. F. LYDALL, *Trade and Employment*, Geneva: International Labour Office, 1975, Table 13.

TABLE 3

REGRESSION RESULTS FOR EMPLOYMENT OUTPUT RATIOS

ISIC	Industry	Constant	t-value	Coeff.	t-value	R-square	N
3211	Spinning, Weaving, etc.	1.775	5.80	-0.623	-15.90	0.8873	33
321	3211 Textile products	1.629	4.37	-0.609	-12.84	0.8631	27
322	Wearing apparel	2.140	3.90	-0.617	- 8.85	0.6424	44
323	Leather and products.	0.680	1.05	-0.506	- 6.17	0.5006	38
324	Footwear	1.618	3.18	-0.571	- 8.89	0.6670	40
331	Wood products	3.127	4.92	-0.784	- 9.73	0.7112	39
332	Furniture, fixtures	2.576	4.55	-0.697	- 9.61	0.6955	41
3411	Pulp, paper, etc	1.291	3.14	-0.656	-12.56	0.8176	36
341 -	3411 Paper products	0.562	1.14	-0.556	- 8.91	0.7234	31
3511	Basic chem. excl. fertilizers	1.132	1.83	-0.667	- 8.42	0.6858	33
3513	Synthetic resins, etc.	0.548	0.77	-0.598	- 6.71	0.6202	28
351 -	3511/13 Other indust.chemical	-0.536	-0.68	-0.505	- 5.09	0.5672	20
3522	Drugs and medicines	-0.015	-0.04	-0.503	- 9.55	0.7261	35
352 -	3522 Other chemical prod.	0.828	1.93	-0.614	-11.14	0.8202	28
355	Rubber products	0.527	1.12	-0.513	- 8.54	0.6428	41
356	Plastic products, n.e.s.	1.568	3.69	-0.634	-11.71	0.7684	42
361	Pottery, China, etc.	2.280	4.95	-0.641	-10.94	0.7625	38
362	Glass and products	1.733	4.68	-0.646	-13.78	0.8288	40
369	Non-metallic products, n.e.s.	1.517	3.34	-0.656	-11.43	0.7827	37
371	Iron and steel	-0.656	-1.65	-0.429	- 8.53	0.6364	42
381	Metal products	1.072	2.58	-0.563	-10.74	0.7506	39
3825	Office, computing, etc.	1.324	1.20	-0.620	- 4.56	0.4626	24
382 -	3825 Machinery other	0.334	0.61	-0.490	- 7.29	0.7035	23
3832	Radio, television, etc.	0.084	0.17	-0.410	- 6.43	0.5285	37
383 -	3832 Electrical machinery	0.220	0.75	-0.474	-12.63	0.8319	33
3841	Shipbuilding, repair	1.554	4.49	-0.617	-14.09	0.8495	36
3843	Motor vehicles	0.308	0.47	-0.536	- 6.33	0.5271	36
384 -	3841/43 Transport equip.	-0.105	-0.22	-0.437	- 7.36	0.6634	28
385	Professional goods	1.176	2.87	-0.570	-11.24	0.8016	32
390	Other industries	0.500	0.71	-0.493	- 5.50	0.4549	36

Source: See text.

tically significant at the 1 percent level while the adjusted coefficient of determination varies between 0.46 and 0.89 (Table 3).[18]

The estimated equations have been utilized to derive predicted values of the labor coefficients for particular industrial categories for each of the countries included in the investigation. Table 4 summarizes the average labor coefficients in trade in manufactured goods between developed and developing countries in 1983 in the 30 industrial category breakdown. The table shows that, in trade in manufactured products with the developing countries, the average labor coefficient was 14.4 for the exports and 18.0 for the imports of the developed countries.

The results obtained find their origin in differences in the labor-intensity of the exports and imports of the developed countries. For one thing, the developed countries have the lowest export-import ratios in industries with a relatively high labor content, such as clothing and shoes. For another thing, pulp and paper and processed chemicals, with the lowest labor coefficients, have relatively high export-import ratios in the developed countries.

There are a number of exceptions, however. They include basic chemicals that have one of the lowest coefficients but a barely above average export-import ratio for the developed countries. By contrast, motor vehicles have a below-average labor coefficient and an above-average export-import ratio. All in all, the Spearman rank correlation coefficient between average labor coefficients and the export-import ratios of the developed countries is –0.53, statistically significant at the 1 percent level.[19]

So far the discussion has concerned the average labor coefficients derived from developed country data. For reasons discussed earlier, labor coefficients for the developing countries are much higher than those for the developed countries. The coefficients estimated for the developing countries average 61.9 for their exports and 47.0 for their imports in trade in manufactured goods with the developed countries in 1983. At the same time, their inter-industry

[18] It may be observed that the coefficient of determination is the lowest for the miscellaneous category of "other industries".

[19] The correlation has been estimated in regard to average labor coefficients for the exports of the developed countries; the corresponding rank correlation is –0.52 in regard to the average coefficient for imports. The two series of labor coefficients differ little among themselves, with a rank correlation coefficient of 0.99, as the only difference lies in the country composition of the exports and imports of the individual countries.

TABLE 4

TRADE IN MANUFACTURED GOODS BETWEEN DEVELOPED AND DEVELOPING COUNTRIES

Industry Category	Average Labor Coefficient				Developed Countries Total			
	Developed Countries		Developing Countries					
	Exports	Imports	Exports	Imports	Exports	Imports	Balance	X/M Ratio
3211 Spinning, weaving, etc.	20.15	19.59	100.94	75.45	6870	5871	999	1.17
321 - 3211 Textile products	19.27	18.07	105.55	73.69	2026	2160	–134	0.94
322 Wearing apparel	30.14	26.06	104.21	117.35	2141	19000	–16859	0.11
323 Leather and products	19.08	18.25	56.38	47.29	951	2618	–1667	0.36
324 Footwear	31.17	23.27	75.70	97.18	642	3839	–3197	0.17
331 Wood products	17.34	16.78	87.57	100.51	1624	3590	–1966	0.45
332 Furniture, fixtures	23.92	18.43	79.39	96.74	1372	1426	–54	0.96
3411 Pulp, paper, etc.	8.37	9.00	34.67	39.93	4047	886	3160	4.56
341 - 3411 Paper products	9.97	9.35	31.74	35.12	1078	214	864	5.04
3511 Basic chem. excl.fertilizers	6.74	6.81	35.49	33.14	15179	5235	9944	2.90
3513 Synthetic resins, etc.	7.13	6.86	19.80	27.68	8277	738	7539	11.21
351 - 3511/13 Other ind. chemical	5.37	5.93	14.39	23.12	3409	474	2935	7.19
3522 Drugs and medicines	9.78	9.33	35.89	32.09	3892	457	3435	8.52
352 - 3522 Other chemical prod.	8.03	7.72	42.41	30.57	5045	663	4381	7.61
355 Rubber products	15.48	13.84	33.64	47.50	2239	1086	1152	2.06
356 Plastic products n.e.s.	14.46	12.36	35.37	55.54	1330	2434	–1103	0.55
361 Pottery, China etc.	29.34	24.13	100.78	106.94	728	519	209	1.40
362 Glass and products	15.70	13.45	47.47	60.19	1336	426	911	3.14
369 Non-metallic products n.e.s.	13.61	9.97	43.09	42.93	3649	363	3286	10.05
371 Iron and steel	10.38	9.50	22.17	28.66	16520	4010	12510	4.12
381 Metal products	17.30	14.73	46.33	55.03	11963	2832	9131	4.22
3825 Office, computing, etc.	11.35	11.05	25.67	39.14	4598	2962	1636	1.55
382 - 3825 Machinery other	15.16	14.41	36.57	46.39	47281	3377	43904	14.00
3832 Radio, television, etc.	24.19	22.71	47.99	56.93	19638	13106	6532	1.50
383 - 3832 Electrical machinery	15.89	14.31	32.99	42.27	14519	3987	10532	3.64
3841 Shipbuilding, repair	16.42	15.32	49.61	86.48	10300	1630	8670	6.32
3843 Motor vehicles	9.79	9.32	23.89	31.17	24273	2143	22130	11.33
384 - 3841/43 Transport equip.	15.29	16.71	45.83	45.56	12457	1992	10465	6.25
385 Professional goods	16.26	16.24	41.13	57.67	9440	2349	7091	4.02
390 Others industries	18.61	17.06	52.22	52.34	5067	8278	–3211	0.61
Average and total	14.42	18.00	61.86	47.00	241890	98663	143227	2.45

Source: See text.

pattern is rather similar, although some differences are observed among industries, owing to differences in the elasticity of labor with respect to output.[20]

The results conform to the expected pattern of the developed countries exchanging capital-intensive products for labor-intensive products originating in the developing countries. It further appears that the labor-intensity of exports is correlated with the level of economic development.

Thus, the ratio of the relative labor-intensity of China's exports to that of its imports, denoted as the average employment coefficient (X/M) in Table 5, is 2.38; at the other extreme, the average ratio is 1.09 for Israel, South Africa, Turkey, and Yugoslavia (Table 5).[21]

China is followed by the South Asian countries, which have the lowest incomes among the NECs, with an average employment coefficient of 1.93. Latin American countries apart, we find a further progression in terms of labor coefficients as we move to newly-exporting countries and, again, to the newly-industrializing countries. Thus, the average employment coefficient is 1.65 in the Far Eastern NECs, 1.62 in the North African and Middle Eastern NECs, and 1.57 for the Far Eastern NICs.

The relevant figures are 1.35 for the Latin American NECs and 1.22 for the Latin American NICs. The results conform to the findings of a research project under the direction of Anne Krueger, which showed a bias towards capital-intensive exports in Latin America.[22] This bias finds its origin in the protectionist policies applied by most of these countries that distort their trade pattern. By contrast, the relatively high labor intensity of exports by the Far Eastern NICs is again indicative of the fact that these countries have followed policies aimed at exploiting their comparative advantage in labor-intensive products.

Finally, the relative labor intensity of exports to imports varies little among the developed countries. The range is between 0.74 in

[20] The Spearman rank correlation is 0.88 between labor coefficients for developed countries in their manufacturing exports to developing countries and the coefficients for the latter group of countries in their imports from the developed countries. The same result has been obtained in correlating labor coefficients for developed country imports and developing country exports.

[21] We do not consider here the ratio of 1.18 for the miscellaneous group of other LDCs and the ratio of 1.00 for OPEC.

[22] A.O. KRUEGER, *Trade and Employment in Developing Countries. 3. Synthesis and Conclusions*, Chicago: University of Chicago Press, 1983.

TABLE 5

EMPLOYMENT EFFECTS OF TRADE IN MANUFACTURED GOODS

	Employment Contents				Average Employment Coefficient (X/M)
	Exports	Imports	Balance	X/M Ratio	
Developed Countries					
United States	661.9	794.9	- 133.1	0.83	0.74
EEC	1508.1	643.7	864.3	2.34	0.76
Japan	946.7	133.9	812.8	7.07	0.85
Other OECD	371.1	203.6	167.4	1.82	0.78
OECD Total	3487.7	1776.2	1711.5	1.96	0.80
Developing Countries					
NIC Latin America	483.6	561.9	-78.4	0.86	1.21
Far East	1852.0	985.6	866.5	1.88	1.57
NEC Latin America	49.0	188.0	- 139.0	0.26	1.33
N. Africa & Middle East	116.4	579.3	- 462.9	0.20	1.61
South Asia	671.9	820.8	- 149.0	0.82	1.92
Far East	488.8	646.5	- 157.7	0.76	1.67
Israel, S. Africa, Yugoslavia, Turkey	302.3	612.6	- 310.3	0.49	1.34
China	901.1	679.5	221.5	1.33	2.38
Other Non-oil LDC	876.4	3495.9	- 2619.4	0.25	1.20
OPEC	117.3	2798.1	- 2680.8	0.04	1.22
All Developing Countries	5858.9	11368.4	- 5509.4	0.52	1.32

Source: See text.

the United States and 0.85 in Japan, corresponding approximately to the range of per capita incomes.

V. The prospective effects of manufactured trade on employment in developed and in developing countries

The next question concerns the possible impact that the future expansion of trade in manufactured products between developed and developing countries may have on employment in the two groups of countries.[23] In an earlier paper on the subject, the author suggested estimating employment effects for hypothetical cases of (A) a balanced and (B) a proportional expansion of trade in manufactured products.[24]

Balanced expansion of trade in manufactured products

In the first case, one evaluates the employment effects of equal increases in absolute values in the exports and in the imports of the developed countries in their trade in manufactured products with the developing countries. Under the stated assumptions, comparisons of average labor coefficients for exports and imports (import-competing goods) will indicate the employment effects of balanced trade expansion.

These are shown in Table 5 for the developed and for the developing countries as well as for various country groups within each category. They were discussed previously and will be reinterpreted here in terms of employment gains and losses associated with the balanced expansion of trade in manufactured goods between developed and developing countries.

It is apparent that, in the event of equal absolute increases in the exports and imports of manufactured products of the developed

[23] The estimates are limited to the direct employment effects of exports and imports. Indirect effects operating through input-output relationships have not been estimated because of the uncertainty involved as to the domestic or imported origin of the inputs.

[24] B. BALASSA, "The Changing International Division of Labor in Manufactured Goods", in this *Review*, XXXII (1979), pp. 243-85.

countries in trade with the developing countries, the gain in employment through export expansion will fall short by 20 percent of the loss in employment in the import-competing industries of the developed countries. Employment losses would be below average in Japan and above-average in the United States. Within an overall gain of 32 percent for the developing countries, China and the countries of South Asia would make the largest employment gains, followed by the Far Eastern and North African and Middle Eastern NECs and the Far Eastern NICs while the Latin American NICs the other LDCs and the other NICs would have small gains and the employment effects of equal absolute increases in manufactured exports and imports would be nil for OPEC.

Equi-proportionate increases in exports and imports

An alternative hypothesis postulates equi-proportionate increases in exports and imports in trade in manufactured products between developed and developing countries (*i.e.* identical rates of change in exports and imports); for short, a proportional expansion of trade. The employment effects obtainable under this alternative can be indicated by reference to Table 5 that provides information on the labor content of manufactured exports, and of products competing with imports, in the trade of the developed countries with the developing countries. The estimates have been derived by multiplying export and import values in the year 1983 by the labor coefficients estimated for each country in the 30 industrial category breakdown.

The results show substantial positive employment effects for the developed countries, taken together, with the ratio of job gains through exports to jobs lost through imports being estimated at 2.0. The ratio is the highest, 7.1, for Japan that would derive benefits from its export surplus in manufacturing trade with the developing countries as well as from the relative labor intensity of its exports. The corresponding ratios are 2.3 for the European Common Market and 1.8 for the group of other developed countries. However, the United States would experience a small employment loss, with a ratio of 0.8, as its small export surplus in manufacturing trade with the developing countries would not compensate by the relative labor intensity of its imports.

Finally, the equiproportionate expansion of trade in manufactured goods with the developed countries would lead to considerable job losses for the developing countries, taken together, with the ratio of jobs gained through exports to the jobs lost through imports being 0.5. At the same time, the results need to be reinterpreted by reference to the situation existing in the developing countries. This will be done in the subsequent discussion of the employment effects of trade.

Alternatives (A) and (B) represent extreme cases, with a zero trade balance in manufactured goods assumed on the margin in the first case and an equiproportionate expansion of all manufactured trade flows in the second. Neither of these alternatives can be considered realistic.

For one thing, given the large export surplus of the developed countries in trade in manufactured products with the developing countries, substantial differences in export growth rates in favor of the latter (in the first year, the ratio of the two growth rates would have to approach 2.5) would be necessary for incremental changes in exports and imports to be equal. For another thing, given recent differences in export growth rates, one cannot expect equiproportionate changes in exports and imports to occur.

Continuation of past trends in trade in manufactured products

As an alternative to the two hypothetical cases discussed so far, the assumption has been made that past trends in trade in manufactured products would continue in the future. More exactly, the assumption is that the growth rates of exports and imports in manufactured trade between developed and developing countries in the 1983-93 period will equal the growth rates observed between 1973 and 1983.

Expressed in terms of constant prices, the manufactured exports of the developed countries to the developing countries rose by 4.4. percent a year between 1973 and 1983 while their manufactured imports from these countries grew by 8.5 percent. Rather than using these average figures, however, the projections have been made by extrapolating sectoral growth rates. At the same time, it has been assumed that the country composition of exports and imports would remain unchanged.

The results are intermediate between those obtained under the assumption of a balanced expansion and an equiproportionate expansion of trade.

While the export-import ratio for the increment of manufactured trade for the developing countries is 1.0 under balanced expansion, and 2.4 in the event of equi-proportionate expansion, of trade, it is 1.8 if past trends are projected to continue during the 1983-93 decade.

Tables 6 and 7 report the changes in employment that would result under the projected expansion of trade between developed and developing countries. The results show a net gain of 1093 thousand jobs in the developed countries in the 1983-93 period. Among individual sectors, gains would be obtained in the technologically more advanced industries, employing to a large extent skilled and technical labor, while losses would occur in industries using chiefly semi-skilled and unskilled labor, in particular clothing and footwear. But, these losses would occur over a ten-year period, thereby limiting the cost of adjustment. Also, experience indicates that there is considerable labor mobility, at least in the United States, within skill categories among individual industries.

As far as the developing countries are concerned, we cannot speak of employment losses in the non-existing industries of the OPEC countries. OPEC imports a number of manufactured products, in particular in the electrical and non-electrical industries, which are not produced domestically.

These considerations apply to a considerable extent also to the non-oil developing countries, which import a variety of commodities that are not produced domestically. More generally, economic growth in the developing countries will require imports without necessarily replacing domestic production. At the same time, economic growth is promoted through the expansion of exports. Thus, attention should focus on the creation of 18 million jobs through the increased manufactured exports of the non-oil developing countries to the developed countries.

If present trends continue, more than one-third of these jobs would be created in the Far Eastern NICs. They would be approached by the newly-exporting countries and China, largely because of the higher labor coefficients observed in these countries which are at lower levels of industrial development. Finally, the other non-oil developing countries would account for one-seventh,

TABLE 6

EMPLOYMENT EFFECTS IN MANUFACTURING TRADE, 1983–1993: INDUSTRY BREAKDOWN

Industry Category	Developed Countries Total				Developing Countries Total			
	Exports	Imports	Balance	X/M Ratio	Exports	Imports	Balance	X/M Ratio
3211 Spinning, weaving, etc.	181.7	142.6	39.2	1.27	705.0	680.5	24.6	1.04
321 - 3211 Textile products	43.1	46.5	-3.4	0.93	261.0	164.9	96.1	1.58
322 Wearing apparel	140.7	1416.0	-1275.2	0.10	5435.7	547.9	4887.8	9.92
323 Leather and products	43.0	84.6	-41.6	0.51	250.7	106.5	144.3	2.35
324 Footwear	60.9	469.7	-408.8	0.13	1467.0	189.8	1277.1	7.73
331 Wood products	86.8	59.7	27.1	1.45	298.9	502.9	-204.1	0.59
332 Furniture, fixtures	132.1	187.3	-55.2	0.71	774.3	534.3	240.0	1.45
3411 Pulp, paper, etc.	40.9	19.9	21.0	2.05	73.6	195.1	-121.5	0.38
341 - 3411 Paper products	21.1	5.6	15.5	3.75	18.3	74.3	-56.0	0.25
3511 Basic chem. excl.fertilizers	159.5	65.7	93.7	2.43	329.0	784.5	-455.5	0.42
3513 Synthetic resins, etc.	64.8	20.8	44.0	3.12	57.5	251.6	-194.1	0.23
351 - 3511/13 Other ind. chemical	14.1	4.3	9.8	3.29	9.9	60.5	-50.6	0.16
3522 Drugs and medicines	48.8	6.9	41.9	7.10	25.4	160.0	-134.6	0.16
352 - 3522 Other chemical prod.	64.1	6.4	57.7	9.99	33.8	243.8	-210.0	0.14
355 Rubber products	56.0	46.6	9.4	1.20	108.8	172.0	-63.2	0.63
356 Plastic products n.e.s.	38.3	58.0	-19.7	0.66	159.4	147.2	12.3	1.08
361 Pottery, China etc.	58.6	66.4	-7.8	0.88	266.1	213.5	52.6	1.25
362 Glass and products	33.4	13.2	20.1	2.52	44.8	127.8	-83.0	0.35
369 Non-metallic products n.e.s.	135.5	4.8	130.8	28.33	19.7	427.5	-407.7	0.05
371 Iron and steel	167.9	62.1	105.8	2.71	139.1	463.5	-324.4	0.30
381 Metal products	404.7	141.2	263.5	2.87	426.5	1287.3	-860.8	0.33
3825 Office, computing, etc.	121.0	159.9	-38.9	0.76	356.7	417.5	-60.8	0.85
382 - 3825 Machinery other	1015.8	262.8	753.0	3.87	640.0	3109.5	-2469.6	0.21
3832 Radio, television, etc.	2238.4	1810.6	427.7	1.24	3672.6	5266.9	-1594.3	0.70
383 - 3832 Electrical machinery	443.3	202.2	241.1	2.19	447.4	1179.4	-732.0	0.38
3841 Shipbuilding, repair	181.5	80.4	101.1	2.26	250.1	956.0	-705.9	0.26
3843 Motor vehicles	402.8	139.4	263.4	2.89	371.7	1282.8	-911.1	0.29
384 - 3841/43 Transport equip.	231.0	90.5	140.5	2.55	238.2	688.6	-450.4	0.35
385 Professional goods	343.1	197.4	145.7	1.74	480.0	1217.2	-737.2	0.39
390 Others industries	143.0	151.5	-8.6	0.94	445.3	402.0	43.3	1.11
Total employment	7115.8	6022.9	1092.8	1.18	17806.6	21855.2	-4048.6	0.81

Source: See text.

TABLE 7

EMPLOYMENT EFFECTS IN MANUFACTURING TRADE, 1983-1993: COUNTRY BREAKDOWN

	Exports	Imports	Balance	X/M Ratio
Developed Countries				
United States	1428.5	3096.2	-1667.7	0.46
EEC	2962.3	1935.3	1027.1	1.53
Japan	2026,3	369.3	1657.0	5.49
Other OECD	698.7	622.2	76.5	1.12
OECD Total	7115.8	6022.9	1092.8	1.18
Developing Countries				
NIC Latin America	1855.2	1146.5	708.7	1.62
Far East	6614.0	2263.2	4350.8	2.92
NEC Latin America	104.5	352.3	- 247.8	0.30
N. Africa & Middle East	307.4	1132.8	- 825.4	0.27
South Asia	1443.8	1398.6	45.2	1.03
Far East	1766.5	1542.7	223.8	1.15
Israel, S.Africa, Yugoslavia, Turkey	856.3	1164.1	- 307.7	0.74
China	2240.5	1100.0	1140.5	2.04
Other Non-oil LDC	2358.5	6309.5	-3951.0	0.37
OPEC	259.9	5445.6	-5185.8	0.05
All Developed Countries	1780.6	21855.2	-4048.6	0.81

Source: See text.

and the Latin American NICs for one-tenth, of newly-created jobs through export. One would expect, however, inter-regional changes to occur, with China and the NECs gaining, and the NICs losing, ground in the process.

Conclusions

This paper has presented empirical evidence pertaining to the "adding up problem" or the "fallacy of composition". Having noted the inappropriateness of applying the East Asian "norm" to other developing countries, the essay has considered the alleged existence of overall and sectoral import constraints for economic growth in the developing countries.

Sir Arthur Lewis postulated that economic growth in the developing countries is limited by a fixed relationship between their primary exports and economic growth in the developed countries and neglected their possibilities to increase manufactured exports. Against this pessimistic view, the essay put forward evidence on gains in primary export market shares in the developing countries and on the increasing importance of their manufactured exports.

In fact, following the quadrupling of oil prices, these countries more than compensated for declining rates of developed country growth by stepping up their nonfuel primary and manufactured exports. As a result, in the 1963-84 period, a one percent increase in the gross domestic product in the developed countries was accompanied by a 1.5 percent rise in the exports of the developing countries — nearly twice the figure Lewis postulated. It can be expected that the developing countries will further step up the supply of their manufactured exports if economic growth were to slacken in the developed countries.

Manufactured exports have assumed particular importance, accounting for 59 percent of the nonfuel exports and 40 percent of the total exports of the developing countries in 1984. Correspondingly, the future prospects for the manufactured exports of these countries offer especial interest.

Following a detailed review of changes in the sectoral and the geographical pattern of the manufactured exports of the developing countries, the paper has presented alternative estimates on the employment effects of future growth in these exports. Having considered the implications of a balanced and a proportional expansion of trade in manufactured goods between the developed and the developing countries, the assumption has been made that past trends in trade in manufactured products would continue in the future.

It has been shown that, under this assumption, the developed countries would obtain a net gain of 1.1 million jobs in the 1983-93 period. This would happen as employment gains in technologically advanced industries employing technical and skilled labor would more than offset losses in industries using chiefly semi-skilled and unskilled labor. At the same time, these losses would occur over a ten-year period, thereby limiting the cost of adjustment, and there are also possibilities for the inter-industry movement of labor.

Maintaining past rates of export growth would permit the emergence of new exporters of manufactured goods. This has occurred in recent years through the adoption of outward-oriented policies by the Far Eastern NECs and the appearance of China as a major new exporter of manufactured goods, even though developing country manufactured export growth rates were lower in the 1973-84 period than in the preceding decade.

At the same time, the burden of adjustment in the developed countries is eased by reason of the fact that economic development involves changes in export composition. As developing countries accumulate capital, they shift to the exportation of relatively more capital intensive products, thereby leaving room for countries that enter at a lower level. Now, as one developing country replaces another in the imports of particular commodities by the developed countries, the problem of adjustment in the latter does not arise.

Countries graduating at higher levels, in turn, undertake the exportation of commodities in industries characterized by intra-industry specialization, involving the exchange of parts, components, and accessories, such as engineering products. This represents an important change, compared with inter-industry specialization in textiles, clothing, and shoes where changes in product composition are limited. This is because adjustment may occur through changes in the pattern of production without the loss of employment.

In fact, one may go a step further in noting that outward orientation involves the upgrading and diversification of exports that limit pressure on particular industries and permit increased intra-industry specialization to the benefit of all participants. Thus, the argument of the proponents of the fallacy of composition thesis is turned on its head: the difficulties of adjustment in the developed countries can be reduced if more developing countries adopt outward-oriented policies, rather than persisting in exporting a limited number of simple manufactures.

This conclusion gains in force if one considers that the foreign exchange obtained through the exportation of manufactured goods is spent by the developing countries to purchase manufactured goods from the developed countries. Thus, the balance of trade does not change and, under outward orientation, the increment in foreign exchange is often utilized in the same industries via intra-industry specialization.

Finally, developing countries can also export to other developing countries. With the industrialization of outward-oriented countries, they can increasingly exchange manufactured goods with countries at lower levels of development, thereby providing an impetus to their economic growth without encroaching on developed country markets.

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